ARUP

Coillte

Coillte's Forest Estate Strategic Land Use Plan (FESLUP) 2023 - 2050

Strategic Environmental Assessment (SEA) Environmental Report

Reference:

Issue | 06 December 2023

Job number 294083-00

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Non-Technical Summary

Introduction

This Non-Technical Summary (NTS) has been prepared to support the Strategic Environmental Assessment (SEA) of Coillte's Forest Estate Strategic Land Use Plan (referred to hereafter, interchangeably as 'the FESLUP' or 'the Plan') 2023-2050. This document has been prepared in accordance with relevant EU and national legislation to summarise, in non-technical language, the Environmental Report for the SEA of the FESLUP (referred to hereafter as the 'SEA ER'). It draws attention to the most important issues outlined in the SEA ER and describes the key outcomes. Further detail can be found in the SEA ER.

Forest Estate Strategic Land Use Plan (FESLUP)

In 2022, Coillte published the Strategic Vision for Our Future Forest Estate (hereafter referred to as 'Coillte's Strategic Vision'). Coillte's Strategic Vision aims to deliver multiple benefits from forests, bring more focus to climate action, biodiversity and recreation, while continuing to deliver for the forest and wood products industry. There are eleven high-level ambitions of Coillte's Strategic Vision under the four main pillars: Forests for Nature, Forests for Climate, Forests for Wood and Forests for People.

Arup, in cooperation with Coillte, is currently preparing Coillte's FESLUP 2023-2050 to support the implementation of Coillte's Strategic Vision by setting out a framework for delivery to the year 2050.

The primary objective of the FESLUP is to support the implementation of Coillte's Strategic Vision and the policies and ambitions of Coillte by providing a long-term strategic planning framework for the development of the forest estate.

Building on the progress made so far, as well as recognising current and emerging priorities, the FESLUP sets out how Coillte's ambitions of Coillte's Strategic Vision will be realised and identifies objectives for its forest estate for the period 2023-2050.

SEA Methodology

European Council Directive 2001/42/EC (the SEA Directive) provides guidance on the assessment of effects of certain plans and programmes. Article 1 identifies that the objective of the SEA Directive is 'to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans with a view to promoting sustainable development'.

It is a systematic, on-going process for evaluating, at the earliest possible stage, the environmental quality and consequences of implementing certain plans and programmes on the environment.

The methodology for this SEA is based on legislative requirements and guidance from the Environmental Protection Agency (EPA) to ensure compliance with the SEA Directive and associated national legislation.

Current State of the Environment

The SEA considers the current environmental conditions, hereafter referred to as the baseline environment. This description of the baseline considers the local level nature of the Plan and is cognisant of the pressures and interrelationships between environmental topics within the Plan area. Likely significant environmental effects of a transboundary nature, between the Republic of Ireland and Northern Ireland were also considered in this report.

The baseline considers the following environmental aspects:

- Population and Human Health
- Biodiversity (including Flora and Fauna)
- Land and Soils
- Water
- Air Quality and Climate (including Noise)

- Archaeological, Architectural and Cultural Heritage
- Landscape and Visual and
- Material Assets.

A summary of the baseline description for each environmental component is discussed as follows.

1. Population and Human Health:

Ireland's National Planning Framework projects that Ireland will be home to an additional one million people by 2040. These projected population increases will increase pressure on land-use and the requirement for development. Ultimately, a growing population is likely to see an increase in markets and opportunities for use of wood products, amongst a likely increase in demand for recreation and ecosystem services that forests provide. Northern Ireland, like the Republic of Ireland (ROI), is experiencing a rise in population as seen by their most recent Census (2021). The increasing population brings forth similar issues and pressures as in ROI, including potential for increased pressure on land use and limitations on the potential growth of forests. The EU Forest Action Plan[1] (European Commission, 2021) acknowledges forestry's social and cultural values to be "*attractive to city dwellers, they provide opportunities for recreational and healthy activities and represent a not inconsiderable cultural heritage*" and not just to be sole sources of wood production. The increased demand for access to forests is recognised as an important aspect of sustainable forestry. Coillte is the leading provider of outdoor recreation in Ireland with existing recreation areas consisting of both forest parks and high use forests. Coillte's high use forest areas amount to 260 recreation sites and, with walking and mountain bike trails which receive more than 18 million visitors per annum.

2. Biodiversity (including Flora and Fauna):

Forest habitats support 80% of terrestrial species providing food, shelter and space to a range of plants, invertebrates, mammals and birds[2] (FAOUN, 2020). Forest areas in general provide a variety of ecosystem services (e.g., protecting/maintaining water quality and flow, nutrient recycling etc.) as well as playing an important role in climate change mitigation (carbon sequestration), conservation and recreation. Threats to forest habitats include spatial fragmentation (i.e., deforestation/clearance), invasive species, disease, deer browsing amongst others, which can have a knock-on effect for the species and biodiversity value of these habitats. The Coillte estate consists of a varied tapestry of different habitats, ranging from conifer forests and mixed or broadleaved forests to open bogs and heathlands, to lakes and rivers and 20% of the estate is currently managed primarily for nature.

Coillte's approach to biodiversity is influenced and framed by three factors:

- Nature conservation legislation and standards for Sustainable Forest Management (SFM)
- The nature of the Coillte estate and forest history and
- Coillte's legal and regulatory framework.

Some of the main factors with which Coillte's approach to biodiversity is based on is nature conservation legislation and SFM, whereby the protection of habitats and species is a major theme in both. Coillte actively works to engage with regulators in relation to activities planned in designated sites and undertakes any ecological assessments and consents required. Coillte has maintained certification of Sustainable Forest Management (SFM) principles initially since 2001 under the Forest Stewardship Council (FSC) and latterly also under the Programme for the Endorsement of Forest Certification (PEFC). Coillte's SFM and forest certification has allowed for a range of measures that enhance biodiversity and nature conservation.

[1] European Commission (2021) EU Forest Action Plan. Available at: https://ec.europa.eu/environment/strategy/forest-strategy_en#:~:text=The%20strategy%20sets%20a%20vision,brought%20about%20by%20climate%20change.

[2] Food and Agriculture Organization of the United Nations (FAOUN) (2020). The state of the world's forests. Available at: State of the World's Forests 2020 (fao.org)

3. Land and Soils:

According to 2018 CORINE data, the main land cover type in Ireland is agricultural land, which accounts for approximately two-thirds (67%) of the national landmass. Most of this is permanent grassland pastures. Peatlands and wetlands are the second most widespread land cover type, covering almost one-fifth (18%) of the country, while forested areas cover 11% of the country.

There has been a general upward trend in the percentage of the national area covered with forestry since 1990, with a 0.02% increase since 2012. Most of this growth relates to an increase in commercial coniferous plantations. Today, the area of forest is estimated to be 808,848 ha or 11.6% of the total land area of Ireland[10]. Despite the increase in total forestry area in Ireland, the rate of afforestation has decreased in the past 20 years. Over half, approximately 411,484ha or 50.9%, of forests are in private ownership and approximately 400,000 ha are in public ownership, mainly owned by Coillte. There are three land types with regards forestry suitability in Ireland - 'Suitable Land GPC 2-12,' 'Suitable Land GPC 1' and 'Unsuitable Land'[3] (DAFM, 2017). The DAFM's Forest Programme 2023-2027 which will guide forestry in Ireland, including Coillte's forest estate, will discontinue the afforestation of GPC 1 and 2 & 12 categories.

The quality of soils in Ireland is considered generally good, although there are pressures impacting on its long-term protection and maintenance particularly from land use changes, intensification of use, urbanisation and contamination of soils[4] (EPA, 2020). Land management activities can either aid or hinder carbon sequestration in soils. The health of soils can play a large role in carbon sequestration from the atmosphere. According to the Report 'Ireland's Environment – An Integrated Assessment 2020'[5] (EPA, 2020) land-use, land-use change and forestry in Ireland is a net source of CO_2, where net emissions of 3.3 million tonnes CO_2 equivalent were seen in 2018. As outlined in the same EPA report, some 88% of Irish grasslands have sub-optimal soil fertility, despite soil fertility management techniques being well established. Low soil fertility is problematic as it encourages farmers to apply more nitrogen fertiliser to the soil.

Peatlands provide a range of functions, including the maintenance of biodiversity and water quality, carbon storage and sequestration, water regulation, agriculture, forestry, recreation and flood attenuation. According to Coillte's 'Forests for Climate'[6] (Coillte, 2022), the rewetting of drained organic forested peatland soils does not have any short-term climate change mitigation benefit; however, it has been found to provide benefit in the longer term. It is important to note that the research related to the rewetting of forested peatlands in Irish (or temperate) conditions is limited both temporally and spatially. Primarily as a revision of the emission factor for forestry on peaty or organic soils, the Climate Action Plan 2023 has since stated that the emissions from planting trees on this type of soil are far higher than previously envisaged.

4. Water:

Nearly half of the surface waters in Ireland are failing to meet the legally binding water quality objectives set by the EU Water Framework Directive because of pollution and other human disturbance. Forestry is the third most significant pressure impacting on water quality[7] (EPA, 2022). The EPA's Water Quality in Ireland Report[7] shows that water quality declines can be caused by forestry activities such as planting, thinning and clear-felling and that declines can often be very substantial, dropping by two or sometimes three status classes. However, there is evidence that the water bodies can recover within a few years, and that they can remain in very good condition when the forests are stable. However, high status waters can be particularly sensitive to the impacts that can arise from forestry operations.

[3] DAFM (2017) Land Types for Afforestation. Available at: https://assets.gov.ie/121183/49933794-2a40-4cef-be2b-cef1adacd43f.pdf

[4] EPA (2020) Soil quality or contamination. Available at: Causes of environmental issues: land and soil | Environmental Protection Agency (epa.ie)

[5] EPA (2020) Irelands Environment – An Integrated Assessment 2020. Available at: https://www.epa.ie/publications/monitoring--assessment/assessment/state-of-the-environment/EPA_Irelands_Environment_2020.pdf

[6] Coillte (2022) Forest for Climate – Report on Carbon Modelling of the Coillte Estate. Available at: Report-on-Carbon-Modelling-of-the-Coillte-Estate_August2022.pdf

[7] EPA (2022) Water Quality in Ireland 2016-2021. Available at: EPA_WaterQualityReport2016_2021.pdf

Ireland's Environment- An Integrated Impact Assessment 2020 Report[5] (EPA, 2020) reiterates that one of the main problems damaging the quality of surface waters is nutrient pollution caused by too much nitrogen and phosphorus. Excess nitrates mainly come from agriculture, however from a forestry perspective excess phosphorus would be the main cause for concern, especially in freshwaters and in some of Irelands more river-dominated estuaries.

5. Air Quality and Climate (including noise):

In order to protect human health, vegetation and ecosystems, EU Directives set down air quality standards in Ireland and the other Member States for a wide variety of pollutants. These pollutants are generated through fuel combustion, in space heating, traffic, electricity generation and industry and, in sufficient amounts, could affect the well-being of the areas inhabitants. The EU Directives include details regarding how ambient air quality should be monitored, assessed and managed. As outlined in the report 'Ireland's Environment- An Integrated Assessment'[5] (EPA, 2020), emissions from solid fuel use (coal, peat and wet wood) continue to contribute to localised high levels of particulate matter and Polycyclic Aromatic Hydrocarbons (PAH) during the heating season. The most recent year's data for particulate matter show exceedances of the WHO Guideline values for health throughout the country. The level of harmful particulate emissions from such wood is almost four times higher than that for seasoned or dried wood. Fine particulate matter in our air greatly impacts respiratory and cardiovascular health. This is particularly problematic in or near villages, towns and cities because of the cumulative effects of multiple sources of the pollutant and the large numbers of people exposed.

According to Met Eireann[8] (Met Eireann, 2022), the general climatic conditions for Ireland as a country are dominated by the Atlantic Ocean and its air and oceanic currents. Consequently, the region does not suffer from extremes of temperature.

The Environmental Noise Directive (2002/49/EC) is the main EU law to identify noise pollution levels and act on them. It focuses on four action areas:

- Determining exposure to environmental noise and assessing its health effects at single dwelling level
- Ensuring that information on environmental noise and its effects is made available to the public
- Preventing and reducing environmental noise and
- Preserving environmental noise quality in areas where it is good.

The Directive does not set limit or target values for environmental noise. However, relevant authorities are required to set out the measures within noise action plans to reduce environmental noise.

According to the EPA's latest emissions data[9] (EPA, 2023), Ireland's greenhouse gas (GHG) emissions in 2021 were estimated to be 62.11 million tonnes carbon dioxide equivalent (Mt CO_2eq), this estimate is 5.2% higher (or 3.05 Mt CO_2eq) in comparison to 2020. The EPA has reported upon Land Use, Land-use Change and Forestry (LULUCF) largely, particularly within Ireland's National Inventory Report 2022[10] (EPA, 2022) and Ireland's Provisional Greenhouse Gas Emissions 1990-2021 Report[11] (EPA, 2022). Findings from these reports list LULUCF to cover the following categories: Forest land, cropland, grassland, wetlands, settlements, other land and harvested wood products. This sector is known to be a net source of carbon, as seen every year from 1990-2021 reporting. This result is determined largely by the CO_2 emissions from grassland and wetlands, due to drainage of organic soils, however this is offset somewhat by forest land, which acts as a major carbon sink. Harvested wood products are also listed as a sink of carbon for all years where reporting has been undertaken.

[8] Met Eireann (2022) Climate of Ireland. Available at: https://www.met.ie/climate/climate-of-ireland

[9] EPA (2023) Latest emissions data. Available at: Latest emissions data | Environmental Protection Agency (epa.ie)

[10] EPA (2022) Ireland's National Inventory Report 2022. Available at: Ireland-NIR-2022_Merge_v2..pdf (epa.ie)

[11] EPA (2022) Ireland's Provisional Greenhouse Gas Emissions, Available at: EPA-Ireland's-Provisional-GHG-Emissions-1990-2021_July-2022v3.pdf

Coillte's forest estate is a large contributor to mitigating the climate crisis in Ireland. Coillte's forest areas in combination with all of Ireland's remaining areas of public and private forest provide a natural carbon sink and store while trees are growing. These forest areas also deliver a substitution benefit as sustainable wood products are being used instead of fossil-based products. Coillte's 'Forests for Climate Report on Carbon Modelling of the Coillte Estate'[6] (Coillte, 2022) makes reference to EU LULUCF study findings that highlight forest management as a key mitigation route for emission removals. This report details that Coillte's forest area currently represents circa 86% of the Irish Managed Forest Land (MFL) area reported to the United National Framework Convention on Climate Change (UNFCCC) and will be subject to accounting rules set out in the European Union (EU) LULUCF regulation over the period 2021-2030.

6. Archaeology, Architectural and Cultural Heritage:

Ireland is particularly rich in archaeological sites and monuments which form a central component of Irish Heritage. Archaeological sites and monuments range from substantial above-ground structures to easily damaged subterranean traces of human activity. Types of monuments vary greatly and include ecclesiastical ruins, ancient trackways, standing stones, fortifications, megalithic tombs, earthwork mounds and cairns. Many of Ireland's archaeological or cultural heritage sites occur on forest land or lands likely to be developed for forestry.

7. Landscape and Visual:

The Council of Europe Landscape Convention 20/10/2000[12] (Council of Europe, 2016) promotes the protection, management and planning of European landscapes and organises European co-operation on landscape issues. This holistic definition of "landscape" incorporates all aspects of an area and in so can be useful when considering development in that area. Ireland's National Landscape Strategy[13] (DHLGH, 2015) is the country's way of meeting its obligations and delivering on the objectives set by the European Landscape Convention. In terms of landscape and visual amenity, local authorities in Ireland conserve and protect scenic value as Areas of High Amenity, Areas of Outstanding Natural Beauty and Protected Views. Each local authority is responsible for the designation of these within their individual jurisdictions, with each Development Plan providing objectives to protect such views.

8. Material Assets:

SEA legislation includes 'material assets' as a topic to be addressed in SEA but does not include a definition of what this topic might encompass, consequently, it is interpreted in a number of different ways. This baseline description is set in the context of Ireland's forestry sector, particularly with reference to Coillte's estate. Thus, this section focuses mainly on material assets related to these areas, including energy (forest based and renewable wind energy) and forest products.

Since the formation of the state, energy consumption in Ireland has increased significantly in line with population growth as a result technologies have advanced, and economic activity has increased. The broad trend has been the growth of renewables and natural gas displacing oil, coal, and peat, although at this time and despite the meaningful development of renewables, fossil fuels still dominate Ireland's primary energy supply. A large proportion of the renewable energy produced in Ireland is from wind energy developments. According to Wind Energy Ireland (WEI)[14] (WEI, 2023), there are just over 300 wind farms in the Republic of Ireland and the number of wind farms across the entire island of Ireland is just under 400. Ireland's largest wind farm is located in Co. Galway and has an installed capacity of 169 MW. This wind farm was co-developed by SSE and Coillte in Connemara's Cloosh Valley and is Ireland's best performing wind farm, generating more renewable electricity than any other wind generation site on the island. Biomass from Irish forests is a lean renewable energy source, provided trees are replaced and forests are managed on a sustainable basis, the replacement of fossil fuels by forest-based biomass will over time lead to a reduction in greenhouse gas in the atmosphere.

[12] Council of Europe (2016) Council of Europe Landscape Convention as amended by the 2016 Protocol. Available at: https://www.coe.int/en/web/conventions/full-list?module=treaty-detail&treatynum=176

[13] DHLGH (2015) The National Landscape Strategy. Available at: gov.ie - National Landscape Strategy (www.gov.ie)

[14] Wind Energy Ireland (WEI) (2023) Wind Statistics. Available at: Latest Wind Energy Stats (windenergyireland.com)

Bioenergy is a form of renewable energy generated when we burn biomass fuel[15] (SEAI, 2023). Bioenergy encompasses a wide range of different types and origins and can take the form of solid, liquid, or gaseous fuel.

According to the DAFM's Forest Statistics Report 2022[16] (DAFM, 2022), forests also provide a source of renewable raw materials and replace materials and energy produced from fossil fuels which help mitigate rises in greenhouse gases. According to the same report, the total roundwood harvest in 2021 was 4.33 million m³ (excluding firewood) and 52% of the roundwood available for processing came from Coillte, with the balance coming from the private wood sector. The total forecast of net realisable volume production for the Republic of Ireland over the forecast period of 2021-2040 is estimated as being 120.4 million m³ over bark.

Exports of wood and panel products from Ireland were valued at €751 million in 2020 compared with a value of €1.8 billion for imports of wood and paper products in 2020. In 2020 the volume of roundwood input purchases by industry was 3 million cubic metres, which in comparison to 2019 is a decrease of 3.9% compared with 2019 purchases of 3.1 million cubic metres[16].

In Summary

The following is a summary of the main environmental problems associated with the baseline environment as it relates to the FESLUP and the potential threats to forest habitats:

- Spatial fragmentation through deforestation/ clearance;
- Spread of invasive species e.g. *Rhododendron ponticum;*
- Diseases such as *Hymenoscyphus fraxineus*, *Phytophthora ramorum* and *Tetropium fuscum;*
- Damage to trees caused by wildlife including deer*;*
- The reduced biodiversity which comes from monoculture conifer plantations;
- The competition for land caused by national renewable energy targets, an increase in population, etc.;
- Excessive levels of nutrients Nitrogen and Phosphorus entering watercourses;

Refer to Section 5 of the SEA Environmental Report for more details.

Likely Evolution of the Baseline Environment in the Absence of the Implementation of the Plan

In the absence of the implementation of the FESLUP, the baseline environment outlined in Section 5 is likely to continue as follows:

With regards to Population and Human Health, there would be no increase in the recreational area and recreational offerings on the Coillte estate and the full economic and carbon sequestration potential of the Coillte estate would not be realised.

In relation to the topic of Biodiversity (including Flora and Fauna), biodiversity levels across Coillte's estate would likely be lower. Existing pressure on aquatic and terrestrial flora, fauna and habitats with key drivers from development, climate change and land-use changes would remain.

Land and Soils is not likely to significantly change in the absence of the FESLUP as levels of afforestation and reforestation would remain relatively constant. Additionally, carbon sequestration from restored and healthy peatlands over the medium/longer-term is likely to be significantly reduced in comparison to what is likely to be facilitated through the FESLUP.

[15] SEAI (2023) What is bioenergy? Available at: What is Bioenergy | Bioenergy & Biomass | SEAI

[16] DAFM (2022) Ireland's Forest Statistics 2022 Report. Available at: Ireland's Forests - Annual Statistics 2019 - 78d3faac-d083-4660-bc04-1ca670df5007.pdf (www.gov.ie)

With regards to the topic of Water, the level of afforestation and associated fertilisation would potentially remain similar to existing trends and as such, water quality and key issues relating to the same would potentially remain constant.

In relation to Air Quality and Climate (including Noise), positive impacts on climate change through sequestration of $CO_2$from trees, potential emission reductions from increased renewable wind energy developments and the store and substitute of carbon intensive construction materials would potentially be reduced.

No change to the Archaeological, Architectural and Cultural Heritage environment is likely to arise.

The enhanced landscape appearance resulting from the spatial distribution and species structure of forests would potentially be limited to the existing baseline.

With regards to the topic of Material Assets, the economic output from the production of forest products and the renewable energy capacity would potentially remain stagnant and not reach its potential.

Consideration of Alternatives

The SEA Directive requires the SEA ER to consider "reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme". The consideration of these alternatives is done so in three stages within the SEA ER:

1. Identify reasonable alternatives
2. Evaluate and compare the alternatives
3. Provide reasons for the choice of preferred alternative(s).

In developing Coillte's Strategic Vision, and in consideration of the feedback received in both the public consultation and public attitudes survey (refer to Section 3.5 of the FESLUP for information on Public Feedback) undertaken during 2022 on Coillte's Strategic Vision, the following considerations on some of Coillte's Strategic Vision Ambitions are discussed.

It is worth noting that forests can deliver multiple values or objectives and have the capacity to provide a wide range of economic, environmental, and social benefits. The four forest objectives of Climate, Nature, Wood and People are intrinsically linked, as are many of the potential benefits. It is important however to acknowledge that maximising one objective has the potential to result in trade-offs with others. It may also not be realistic or appropriate to deliver all forest objectives equally in all forest locations. It is therefore critical that the right balance of objectives is achieved across the estate that best deliver on the multiple benefits of forests for climate, nature, wood, and people.

The main considerations in developing Coillte's Strategic Vision included:

- Consideration given to primarily planting native or broadleaf species and increasing the area of the estate managed primarily for nature beyond 50%
- Consideration given to limiting management and intervention of the forest estate for climate & nature benefits and
- Consideration given to the scale of Coillte's Afforestation Ambitions

Potential outcomes were assessed for each of these considerations and from the conclusions of each, Coillte's strategic ambitions for the Strategic Vision were created.

Once Coillte's Strategic Vision was developed, a range of further alternatives for how the high level of ambitions of Coillte's Strategic Vision would be delivered via the FESLUP (this Plan) were then considered, as described and assessed below. However, it is noted that not all ambitions are capable of being delivered in alternative ways.

The alternative scenarios identified for the FESLUP have been detailed as follows in relation to each pillar.

Forests for Climate:

Two alternative delivery scenarios were considered to realise the ambition to *"manage the existing Forest Estate to increase the carbon store by 10m tonnes of CO_2 by 2050."*:

- Scenario A: 10m tonnes of CO_2 stored by 2050 delivered through no felling over Plan period.
- Scenario B: 10m tonnes of CO_2 stored by 2050 delivered through continued felling over Plan period.

Two alternative delivery scenarios were considered with regards the ambition to "*redesign 30,000 hectares of Peatland Forests for climate and ecological benefits by 2050.":*

- Scenario A: All 30,000 hectares of peatland is deforested and 're-wet' in full.
- Scenario B: A balanced portion of the 30,000 hectares of peatland is deforested and 're-wet', with the remaining hectares re-established with site appropriate species.

Forests or Nature:

Two alternative delivery scenarios were considered with regards the ambition to *"Enhance and restore biodiversity by increasing the area of our estate managed primarily for nature from 20% to 30% by 2025":*

- Scenario A: Focus on non-economic lands with lower economic cost to enhance and restore habitats of value for nature.
- Scenario B: Focus on land with higher ecological value to enhance and restore habitats increase of value for nature.

Two alternative delivery scenarios were considered with regards the ambition to *"Transform areas of our forests so that 50% of our estate is managed primarily for Nature in the long term".*

- Scenario A: Minimal intervention.
- Scenario B: Increased biodiversity management practices.

Forests for Wood:

Three alternative delivery scenarios were considered with regards the ambition to "*produce 25m cubic meters of certified Irish timber, to support the construction of 300,000 homes by 2030*":

- Scenario A: Continuation of the current harvesting production systems.
- Scenario B: Full Continuous Cover Forestry System (CCF) across the forest estate.
- Scenario C: Incorporation of management changes required to deliver on Nature, People and Climate, namely the increase of stands being manged for CCF, stands transitioning from Conifer Forest and increasing length of forest rotations.

Forests for People:

Two alternative delivery scenarios were considered with regards the ambition to "Enable the investment of €100 million in world-class Visitor Destinations to support growth in tourism and recreation by 2030":

- Scenario A: Make land available for external Visitor Destination development.
- Scenario B: Carry out site selection and work with strategic partners to develop masterplans and subject sites to Coillte's sustainability/accessibility policy.

Each alternative scenario was evaluated and compared in order to identify the likely unmitigated impacts associated with each of the alternatives considered. The conclusions from this assessment have been listed as follows under each pillar:

Forest for Climate:

Having regard to the Ambition to "*Manage the existing Forest Estate to increase the carbon store by 10m tonnes of C02 by 2050,*" the emerging preferred scenario is "10m tonnes of CO_2 stored by 2050 delivered through continued felling over Plan period."

Having regard to the Ambition to "*Redesign 30,000 hectares of Peatland Forests for climate and ecological benefits by 2050,"* the emerging preferred scenario is *"A balanced portion of the 30,000 hectares of peatland is deforested and 're-wet', with the remaining hectares re-established with site appropriate species."*

Forests for Nature:

Having regard to the Ambition to "*Enhance and restore biodiversity by increasing the area of our estate managed primarily for nature from 20% to 30% by 2025",* the emerging preferred scenario is to "*Focus on land with higher ecological value to enhance and restore habitats increase of value for nature*."

Having regard to the Ambition to "*Transform areas of our forests so that 50% of our estate is managed primarily for Nature in the long term*", the emerging preferred scenario is "*Increased biodiversity management practices*."

Forests for Wood:

Having regard to the Ambition to "*Produce 25m cubic meters of certified Irish timber, to support the construction of 300,000 homes by 2030*", the emerging preferred scenario is "*Incorporation of management changes required to deliver on Nature, People and Climate, namely the increase of stands being manged for CCF, stands transitioning from Conifer Forest and increasing length of forest rotations*."

Forests for People:

Having regard to the Ambition to "*Enable the investment of €100 million in world-class Visitor Destinations to support growth in tourism and recreation by 2030",* the emerging preferred scenario is to "*Carry out site selection and work with strategic partners to develop masterplans and subject sites to Coillte's sustainability/accessibility policy*."

Objectives, Targets, and Indicators

The SEA is designed to assess the potential environmental impact of the FESLUP and its associated Objectives against the established baseline. The Objectives outlined in the FESLUP are assessed against a range of established environmental objectives and targets.

Indicators recommended in the SEA ER are utilised over the lifetime of the FESLUP to quantify the level of impact that the objectives may have on the environment. This enables the measurement of whether Coillte was successful in setting out a framework for the management of Coillte's existing forest estate and lands managed by Coillte, both forest and non-forest lands, in a manner that will deliver lasting benefits across Coillte's four pillars of Forests for Nature, Forests for Climate, Forests for Wood and Forests for People. The Objectives, Indicators and Targets relating to the FESLUP are set out in the SEA ER.

Assessment of likely Significant Effects

The objectives in the FESLUP were assessed with respect to the existing environmental baseline and the environmental objectives and targets.

As the objectives included in the FESLUP have been designed to promote sustainable forest management, development of renewable energy infrastructure, increased biodiversity areas and restoration areas, increased recreational areas, promotion of timber use across the construction sector and education across the forestry industry, the environmental assessment outcomes are generally positive, or neutral. Matrices were prepared to identify potential impacts across the Plan area and the likely impact relevant to specific areas of the Plan area.

The FESLUP contains a number of objectives relating to afforestation and reforestation, to increase Coillte's estate. Increasing forest cover in Ireland has been assessed as likely to result in overall long-term positive effects on the environment, particularly air and climate factors. However, inappropriate forest expansion and management have the potential to give rise to negative effects, such as pollution events and/or the spread of invasive species.

A generally positive effect on population and material assets is identified, where increased forest-based and non-forest-based areas for amenity, recreation and learning potential, are likely to be facilitated. However, increased human interaction in forested areas and non-forested areas, as well as any associated development, such as carparks, public toilets etc., has the potential to negatively affect some aspects of the environment, through potential contamination, clearance and/or disturbance.

The FESLUP also contains a range of objectives relating to the promotion of wood-based products for construction and energy purposes. An overall positive impact on the environment is identified here, through the promotion of a sustainable, renewable source of building materials, circular economy principles and energy production. Positive effects are particularly noted here on air and climate factors.

Increased afforestation, reforestation, biodiversity and peatland management and restoration, support for renewable energy developments and increased timber use in the construction sector, are likely to result in overall positive, long-term effects on climate. In this way, the FESLUP has the potential to contribute positively and cumulatively towards a wide range of Irish Government and EU policy, within the context in which it sits.

For example, the FESLUP positively contributes towards the objectives of the National Climate Action Plan through the suite of objectives relating to afforestation, reforestation, biodiversity and peatland management and restoration, the increased use of wood products as a renewable resource, and the promotion and support of renewable energy developments. The FESLUP will work to achieve contributions towards reductions in greenhouse gas and other emissions to air and associated achievement of legally binding targets (in combination with plans and programmes from all sectors, including energy, transport and land use planning) as a result of facilitating:

- Greater levels of forest cover
- Revised management of Coillte's forest estate – improvement in carbon store potential
- Increased use of renewable resources through the provision of wood and wood products
- Support and promotion of increased renewable energy developments
- Restoration of peatlands (long-term positive climate impacts) and
- Increased production and use of timber as a construction material.

Any development that is likely to occur as a result of the FESLUP, such as forestry related development, wind energy related developments, increased recreational facilities and or other infrastructure have the potential to give rise to adverse impacts on the environment, particularly biodiversity; with potential impacts relating to disturbance, disruption, fragmentation, and loss of habitats. Further, any new development in forested and non-forested areas has the potential to give rise to negative effects on land, soil and water, in the instance of contamination or pollution events.

Technological based innovation of the forestry sector, educational promotions, and apprenticeships, as detailed in objectives as the FESLUP are likely to result in overall neutral or positive environmental impacts. Promotion of Forest Certification, organisational changes, improved communication structures, development of guidance and management documentation, and the continued implementation of standards and best practice guidance are likely to see overall neutral to positive impacts on the environment, where certain situations represent baseline conditions that are already positively enforced.

A detailed assessment of each of the objectives of the FESLUP is set out in this SEA ER. The assessment of significant effects in the SEA ER also has regard for potential transboundary effects of the FESLUP on the environment in Northern Ireland.

Mitigation Measures

This SEA ER has highlighted some potential negative environmental impacts that may arise from the implementation of the FESLUP. A number of mitigation measures have been identified to prevent, reduce and as fully as possible offset any potential significant adverse impacts on the environment associated with the implementation of the FESLUP. These are set out in the SEA ER.

It is envisaged that all forestry and non-forestry related developments in the Plan area will be environmentally assessed at project level, as required, and specific mitigation proposed, where appropriate.

Monitoring Measures

Article 10 of the SEA Directive requires that monitoring should be carried out to identify (at an early stage) any unforeseen adverse impacts associated with the implementation of the plan or programme.

A monitoring programme has been developed as part of this SEA (based on the relevant indicators) to track progress towards achieving strategic environmental objectives and reaching targets. As previously described, indicators have been developed to show changes that may be attributable to implementation of the FESLUP, therefore enabling positive and negative impacts to be measured.

1. Introduction

Arup, in cooperation with Coillte, has prepared Coillte's Forest Estate Strategic Land Use Plan (referred to hereafter, interchangeably as 'the FESLUP' or 'the Plan') 2023-2050. The FESLUP sets out high-level policies and actions that will enable the delivery of the ambitions of Coillte's 'Strategic Vision for Our Future Forest Estate' (referred to hereafter as 'Coillte's Strategic Vision') which was published by Coillte in 2022.

Coillte's Strategic Vision and, by extension, the FESLUP, will deliver multiple benefits to Coillte's forests, bring more focus to climate action and set ambitious new targets on biodiversity and recreation, all whilst continuing to deliver for the forest and wood products industry.

The FESLUP underpins Coillte's Strategic Vision and sets out a range of objectives which will help Coillte deliver on their ambitions. The FESLUP objectives are representative of the steps Coillte need to take between now and 2050 to achieve the Strategic Vision. The FESLUP forms the middle tier of Coillte's new strategic planning framework for the forest estate for the period 2023 to 2050.

The achievement of the FESLUP will be guided by the balancing of multiple benefits of forests through eleven high-level ambitions under the four main pillars of Forest for Climate, Forest for Nature, Forest for Wood and Forest for People. Arup was commissioned by Coillte to carry out Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) of the FESLUP.

Following the SEA and AA process, and development and adoption of the FESLUP as appropriate, Coillte will prepare the first Forest Estate Strategic Implementation Plan ('the Implementation Plan') which will drive the delivery of this FESLUP over the shorter term (2026-2035), by taking the strategic objectives of the FESLUP and translating them into a range of implementable, measurable and geographical actions. All actions contained in the Implementation Plan will be consistent with both the FESLUP and the Strategic Vision. It is intended that the Implementation Plan will be updated every ten years.

The purpose of this document, as an SEA Environmental Report (referred to hereafter as 'SEA ER'), is to present the findings of the environmental assessment of the likely significant effects on the environment as a result of implementing the FESLUP. A Scoping Report was prepared which provided information to allow consultation with defined statutory bodies on the scope and level of detail to be considered in the environmental assessment. The purpose of this SEA ER – which should be read in conjunction with the FESLUP – is to provide a clear understanding of the likely environmental consequences of decisions arising from the FESLUP.

The term 'forests' is used throughout this report, which can comprise of native species, non-native species, broadleaf forests and/or conifer forests. Although forest areas are predominantly referred to throughout this report, the implementation of the FESLUP is also considered to include non-forest areas, for example, bare lands. The term 'afforestation' used throughout this report is defined as the act or process of establishing a forest on land that has not previously been forested.

1.1 Background

Coillte is the largest forest company in Ireland and plays a key role in producing sustainably grown wood products, protecting and enhancing biodiversity, tackling climate change, and contributing to a climate resilient economy. Coillte was established as a commercial semi-state company in 1989 with an estate of approximately 396,000 hectares. Today Coillte manages approximately 440,000 hectares of land, equivalent to 7% of the total land area of the country. The estate accounts for around half of Ireland's forests and consists of a varied tapestry of different habitats, ranging from conifer forests and mixed or broadleaved forests, to open upland bogs and heathlands, to lakes and rivers. Over the last 30 years, Coillte has provided a wide range of benefits to society including wood products, recreation, biodiversity, environmental services, and critical infrastructure, such as telecoms and wind energy. The forestry sector supports over 9,000 jobs, mostly in rural Ireland. Coillte's forestry business underpins a thriving export-led forest products sector which supports more than €2 billion of economic activity annually.

This is achieved despite Ireland having the lowest forest cover in Europe at just 11% compared to a European average of 38.3%. Coillte employs 840 staff and approximately 1,200 direct contractors across Ireland, and is comprised of separate business areas (Coillte Forest, Land Solutions and MEDITE SMARTPLY) who work with Coillte's partners and stakeholders to deliver multiple benefits to society.

In the 1990's, Coillte, along with the wider forestry sector, was in a development phase as it created new forests through significant levels of afforestation. Coillte also built SMARTPLY, one of the first Oriented Strand Board (OSB) factories in Europe.

In the 2000s, Coillte invested in sustainable growth through wood harvesting and processing technology and diversified the business by creating new enterprises such as Wind Energy and the acquisition of MEDITE. Coillte also adopted best-in-class environmental management and achieved FSC® and PEFC™ accreditation.

In more recent years Coillte has continued to support the development of a vibrant forest-based bioeconomy and responded to changing societal expectations for forestry. This was achieved by investing in recreation, enhancing, and restoring biodiversity, and increasing Coillte's contribution to mitigating climate change through their sustainable wood products and the development of renewable energy.

Coillte is committed to continuing to evolve to meet today's challenges by delivering the multiple benefits of forestry: forests for climate, nature, wood, and people. Successful delivery will involve protecting and restoring nature, providing sustainable wood-based products, providing climate change solutions, and delivering recreational facilities that enhance people's health and wellbeing.

1.1.1 Coillte Forest

Coillte's forest Division sustainably manages Coillte's estate of approximately 440,000 hectares in a way that delivers multiple benefits to society. Coillte's forest estate has both Forest Stewardship Council (FSC®) and Programme for the Endorsement of Forest Certification (PEFC™) accreditation, which certifies that their forests are managed sustainably.

Coillte is the leading supplier of roundwood to the vibrant Irish wood processing sector. Over 3 million cubic metres of roundwood is produced by Coillte's thinning and felling operations each year, the majority of which is consumed by the sawmill sector for the production of sawnwood for house construction, packaging and fencing. Small-diameter roundwood is mainly used by wood-based panel mills (see Medite Smartply, below) and, to a lesser extent, for bio-energy.

Coillte is the leading provider of outdoor recreational activities, with over 6,000 forest properties throughout Ireland, 3,000 km of way-marked trails, 12 forest parks, 6 mountain-bike trails, and 260 recreational sites. Every year there are over 18 million visits to forests across the country. Forest recreation is very important to people's wellbeing, and Coillte's 'Woodlands for Health' programme helps to provide mental health support.

Over 90,000 hectares of Coillte's estate (c. 20%) is managed primarily for biodiversity. These biodiversity areas occur throughout the estate and contain a wide variety of habitats of high biodiversity value including native forest, mixed forest, blanket bog, raised bog, wet and dry heath. Coillte has developed a science-based approach called 'BioClass', which classifies the ecological value of the biodiversity areas in Coillte's estate. This allows Coillte to develop ecological and silvicultural plans to enhance and/or restore these sites to improve their biodiversity value.

1.1.2 Land Solutions

Land Solutions is Coillte's asset development business. It provides a dedicated acquisition and sales team who actively acquire bare land, for afforestation, and purchase immature forestry to expand the estate. Land Solutions also helps deliver significant recreational developments, for example the development of Centre Parcs in Longford. The development of this site created 750 jobs during construction and over 1,000 long term rural-based jobs, generating an estimated €30 million per annum to the local economy.

Coillte's land base has been critical to the development of the renewable energy sector in Ireland, having enabled over 30% of all installed wind farms, either through land supply or as developer. Coillte and ESB joined forces and in 2021 established a joint venture focusing on renewable energy, FuturEnergy Ireland.

FuturEnergy Ireland's aim is to develop best-in-class wind farms with the support of local communities thereby enabling Ireland, and its people, to combat climate change and contribute to more sustainable living.

FuturEnergy Ireland's mission is to maximise the potential of Coillte's unique wind and land resources and accelerate Ireland's transformation to a low carbon energy economy. This will also enable local amenity improvement, contribution to local rates, and local targeted investment via community benefit funds.

In June 2019, Coillte established the not-for-profit, Coillte Nature, which seeks to deliver significant climate and nature solutions through innovative projects-of-scale by:

- Afforestation of land to create new native woodland
- Restoration of important biodiversity habitats
- Regeneration of urban forests and
- Rehabilitation of critical ecosystem services.

Since January 2020, work has been ongoing on initiatives such as the Dublin Mountains Makeover, Midlands Native Woodlands, Wild Western Peatlands and Hazelwood Restoration projects. Coillte Nature has recently launched with Forestry Partners a new entity Nature Partners CLG trading as The Nature Trust which allows corporates to support the establishment of new forests. Coillte Nature will continue to implement new collaborations, partnerships, and projects to benefit nature, people, and the climate.

1.1.3 Medite Smartply

MEDITE SMARTPLY produces engineered wood-based construction panels and is committed to manufacturing products that contribute to healthier, environmentally conscious building solutions. Its manufacturing mills in Clonmel (MEDITE) and Waterford (SMARTPLY) deliver high quality MDF (Medium Density Fibreboard) and OSB (Orientated Strand Board) panels which meet the diverse needs of users, from furniture to floor structures, across 20 countries. It uses small-dimension pine and spruce as well as residues from sawmilling as its raw materials and all of its products are certified by the FSC® and PEFC™. Through consistent commitment to research, development and ongoing investment in technology, it has established MEDITE and SMARTPLY as leading brands in the wood panel market by introducing a wide variety of quality products and customer-led innovations This makes MEDITE SMARTPLY products a trusted alternative to traditional materials and the category of choice for today's designers and specifiers, supporting carbon reduction with sustainable solutions.

1.2 SEA Process and Legislative Context

1.2.1 Legislative Background

Directive 2001/42/EC of the European Parliament and of the Council on the Assessment of the Effects of Certain Plans and Programmes on the Environment, (also known as the Strategic Environmental Assessment Directive), was transposed into Irish Law by the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No. 435 of 2004) as amended by S.I. No 200 of 2011. It provided a statutory basis for the making of the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. No. 436 of 2004) as amended by S.I. No. 201 of 2011. These Planning and Development Regulations, S.I. No. 436 of 2004 and S.I. No. 201 of 2011, amended articles and schedules to the Planning and Development Regulations, (S.I. 600 of 2001). Under the Directive (2001/42/EC) SEA is required on Plans and Programmes which are likely to have significant effects on the environment, in the following eleven sectors:

- Agriculture
- Forestry
- Fisheries
- Energy
- Transport

- Industry
- Water Management
- Waste Management
- Telecommunications
- Tourism and
- Town and Country Planning or Land-use.

The objective of the SEA Directive is 'to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of Plans … with a view to promoting sustainable development' (Article 1 SEA Directive). It is a systematic, on-going process for evaluating, at the earliest possible stage, the environmental quality and consequences of implementing certain Plans and Programmes on the environment. The requirements for SEA in Ireland are set out in the national legislation as follows:

- European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations (S.I. No. 435 of 2004) as amended by European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations (S.I. No. 200 of 2011) and
- Planning and Development (Strategic Environmental Assessment) Regulations (S.I. No. 436 of 2004) as amended by the Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations (S.I. No. 201 of 2011).

1.2.2 SEA Process

The SEA process is comprised of the following steps:

- Screening: decision on whether or not SEA of a Plan or Programme is required.
- Scoping: Consultation with the defined statutory bodies on the scope and level of detail to be considered in the assessment.
- Environmental Assessment: An assessment of the likely significant impacts on the environment as a result of the Plan or Programme.
- Preparation of an SEA ER (this report);
- Consultation on the Plan or Programme and associated SEA ER;
- Evaluation of the submissions and observations made on the Plan or Programme and SEA ER and
- Issuance of an SEA Statement identifying how environmental considerations and consultation have been integrated into the Final Plan or Programme. This is the current stage of the SEA process to which this report relates.

SEA is intended to inform decision-making and needs to 'test' systematically the performance of the Plan as a whole and its individual objectives and policies against SEA criteria. It is noted that under EIA and Planning and Development legislation, certain projects taking place within the Plan area arising during implementation of the Plan may require an Environmental Impact Assessment.

1.2.3 SEA Guidance

The SEA methodology for the FESLUP is based on legislative requirements and Department of Environment, Community and Local Government (DoECLG) / Environmental Protection Agency (EPA) guidance. The EPA's SEA Pack (Version 21/02/2020) was also used as a source of information during the scoping process along with published EPA SEA Guidance, including:

- Strategic Environmental Assessment – Draft Guidelines for Regional Assemblies and Planning Authorities 2022

- Circular Letter PSSP 6/2011: Further Transposition of EU Directive 2001/42/EC on Strategic Environmental Assessment (SEA)
- Circular Letter PL 9/2013: Article 8 (Decision Making) of EU Directives 2001/42/EC on Strategic Environmental Assessment (SEA) as amended
- Implementation of SEA Directive (2001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment
- Directive 2001/42/EC on the assessment of Certain Plans and Programmes on the Environment
- SEA Process Checklist
- Guidance on Implementation of Directive 2001/42/EC
- SEA Resource Manual for Local and Regional Planning Authorities (Updated 2015)
- Developing and Assessing Alternatives in Strategic Environmental Assessment - Good Practice Guidance
- Ireland's Environment - An Integrated Assessment 2020
- Guidance on Strategic Environmental Assessment Statements and Monitoring
- Good practice guidance on Cumulative Effects Assessment in SEA
- Second Review of SEA Effectiveness in Ireland
- EPA Good Practice Note on the Strategic Environmental Assessment for the Forestry Sector (EPA, 2019)
- EPA guidance on Integrated Biodiversity Impact Assessment - Streamlining AA, SEA and EIA Processes Best Practice Guidance and
- Integrating Climatic Factors into the Strategic Environmental Assessment Process in Ireland.

2. Coillte's Forest Estate Strategic Land Use Plan (FESLUP)

2.1 Introduction

Section 1 of this report provides a background to, and description of the contextual setting of the FESLUP. This section provides an overview of the content and purpose of the FESLUP.

2.2 Background to the FESLUP

The purpose of the FESLUP is to support the implementation of Coillte's Strategic Vision by setting out a framework for the delivery of Coillte's ambitions to 2050. The FESLUP sets out the objectives for Coillte's forest estate over the period 2023-2050 to aid the realisation of their eleven high-level ambitions.

Upon successful delivery, Coillte's Strategic Vision and, by extension, the FESLUP, will deliver multiple benefits of Coillte's forests, bring more focus to climate action and set ambitious new targets on biodiversity and recreation, all whilst continuing to deliver for the forest and wood products industry. The achievement of the FESLUP will be guided by the balancing of multiple benefits of forests through the pillars of Forests for Nature, Forests for Climate, Forests for Wood and Forests for People.

The ambitions for the FESLUP have been set out by Coillte's Strategic Vision under four pillars. The four pillars and associated ambitions have been detailed in Section 2.4.

2.3 Composition of the FESLUP

The FESLUP is structured into five Sections and each Section has been detailed as follows. Section 1 is the Introductory Section, where the background to Coillte and the FESLUP has been described. Section 2 details 'The Existing Forest Estate,' which describes the existing forest estate under Coillte management, at the time of writing this Plan. The purpose of Section 3, 'Developing the Plan' is to set out the key inputs or considerations in the development of the FESLUP. Section 4 is inclusive to the 'Forest Estate Objectives' which sets out the objectives for Coillte's Forest Estate. Section 5 details the 'Delivery of the FESLUP' which outlines how Coillte will ensure that the emerging objectives of the FESLUP will be successfully achieved.

Consistent with Coillte's Strategic Vision, this FESLUP is largely set out under the four themes:

- Forests *for* Climate
- Forests *for* Nature
- Forests *for* Wood and
- Forests *for* People.

Forests for Climate relates to the role our forest estate plays in the sinking and storing of carbon, and its capacity to produce wood products to substitute for carbon-intensive materials.

Forest for Nature covers the existing biodiversity value of our forest estate and identifies options to protect, enhance and restore the biodiversity value in areas currently managed primarily for nature, to extend these areas further and to provide protections throughout the estate.

Forests for Wood addresses the commercial aspects of Coillte operations which largely relate to the management of forests to ensure the continued sustainable supply of roundwood.

Forests for People examines the social, community and recreational aspects of Coillte's operations, and their contribution to employment.

2.4 Coillte's Strategic Vision

Coillte's Strategic Vision was published by Coillte in 2022, the vision aims to deliver multiple benefits from its forests and bring more focus to climate action, setting ambitious new targets on biodiversity and recreation, while continuing to deliver for the forest and wood products industry. The new approach aims to sustainably balance and deliver the multiple benefits from Ireland's state forests across four strategic pillars: Forests for Nature, Forests for Climate, Forests for Wood and Forests for People.

Each of these pillars are described briefly as follows, and a number of ambitions were also set out for each pillar.

1. **Forests for Climate** relates to the role our forest estate plays in the sinking and storing of carbon, and its potential to substitute carbon intensive products with wood products.

Climate ambitions include:

- *Enable the creation of 100,000 hectares of new forests, half of which will be native woodlands, which will sink 18m tonnes CO2 by 2050.*
- *Manage the existing Forest Estate to increase the carbon store by 10m tonnes of CO2 by 2050.*
- *Redesign 30,000 hectares of Peatland Forests for climate and ecological benefits by 2050.*
- *Generate an additional 1 Gigawatt of renewable wind energy to power 500,000 homes by 2050.*

Forest for Nature covers the existing biodiversity value of our forest estate and identify options to protect, enhance and restore the biodiversity value in these areas, in addition to extending the area of the estate managed primarily for biodiversity.

Nature ambitions include:

- *Enhance and restore biodiversity by increasing the area of our estate managed primarily for nature from 20% to 30% by 2025.*
- *Transform areas of our forests so that 50 % of our estate is managed primarily for Nature in the long-term.*

Forests for Wood covers the commercial aspects of Coillte's business which largely relates to timber production.

Wood ambitions include:

- *Produce 25m cubic metres of certified Irish timber, to support the construction of 300,000 homes by 2030.*
- *Promote the use and benefits of wood products to increase the level of timber homes from 20% to 80% by 2050.*
- **Forests** for People covers the social and recreational aspects of Coillte's business.

People ambitions include:

- *Enable the investment of €100 million in world-class Visitor Destinations to support growth in tourism and recreation by 2030.*
- *Double the number of Recreation Areas to 500, to benefit local communities and people's wellbeing.*
- *Create 1,200 new jobs in rural communities to support the just transition to a low carbon economy.*

2.5 Extent of Plan Area

The FESLUP is a national level Plan and thus the Plan area is the entirety of the Republic of Ireland. The SEA Directive requires that where the FESLUP has potential for transboundary environmental effects these must be addressed within the SEA. The potential for transboundary environmental effects between the Republic of Ireland and Northern Ireland has been considered throughout this SEA ER, as appropriate. The scope of Coillte's current estate has been mapped and illustrated within the FESLUP.

2.6 Plan Period

The FESLUP is in place to guide Coillte's estate over the Plan period of 2023-2050.

3. Relationship with Other Relevant Plans and Programmes

3.1 Introduction

According to Article 5(1) of Annex 1 of the SEA Directive, 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".

Ultimately, as outlined in the EPA's Good Practice Note on Strategic Environmental Assessment for the Forestry Sector (EPA, 2019), this section should set out the FESLUP in its wider planning context. It should explain what other Plans and environmental objectives affect the FESLUP, and what Plans and Projects are affected by the FESLUP.

The wide range of Plans, Policies, Programmes and Legislation which are considered to be of relevance to the FESLUP and are outlined in Appendix A.2 of this report.

A number of these Plans Policies, Programmes and legislation have been identified as being key with regards interaction with the FESLUP - these are described in Section 3.2.

3.2 Key Policy, Plans, Legislation and Programmes of Relevance

This section of the SEA ER aims to identify the key Policy, Plans, Legislation and Programmes of relevance to the FESLUP and show how these are interlinked with the FESLUP. The schematic as displayed in Figure 3.1 aims to show how these relationships can set the context for the FESLUP.

Requirements to meet national and international commitments on climate change, biodiversity, water quality and forest health are becoming increasingly important strategic drivers of forestry. The European Green Deal (2019), the EU Biodiversity Strategy and the new EU Forest Strategy for 2030, all put a focus on ensuring healthy and resilient forests so that they can contribute significantly to biodiversity and climate goals, reduce and mitigate natural disasters while securing livelihoods and supporting a circular bioeconomy and rural communities. Nationally these requirements are reflected in the Climate Action and Low Carbon Development (Amendment) Act (2021) and in the Actions included for forestry in the Climate Action Plan (2023). Ireland's Forest Strategy and Ireland's Forest Strategy Implementation Plan are also national guiding documents for Ireland's forest sector that aid similar requirements and have been prepared by the Department of Agriculture, Forestry and the Marine (DAFM).

A schematic showing the key Policy, Plans, Legislation and Programmes of relevance to the FESLUP, and how they are interlinked with the FESLUP is included in Figure 3.1. The key Plans, Policy, Legislation and Programmes of relevance to the FESLUP have been displayed, in relation to the FESLUP's hierarchy between Coillte's Strategic Vision and Coillte's future Implementation Plans, which are likely to act as implementation vehicles for the higher-level FESLUP.

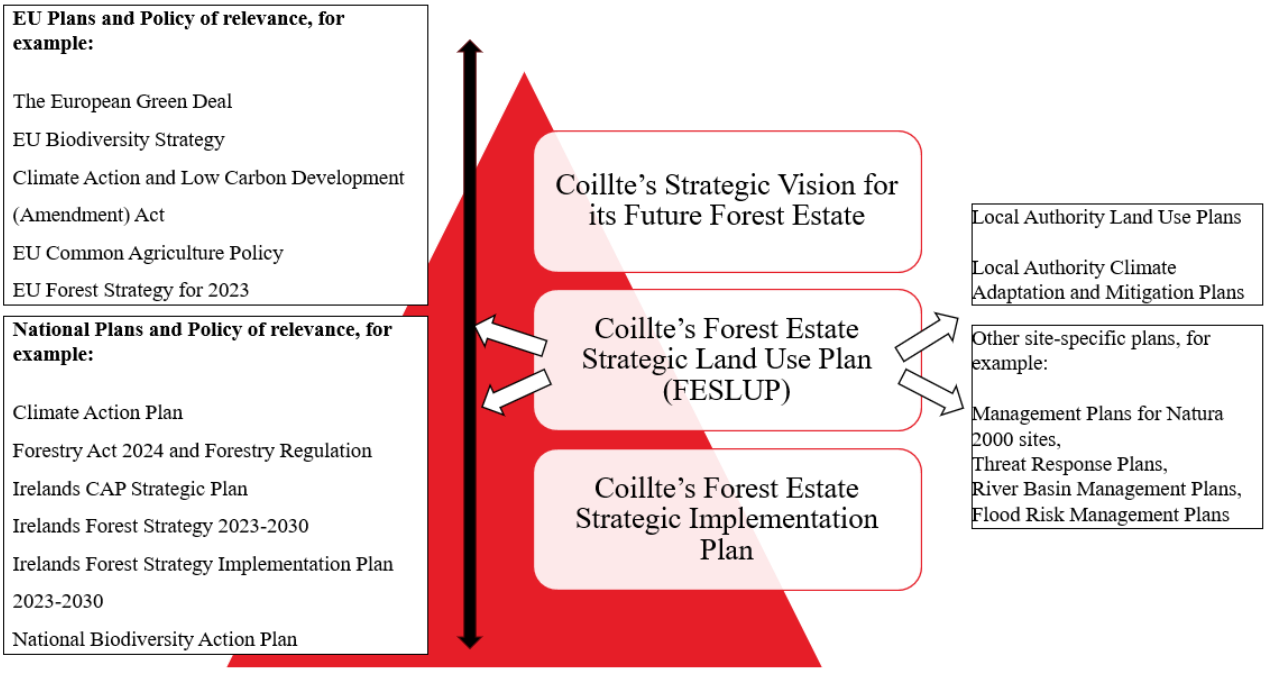

Figure 3.1 Key Policy, Plans and Programmes and Interaction with the FESLUP

The European Green Deal

The deal sets out how to make Europe the first climate-neutral continent by 2050, boosting the economy, improving people's quality of life, caring for nature and leaving no one behind.

The European Green Deal includes key policies aimed at ambitiously cutting emissions, preserving Europe's natural environment and investing in cutting-edge research and innovation to tackle climate change. It sets out an achievable roadmap to ensure the EU's economy becomes sustainable by turning climate and environmental challenges into opportunities across all policy areas that will result in economic growth and jobs.

The Green Deal commits Europe to becoming a climate-neutral continent by 2050 while also transforming the EU into a modern, resource-efficient and competitive circular economy that's fair and inclusive for every individual and region.

The FESLUP supports the European Green Deal through its range of climate focused objectives.

EU Biodiversity Strategy for 2030

The new EU Biodiversity Strategy for 2030 and associated Action Plan (annex) is a comprehensive, ambitious, long-term Plan for protecting nature and reversing the degradation of ecosystems. It aims to put Europe's biodiversity on a path to recovery by 2030 with benefits for people, the climate and the planet. It aims to build our societies' resilience to future threats such as climate change impacts, forest fires, food insecurity or disease outbreaks, including by protecting wildlife and fighting illegal wildlife trade.

The FESLUP supports the EU Biodiversity Strategy for 2030 through its range of biodiversity focused objectives.

Climate Action and Low Carbon Development (Amendment) Act (2021)

- This Act embeds the process of setting binding and ambitious emissions-reductions targets in law. The Act provides for a national climate objective, which commits to pursue and achieve no later than 2050, the transition to a climate resilient, biodiversity-rich, environmentally sustainable and climate-neutral economy. The Act provides that the first two five-year carbon budgets proposed by the Climate Change Advisory Council should equate to a total reduction of 51% over the period to 2030, relative to a baseline of 2018.

- Under this Act, the government must adopt carbon budgets that are consistent with the Paris agreement and other international obligations. All forms of greenhouse gas emissions including biogenic methane will be included in the carbon budgets, and carbon removals will be taken into account in setting budgets. However, it is up to government to decide on the trajectories for different sectors.

- The Government will determine, following consultation, how to apply the carbon budget across the relevant sectors, and what each sector will contribute in a given five-year period. Actions for each sector will be detailed in the Climate Action Plan which must be updated annually. The relevant Actions for the forestry sector are thus outlined in the Climate Action Plan (2023), as described below. All of these actions are supported by the FESLUP.

Climate Action Plan 2023

The Climate Action Plan 2023 is the second annual update to Ireland's Climate Action Plan 2019. This Plan is the first to be prepared under the Climate Action and Low Carbon Development (Amendment) Act 2021 and following the introduction of economy-wide carbon budgets and sectoral emissions ceilings in 2022. The Plan implements Ireland's carbon budgets and sectoral emissions ceilings and sets out a roadmap for taking decisive action to halve the country's emissions by 2030 and reach net zero no later than 2050, as committed to in the Programme for Government. The Climate Action Plan 2023 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.

The Climate Action Plan's supplementary Annex of action was also published in early 2023 and provides the specific actions required to implement the targets set out in the Plan, including information regarding outputs, Lead Departments, timelines and stakeholders.

The following measures and actions are set out in the Climate Action Plan and its associated Annex of Actions, which are supported by the FESLUP:

- Develop, assess, and adopt as appropriate Coillte's Strategic Vision, which aims to capture additional carbon dioxide in its forests, soils and wood products by 2050
- Protect, enhance, and increase the number of hedgerows and trees on farms
- Develop, assess, and adopt as appropriate the new Forestry Programme 2023-2027, which aims to introduce new supports to promote Sustainable Forest Management
- Increase our annual afforestation rates from approximately 2,000 hectares (ha) per annum in 2021 and 2022 to 8,000 ha per annum from 2023 onwards, to deliver an additional 28,000 ha of afforestation across the first carbon budget period
- Promote forest management initiatives in both public and private forests to increase carbon sinks and stores
- Rehabilitate 33,000 ha of peatlands as part of the Bord na Móna Enhanced Decommissioning, Rehabilitation and Restoration Scheme and LIFE People and Peatlands programmes
- Establish a taskforce to accelerate renewables
- Publish an annual report setting out identifiable public benefits delivered by renewable energy sector including employment and skills/training metrics, local investment and community benefits and
- Support national LULUCF commitments.

EU Common Agricultural Policy and Ireland's CAP Strategic Plan

The Common Agricultural Policy (CAP) protects family farm incomes, supports the rural economy, ensures the production of high-quality safe food for consumers and protects rural landscapes and the environment.

The CAP consists of a Two Pillar Structure:

- Pillar 1 Income Support (The main schemes include the Basic Payment Scheme and Greening); and
- Pillar 2 Infrastructure, Environment and Development Support (The main schemes include Green, Low-Carbon, Agri-Environment Scheme (GLAS), European Innovation Partnership for Agricultural productivity and Sustainability (EIP-AGRI) and Targeted Agriculture Modernisation Schemes (TAMS)).

The CAP was established in 1962. Over the years it has evolved to meet the changing needs and demands of European agriculture and the wider European society. The latest CAP reform is no different in this regard and in line with societal demands includes a very strong emphasis on the environment as shown below.

In June 2018, the European Commission presented legislative proposals for a new CAP. The proposals outlined a simpler and more efficient policy that will incorporate the sustainable ambitions of the European Green Deal.

Under the EU Common Agricultural Policy 2023-2027, each EU country must design a national CAP Strategic Plan, combining funding for income support, rural development, and market measures. When designing their Strategic Plans, EU countries will contribute to the ten specific objectives through a toolbox of broad policy measures provided by the Commission, which can be shaped around national needs and capabilities.

Ireland's CAP Strategic Plan (CSP) 2023-2027 underpins the sustainable development of Ireland's agriculture sector by:

1. Supporting viable farm incomes and enhancing competitiveness

2. Contributing to the achievement of environmental and climate objectives at national and EU levels, and
3. Strengthening the socio-economic fabric of rural areas.

EU Forest Strategy for 2030

The new EU Forest Strategy for 2030 is one of the flagship initiatives of the European Green Deal and builds on the EU biodiversity strategy for 2030. The strategy will contribute to achieving the EU's biodiversity objectives as well as greenhouse gas emission reduction target of at least 55% by 2030 and climate neutrality by 2050. It recognises the central and multifunctional role of forests, and the contribution of foresters and the entire forest-based value chain for achieving a sustainable and climate neutral economy by 2050 and preserving lively and prosperous rural areas. The new EU forest strategy will support the socio-economic functions of forests for thriving rural areas and boosting forest-based bio-economy within sustainability boundaries. It will also protect, restore and enlarge the EU's forests to combat climate change, reverse biodiversity loss and ensure resilient and multifunctional forest ecosystems by:

- Promoting the sustainable forest bioeconomy for long-lived wood products
- Ensuring sustainable use of wood-based resources for bioenergy
- Promoting non-wood forest-based bioeconomy, including ecotourism
- Developing skills and empowering people for sustainable forest-based bioeconomy
- Protecting EU's last remaining primary and old-growth forests
- Ensuring forest restoration and reinforced sustainable forest management for climate adaptation and forest resilience
- Complying with the Birds Directive when carrying out logging during the bird-nesting period
- Re- and afforestation of biodiverse forests, including by planting 3 billion additional trees by 2030 and
- Providing financial incentives for forest owners and managers for improving the quantity and quality of EU forests.

The Strategy also focuses on:

- Strategic forest monitoring, reporting and data collection
- Developing a strong research and innovation agenda to improve our knowledge on forests
- Implementing an inclusive and coherent EU forest governance framework and
- Stepping up implementation and enforcement of existing EU acquis.

Coillte's FESLUP has taken account of the EU Forest Strategy which recognises the importance of forests across member states.

Forestry Act 2014 and Forestry Regulations 2017

The Forestry Act 2014 (the Act) and the supplemental Forestry Regulations 2017 (SI No. 191 of 2017) as amended is the primary legislative framework for supporting the development and promotion of forestry in Ireland and set out the provisions for licensing (consent) for afforestation and forest road applications, aerial fertilisation licensing and felling licences. Landowners submitting applications for forestry licences must follow the requirements prescribed in the legislation which includes requirements for public consultation.

The main legal requirements can be summarised as follows:

- Definition of a forest means land under trees with a minimum area of 0.1ha and tree crown cover of more than 20% of the total area, or the potential to achieve this cover at maturity. This definition includes all species of trees (Section 2, Forestry Act)
- Requirement for consent for afforestation, forest road, aerial fertilisation and felling licences

- Attachment and varying of conditions to a licence or approval, including revocation of a licence (Section 7, Forestry Act)
- A range of penalties that can be imposed, including the issuing of a replanting order (Sections 26-29, Forestry Act)
- Requirement for the erection of a site notice (Regulations 3-8, SI No. 191/2017)
- Requirement for submission of an EIA for initial afforestation involving an area of 50ha or more and for forest roads involving a length of 2,000m or more (Regulation 13(2) of SI 191/2017)
- Requirement for screening for EIA and sub-threshold EIA of all afforestation and road applications (Regulation 13(2) of SI 191/2017)
- Requirement for AA screening of all forestry licence applications before a consent decision is taken (Regulation 19 of SI 191/2017).

The FESLUP sets out objectives for forestry related activities such as afforestation, reforestation etc, amongst multiple non-forestry related activities. All objectives related to forestry activities must comply with the provisions of the Forestry Act 2014 and Forestry Regulations.

DAFM's Shared National Vision for Forestry 2050

The DAFM's Shared National Vision for Forestry 2050 was published in September 2022.

Following the DAFM's extensive period of engagement and consultation about the role of forests and forestry in Ireland's future, it was clear that there was a strong public appetite for more trees and forests in Ireland and a very strong appreciation of the positive impact that trees and forests can have to help combat climate change and to restore nature – addressing two of the greatest global challenges the world is currently facing. Flowing from these public and stakeholder consultations, a Shared National Vision for the role of forests, and trees was created, and was built around the principle of the right trees in the right places for the right reasons with the right management.

The DAFM's ambitious Vision, if achieved, will result in a more heavily forested country with multi-functional and diverse forests delivering multiple benefits for climate, nature, wood production, people, communities, the economy and rural development. In realising the Vision, the forests of the future will also look different to many of today's forests as diverse and mixed forests will become the dominant feature along with a greater presence of agroforestry, continuous cover forests, native forests and urban forests.

The DAFM's visionary document calls for "the right trees in the right places for the right reasons with the right management – supporting a sustainable and thriving economy and society and a healthy environment". It anticipates by 2050 that Ireland's forests will be seen as a key solution to the climate, biodiversity, housing and health emergencies of the 2020s.

The DAFM's over-riding objective between now and 2030 is to radically and urgently expand the national forest estate on both public and private land in a manner that will deliver lasting benefits for climate change, biodiversity, wood production, economic development, employment and quality of life. This will be a challenge of significant proportions, which will require a whole of society and whole of government response if Ireland is to succeed in doing so. DAFM's Ireland's Forest Strategy and Ireland's Forest Strategy Implementation Plan were designed toad this progression. The Forest Service of the Department of Agriculture, Food and the Marine (DAFM) has overall responsibility for regulating the management of Ireland's forests, both Coillte's forests and those privately-owned, as discussed in Section 2, the FESLUP aims to set out the framework for the management of Coillte's estate.

DAFM's Ireland's Forest Strategy 2023-2030

Ireland's Forest Strategy (IFS) is all about making DAFM's ambitious Shared National Vision a reality.

The Vision is a vision for significant change and the strategy, which is for the period between now and 2030, and was designed to provide an overarching framework to identify the actions needed to implement the change required.

Ireland's Forestry Strategy sets out a range of Strategic Objectives, Values and Goals: forests for climate, forests for nature, forests for wood, forests for people and forests for economic and rural development.

The over-riding objective between now and 2030 is to radically and urgently expand the national forest estate on both public and private land in a manner that will deliver lasting benefits for climate change, biodiversity, wood production, economic development, employment and quality of life.

DAFM's Ireland's Forest Strategy Implementation Plan (IFSIP) 2023-2030

The IFSIP provides details on the implementation means of achieving the overarching strategy objectives contained in Ireland's Forest Strategy 2030, to meet the immediate to short term needs for the period of 2023-2030.

The IFSIP functions as the enabler 'Implementation Plan' to the higher-level IFS and overarching Shared National Vision. The IFSIP does so, by the inclusion of a detailed Forest Action Plan and a Forestry Programme for the period 2023 – 2027.

The IFSIP's detailed Forest Action Plan (FAP), includes the Actions for each of the Enablers and Value Area Goals of the IFS, which are broken down by indicative timeframes, leads, key stakeholders and by what means the Action will be implemented. A significant proportion of these Actions will be implemented through the next Forestry Programme (FP) for the period 2023 – 2027. The FP will be the primary means by which DAFM's National Vision and Strategy are delivered in the immediate to short term.

Coillte's Strategic Vision for its Future Forest Estate

Coillte's Strategic Vision for its Future Forest Estate, although not a Plan or Programme, was published in 2022 and aims to deliver multiple benefits from its forests and bring more focus to climate action, setting ambitious new targets on biodiversity and recreation, while continuing to deliver for the forest and wood products industry. Coillte's new approach aims to sustainably balance and deliver the multiple benefits from Ireland's state forests across four strategic pillars:

- Forests for Climate
- Forests for Wood
- Forests for Nature and
- Forests for People.

2030 Agenda for Sustainable Development

Although not included in the schematic of Figure 3.1, it is important to make reference to the United Nations (UN) Sustainable Development Goals (SDGs), as they relate to the FESLUP. The SDGs are a universal call to action to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere. There are 17 SDGs that were adopted by all UN Member States in 2015, as part of the 2030 Agenda for Sustainable Development. This Agenda sets out a 15-year plan to achieve the Goals.

Compliance with the SDGs should be a priority for the FESLUP, these goals were largely taken into consideration by Coillte when identifying the right objectives and establishing the multiple values of forests, particularly as part of Coillte's Strategic Vision. Nine UN SDGs Goals in particular that are interlinked with the Plan include:

- Goal 3 – Good Health and Wellbeing: Ensure healthy lives and promote well-being for all at all ages
- Goal 6 – Clean Water and Sanitation: Ensure availability and sustainable management of water and sanitation for all
- Goal 7 – Affordable and Clean Energy: Ensure access to affordable, reliable, sustainable, and modern energy for all
- Goal 8 – Work and Economic Growth: Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all

- Goal 9 – Innovation and Infrastructure: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
- Goal 11 – Sustainable Construction: Make cities and human settlements inclusive, safe, resilient, and sustainable
- Goal 12 – Consumption and Production: Ensure sustainable consumption and production patterns
- Goal 13 - Climate Action: Take urgent action to combat climate change and its impacts
- Goal 15 - Life on Land: Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

The FESLUP relates to Goal 3 – Good Health and Wellbeing in that the FESLUP aims to increase the promotion of trees, woodlands, and green spaces to be used as recreational areas, all of which have been proven to have beneficial effects to people's mental and physical health. The FESLUP also aims to promote and enhance the rural economy and job prospects, whereby forests, forest products and forest related products and services provide a wide range of employment in rural areas.

The FESLUP relates to Goal 6 – Clean Water and Sanitation in that, the FESLUP is likely to facilitate the management of Coillte's estate and has the potential to increase water and soil protection potential of these areas. Trees regulate floodwater, reduce surface run off, stabilising riverbanks as well as reducing soil erosion.

The FESLUP relates to Goal 7 – Affordable and Clean Energy, in that, Coillte is largely involved in Ireland's wind energy sector as Ireland moves towards a sustainable future with enhanced energy security. Coillte is currently the largest provider of high-quality sites for the renewable energy sector and have made a significant contribution to Ireland's 2020 target of achieving 40% of its electricity consumption from renewable sources. The FESLUP is likely to guide future land use across Coillte's forest estate's and is likely to guide future wind energy sites across Coillte's estate.

The FESLUP relates to Goal 8 – Work and Economic Growth, in that, the FESLUP is likely to increase the promotion and production of sustainable products. Wood provides sustainable construction, manufacturing and energy products that can replace carbon intensive materials. The FESLUP also aims to promote and enhance the rural economy and job prospects, whereby forests, forest products and forest related products and services provide a wide range of employment in rural areas.

The FESLUP relates to Goal 9 – Innovation and Infrastructure and Goal 11 – Sustainable Construction, whereby the innovation of Coillte's forest sector is likely to be facilitated through the FESLUP, along with educational promotions, apprenticeships, and the use of sustainable and resilient infrastructure across the estate. Coillte's FESLUP is also likely to promote and increase the production of sustainable timber products, the wood products produced provide sustainable construction, manufacturing and energy products that can also replace carbon intensive materials.

The FESLUP relates to Goal 12 – Consumption and Production whereby, the FESLUP aims to promote sustainable consumption and production, in doing so, timber and forest-based products from Coillte's estate can provide sustainable construction, manufacturing and energy products that can replace carbon intensive materials.

The FESLUP relates to Goal 13 - Climate Action, in that, the objectives outlined within aim to increase forest cover in Ireland in a sustainable manner, at appropriate locations. Increased forest cover and forest products play an important role in mitigating climate change as sustainably managed forests are a net absorber of carbon. Afforestation is one of the largest land-based, long-term climate change mitigation measures available to Ireland. The management of Ireland's existing forests also provides opportunities to increase carbon stores. The FESLUP will recognise the multiple benefits that forests provide, focusing on forests for climate, nature, wood and people.

The FESLUP relates to Goal 15 - Life on Land, in that, the objectives outlined within aim to prioritise the management of all new and existing forests and aim to protect nature and biodiversity areas across Coillte's

forest estates, in accordance with the principles of sustainable forest management in order to protect, restore, and promote the sustainable use of forest areas in Ireland.

The draft 4th National Biodiversity Action Plan

The (draft) goal of the next National Biodiversity Action Plan (NBAP) is that biodiversity is effectively conserved and restored, and the causes and key drivers of the biodiversity crisis are recognised and addressed. There are six objectives in the current draft NBAP:

- Fostering a whole-of-government, whole-of-society approach;
- Meeting urgent conservation needs;
- Securing nature's contribution to people;
- Linking biodiversity and climate action;
- Enhancing the evidence basis for action; and
- Strengthening partnerships for people and planet.

Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.

4. SEA Methodology

4.1 Introduction

This section highlights how the SEA has been undertaken for the FESLUP. The SEA methodology is based on legislative requirements and relevant Environmental Protection Agency (EPA) guidance and will ensure compliance with the SEA Directive and associated legislation. The EPA's SEA Pack (Version 18/02/2020) was also used as a source of information during the scoping process.

The FESLUP (Arup in cooperation with Coillte), the SEA ER and the AA (Arup) were prepared in an iterative manner whereby multiple revisions of each document were prepared, each informing subsequent iterations of the others. To facilitate this iterative approach, numerous discussions were held between Coillte and Arup.

The key stages outlined in Figure 4.1 were identified and are discussed in the following sections.

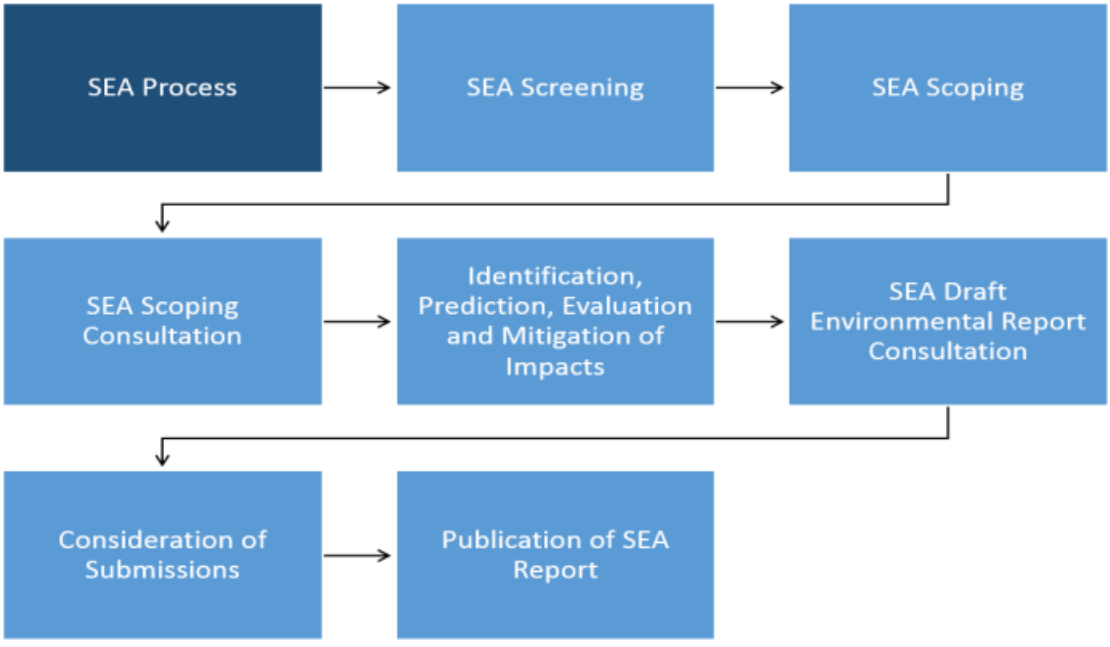

Figure 4.1 Key Stages of the SEA Process

4.2 Screening

Screening is the process for deciding whether a particular Plan would warrant SEA at the earliest possible opportunity, it also facilitates the assessment findings so that they can be factored into the Plan development process.

The SEA screening assessment of the draft FESLUP concluded that the draft FESLUP was of a type of Plan/Programme (P/P) which falls within the remit of the SEA Directive/SEA Regulations. Further, given that the draft FESLUP was prepared by a national authority and is considered a P/P that is required by legislative provisions. The draft FESLUP is not considered to be exempt, and it is a P/P prepared for forestry and land-use sectors, that has the potential to set a framework for the development consent for projects listed in the EIA Directive. Thus, the draft FESLUP required mandatory SEA.

Ultimately, it was determined that the draft FESLUP is considered a type of P/P which falls within the remit of the SEA Directive, and that it required mandatory SEA, based on findings outlined within the Applicability Stage (Stage 1 of the SEA Screening process which determines the applicability of SEA to the P/P-maker and P/P and/or where relevant to confirm if mandatory SEA is required). The draft FESLUP was therefore taken forward to SEA Scoping.

4.3 Scoping

The main objective of the Scoping Stage is to identify the key environmental issues that may arise as a result of the draft FESLUP, so they may be addressed appropriately in the SEA ER. There are a number of tasks at this stage:

- Determine the key elements of the draft FESLUP to be assessed
- Determine the environmental issues to be assessed
- Collect and report on relevant international, national and local Plans, objectives and environmental standards that may influence or impact on the draft FESLUP
- Develop draft environmental objectives, indicators and targets to allow the evaluation of impacts; and
- Identify reasonable alternative means of achieving the strategic goals of the draft FESLUP.

A Scoping Report was prepared in May 2023 in relation to the draft FESLUP, which provided information to allow consultation with defined statutory bodies on the scope and level of detail to be considered in the environmental assessment.

The draft FESLUP was issued to the statutory consultees and the consultees were given a period of four weeks to respond with any observations or submissions on the content of the SEA Scoping Report.

The SEA Directive requires that where the draft FESLUP has potential for transboundary environmental effects these must be addressed within the SEA. In accordance with SEA Directive and EPA Guidance, the relevant statutory consultee in Northern Ireland was contacted during the Scoping consultation period as listed on the EPA Contacts Section of the EPA website: https://www.epa.ie/our-services/monitoring--assessment/assessment/strategic-environmental-assessment/sea-contacts-/.

Scoping responses were received from the following statutory consultees during the statutory consultation period:

- Environmental Protection Agency (EPA)
- Geological Survey Ireland (GSI)
- Department for Communities – Historic Environment Division (HED)
- Department of Agriculture, Environment and Rural Affairs (DAERA) – Northern Ireland Environment Agency (NIEA) – SEA Team

- Department of Housing, Local Government and Heritage (DHLGH) – Development Applications Unit (DAU) and
- Department of Environment, Climate and Communications (DECC).

All responses received from the Statutory Consultees have been included in Appendix A.3 of this report.

4.4 Baseline Data

Gathering relevant information relating to the state of the environment for a Plan area is an integral part of the SEA process. The SEA Directive requires that certain information relating to the relevant environmental baseline is presented in order to help test the performance of the Plan's implementation, as well as helping establish how the environment would change if the Plan were not to implemented. Baseline information has been collected from readily available sources, including but not limited to, the 2020 EPA State of the Environment Report, Ireland Air Quality Report 2022, Water Quality in Ireland Report 2016-2021, and a number of forestry related documentation, namely, Ireland's Forest Statistics 2022 and the National Forest Inventory 2022. A Geographical Information System (GIS) was used to graphically present relevant information although for a national level Plan, the benefits to illustrating the baseline environment is limited. The baseline information is reported in Section 5 of this report.

4.5 Considerations of Alternatives

The SEA Directive requires that reasonable alternatives be assessed in order to demonstrate how the preferred strategy performs against other forms of action. Alternatives must be developed, described and assessed within the SEA process, with the results presented in the ER. Section 7 of this report identifies, describes and evaluates different scenarios for the draft FESLUP, taking into account national planning policy, economic development policy, and the Strategic Environmental Objectives (SEOs) identified in Section 6.

4.6 SEA Sensitivity Mapping

Environmental Sensitivity Mapping was prepared in order to provide relevant information on environmental constraints so that environmental issues could be taken into consideration from the earliest possible stages of the SEA. The Environmental Sensitivity Mapping has been used to inform the environmental baseline description provided in Section 5 of this Report and certain mitigation measures identified in Section 9**.**

In order to identify where environmental sensitivities within the Country occur, relevant environmental sensitivities (example below in Table 4.1) were weighted and mapped overlapping each other. The methodology and weighting system applied is adopted from the EPA report 'GISEA Manual Improving the Evidence Base in SEA'. Overlay mapping techniques were used to jointly map and spatially assess sensitive environmental areas (e.g., protected habitats, groundwater vulnerability areas). This was achieved by superimposing layers and using transparency tools, or by using raster calculation tools on ArcGIS Pro to combine them. The outputs illustrate the degree of interaction and overlap between co-occurring environmental factors. They help identify environmentally sensitive areas as well as areas free of environmental constraints that are, therefore, suitable for development.

Having regard to the nature and scope of the FESLUP, higher weightings were assigned to data layers of an ecological nature where environmental components/aspects are particularly relevant to the strategic land-use planning of Coillte's Forest estate - such as wind energy developments, afforestation and protected sites such as SPAs and SACs and more. Table 4.1 shows a number of the weightings applied to the environmental sensitivity mapping, refer to Section 5 of the SEA Scoping Report for the full table of weightings. The resulting Environmental Sensitivity Mapping can be found in Appendix A.1.

Table 4.1 A Number of the Weightings applied to Environmental Sensitivity Mapping. Source: Table 5.1 of the FESLUP SEA Scoping Report.

Dataset Name	Source	Acquisition Date	Weighting (Points)	Area (km^2)	Percentage of total area (%)
Ireland Land Mass	OSI	24/10/2019	n/a	70,276	100.00
SACs	NPWS	20/04/2022	10	7,532	10.72

pNHAs	NPWS	23/10/2019	5	7,076	10.07
Recorded Monuments	Archaeological Survey of Ireland	25/10/2019	1	349	0.50
WFD River Water Status Bad	EPA	10/05/2022	10	12	0.02
WFD River Water Status Good	EPA	10/05/2022	5	2,117	3.01
GSI Geological Heritage Areas	GSI	24/10/2019	5	4,127	5.87
Wind Farms	SEAI	09/01/2023	5	0	0.00
Margaritifera Sensitive Areas	EPA	14/02/2022	10	21,703	30.88
Salmonoid Waters	EPA	14/02/2022	5	76	0.11

4.7 Environmental Assessment of the FESLUP

The environmental assessment process ran in parallel to the development and preparation of the FESLUP. The environmental assessment process was undertaken in accordance with best practice SEA principles and guidance. This included desk reviews of all of the available GIS data, specialist investigation into the likely effects associated with the FESLUP and recommendations for suitable mitigation measures along with monitoring.

4.8 SEA Statement

On adoption of the FESLUP, the SEA Statement will be made public and will include information on how environmental considerations were integrated into the FESLUP.

It will highlight the following:

- Main changes to the draft FESLUP which resulted from the SEA process
- How the SEA ER and consultations were taken into account
- Summary of the key issues raised in consultations and in the SEA ER indicating what action was taken in response and
- The reasons for choosing the FESLUP in the light of the other alternatives, identifying the other alternatives considered, commenting on their potential effects and explaining why the FESLUP was selected.

4.9 Consultations

Further to the SEA Scoping consultation outlined in Section 4.3, this SEA ER was issued to the relevant stakeholders for comment. The responses received were addressed in the finalisation of the SEA ER. An outline of the responses received have been included in the SEA Statement.

4.10 Technical Difficulties Encountered

During the preparation of GIS Mapping that was used to inform the baseline environmental of the Plan area at SEA Scoping and SEA ER stages, difficulties were encountered while attempting to utilise the EPA's most recent Landcover datasets. A number of system crashes were experienced while attempting to utilise the datasets.

Ultimately, it is considered at a national level, the EPA landcover dataset includes too much detail to accurately illustrate the baseline environmental status of the country in its entirety. It is considered that at a project specific or local area level the datasets will be largely beneficial. However, for the purposes of this

SEA and the national scale of the Plan, this SEA ER incorporates the CORINE landcover dataset to accurately illustrate the baseline environment of the Plan area.

In addition, as noted above, although the baseline environment is illustrated in this report, it is considered of limited value due to the national scale of the Plan.

No further technical difficulties were encountered during the preparation of this SEA ER.

5. Current State of the Environment

5.1 Introduction

An assessment of the current state of the environment and key environmental issues and opportunities for the study area relevant to the FESLUP was conducted within the FESLUP 2023-2050 SEA Scoping Report. GIS illustrates the baseline environment at a national level.

Where data gaps are found for particular aspects of the environment, the significance of these data gaps are evaluated and clearly stated. It will also be stated whether these gaps can be addressed during the SEA process.

The baseline environment is assessed under the following headings:

- Population and Human Health
- Biodiversity (including Flora and Fauna)
- Land and Soils
- Water
- Air and Climate (including Noise)
- Archaeology, Architectural and Cultural Heritage
- Landscape and Visual and
- Material Assets.

In accordance with S.I. 436 of 2004 (as amended) consideration will be given to whether the environmental effects, both positive and negative, of the Plan are likely to be significant.

Figures relating to this Section are contained in Appendix A.1, as extracted from the SEA Scoping Report, unless otherwise stated.

The SEA Directive requires that where the FESLUP has potential for transboundary environmental effects these must be addressed within the SEA. Throughout the entirety of Section 5, reference has been made to any potential transboundary environmental effects that may occur under each environmental component, relating to the FESLUP.

5.1.1 Coillte's Background

Coillte is a semi-state forestry company that was established in 1989, for the purpose of managing the national forest estate, primarily on a commercial basis, while recognising the importance of social and environmental factors.

Commercial forestry is the main driving force of Coillte's business, but the company has diversified into other sectors and is the largest single provider in Ireland of outdoor recreation facilities. Further details of Coillte's business divisions have been outlined in Section 1.1.

The Forest Service of DAFM has overall responsibility for regulating the management of Ireland's forests, both Coillte's forests and those privately-owned[17] (Coillte, 2020).

5.1.2 Overview of Forestry in Ireland

The National Forest Inventory (NFI) 2022[18] (DAFM, 2022) defines forests as lands with a minimum area of 0.1ha, a minimum width of 20m, trees higher than 5m and a canopy cover of more than 20% within the forest boundary, or trees able to reach these thresholds in situ. The forest definition relates to land use rather than land cover meaning that, open space within a forest boundary either permanently or temporarily unstocked with trees, along with felled areas that are awaiting regeneration, are included under the forest classification.

In 2022, the NFI calculated that the area of forest in Ireland has now reached 11.6% of the total land area, with a wide variety of forest types present. The total forest area in Ireland has increased from 697,842 hectares (ha) in 2006 to 808,848 ha in 2022[10]. This increase in area is a result of the development of semi-natural forests and afforestation.

Between 2006 and 2022, semi-natural forests have been responsible for one-third, roughly 33.1% of the new forest areas in Ireland. For the first time, over half (411,484 ha or 50.9%) of forests are in private ownership and 397,364 ha (49.1%) are in public ownership. The share of private forests in the national forest estate has increased by 7.9% since 2006.

State-owned (public) forests in Ireland are owned mainly by Coillte. Coillte owns and manages circa 440,000 hectares of lands, nearly 7% of the total land area of Ireland, 20% of which is managed primarily for biodiversity (DAFM, 2022)[18].

Within the national forest estate there are three main forest ownership categories:

- Public: All State-owned forests, mainly owned and managed by Coillte
- Private (grant-aided): Private afforested land which was in receipt of grant aid and
- Private (non-grant aided): Private forests not in receipt of grant-aid, including areas of semi-natural forests that have regenerated naturally and other long-standing forests on private estate holdings.

The proportion of national forest cover by county and ownership is illustrated in Figure 5.1, as previously mentioned, Coillte owns and manages the majority of public forests illustrated.

[17] Coillte (2020) BioClass Our approach to biodiversity. Available at: Coillte_BioClass_Brochure_Sept_2018.pdf

[18] DAFM (2022) National Forest Inventory (NFI) 2022. Available at: 0b1fafb5-9475-4955-bbbc-26bd9effb509.pdf (www.gov.ie)

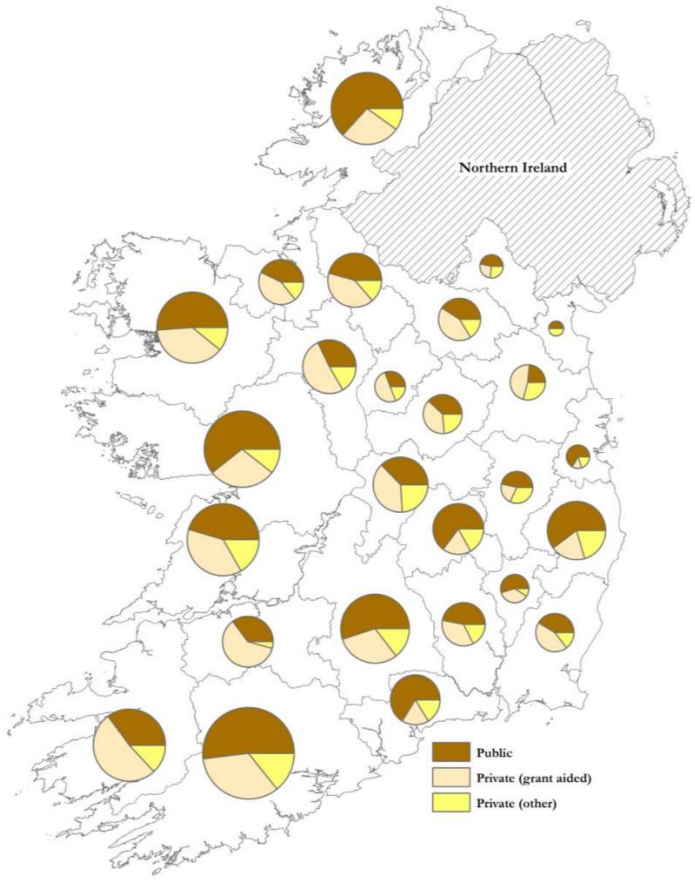

Figure 5.1 Proportion of national forest cover by county and ownership Source: [18] (DAFM, 2022)

In Ireland, conifer species are the dominant species present, representing 69.4% of the stocked forest area while broadleaved species accounted for 30.6% of the area. The share of broadleaf species in the national forest estate has increased by 5.9% between 2006 and 2022. The age-profile of the forest estate is increasing but 39.6% of the stocked forest estate is less than 20 years of age and 30.4% between the ages of 21 and 30 years.

Overall, the forest estate in Ireland appears healthy, while nearly two-thirds at 63.2% of stocked forest areas display signs of forest damage present, the severity of the damage has been identified as primarily low to moderate. The most common cause of damage includes animal damage, competing vegetation, exposure, and nutrient deficiency[18] (DAFM, 2022).

Forests provide us with renewable sources of fuel and raw materials. In addition to supporting our economy, they have many important environmental functions, including flood mitigation, biodiversity conservation and recreation functions to provide improved health and wellbeing services. They also play an important role in climate change by removing CO_2 from the atmosphere.

Afforestation and tree felling operations, without adequate control and monitoring or poorly planned and implemented forest operations, have the potential to impact negatively on natural vegetation, soils, biodiversity, landscape, and water. Potential impacts include sedimentation, nutrient mobilisation and acidification. When planted on peaty soils, forestry can also act as a source of carbon emissions.

5.2 Population and Human Health

5.2.1 Baseline

This section describes the baseline population and human health environment of Ireland, including potential interactions with the forestry sector and reference throughout to Coillte's forest estates.

5.2.1.1 Population

This section summarises some key finding from the 2022 Census Results[19] (CSO, 2022). In the absence of published 2022 Census Results, the preliminary results have been utilised.

Preliminary population data in Ireland was recorded at 5,123,536 people in April 2022, which is the first time that a census has recorded a population of more than five million people in over 170 years. Since 2016, Ireland's population has increased by 8% (361,671 persons) and increases were seen in every county between 2016 and 2022.

Furthermore, in relation to the population increase of 361,671, it was estimated a net inward migration of 190,333 people and 171,338 of natural increase made up this increase. In line with the growing population, housing stock in Ireland increased by over 120,000 units or 6% between 2016 and 2022 and the number of occupied households increased by over 150,000 or 9%, while the number of vacant dwellings fell by over 16,500 or -9%. At a State level Census vacancy rates have fallen to less than 8% in 2022, down from over 9% in 2016 and 12% in 2011.

Ireland's National Planning Framework projects that Ireland will be home to an additional one million people by 2040. These projected population increases will increase pressure on land-use and the requirement for development. Ultimately, a growing population is likely to see an increase in markets and opportunities for use of wood products, amongst a likely increase in demand for recreation and ecosystem services that forests provide.

Forestry in Ireland and the Economy

According to the COFORD report[20] (COFORD, 2022) which is based on 2020 levels of activity, afforestation levels of 2,434 ha, reforestation levels of 13,076 ha and harvesting levels of 3.91 million m^3 have been included within the forecast volume. Further activity detailed in this report has seen 168km of new road construction and 209km of road upgrades occurring. The overall FTE (full-time equivalents) for employment in these areas of forest related activity are estimated as being 1,978. The most significant activities in terms of employment are seen within harvesting (514 FTE) and reforestation activities (500 FTE), which together accounts for 75.6 % of the estimated employment forestry related activities. However, it has also been recognised within this report that the data incorporated does not capture the total employment related to the overall levels of activity in the sector e.g., public servants, forest recreation, forest researchers and some back-office functions from the larger forest companies. While respondents of surveys in this report provided estimates for overheads, there are still a small number of office or administration employees that were not fully captured.

Similarly, there are forester activities that have not been captured as for example the valuation of forests, forest certification and preparation of management plans. The total economic contribution for the forestry and wood sectors is estimated as being more than €2 billion[21] (DAFM, 2022).

The economic activity of the forest sector is spread through every region of the country and makes an important contribution to regional development and the rural economy. In comparison of the 2010 figures with those from 2020 it has been shown that direct employment in both forestry and wood processing have fallen. There are a number of reasons for this, some of which include:

- Forest age-class structure: Employment potential tends to be high at the establishment phase, falls during the post establishment phase and rises again at the harvesting phase. Following harvesting, reforestation is associated with an increase in employment and the cycle continues. Thus, changes in afforestation rates will influence employment levels as will changes in the volumes being harvested. Afforestation rates have fallen substantially in the period since 2010 and

[19] CSO (2022) Census of Population 2022. Available at: Census of Population 2022 - Preliminary Results - CSO - Central Statistics Office

[20] COFORD (2022) The estimated employment and economic activity associated with the forestry sector. Available at: WoodSupplyandDemandontheIslandofIrelandto2030150323.pdf (coford.ie)

[21] DAFM (2022) Press Release – Forestry and wood sectors worth more than €2 billion annually to economy according to new COFORD study. Available at: gov.ie - Forestry and wood sectors worth more than €2 billion annually to economy according to new COFORD study (www.gov.ie)

- The degree of innovation in the forestry sectors, where there is mainly mechanisation of operations and improved logistics in the supply chain.

Forestry represents a key employment sector in rural Ireland and has positive impacts on the economy of the country. Thus, any increase in the level of forest cover in Ireland has the potential to increase employment and economic prosperity.

Coillte's Forest Estate and the Economy

Coillte is Ireland's largest forestry company and biggest supplier of roundwood in Ireland with operations in timber panel production, renewable energy, and land management. Coillte has supported the development of a vibrant Forest industry which contributes more than €2 billion to the economy and also supports over 9,000 jobs, predominantly in rural settings[22] (DAFM, 2022). Roundwood production levels of 2.31 million m^3 were supplied to Coillte's customers in 2020.

Coillte currently comprises of three business divisions, namely:

- Forestry: Coillte's forestry division works to plant, grow, protect, manage, harvest and replant sustainably across its forest estate. In 2020 Coillte planted 22 million trees reforesting over 9,000 hectares of forest all across Ireland
- Land Solutions: Coillte manages its estate for forestry, recreation, and biodiversity, as well as the buying and selling of land for a range of uses such as renewable energy, infrastructure, community projects and commercial developments and
- Medite Smartply: A market leading manufacturer, producing sustainable timber construction panels23 (Coillte, 2023).

According to Coillte's Annual Report – A Greener Future for All[24] (Coillte, 2022), sawlog sale volumes of 1.5 million m^3 and Coillte's Medite Smartply panel board operations focused on optimising production levels during 2022. The year also saw the completion of Coillte's €45m upgrade of the drying, energy and screening system within Smartply, which is an outcome which further underpins the future competitiveness of Coillte's business. Coillte's end market prices for timber and panel board products in 2022 were down from the record levels that had been achieved in 2021. Prices remained relatively high during the first half of the year, supported by strong demand in the construction and home improvement sectors, and a global supply and demand imbalance which created a series of supply challenges in key markets. Coillte's earnings before interest, taxes, depreciation and amortisation (EBITDA) were recorded to be €157m and operating cash was recorded to be €107m in 2022.

As outlined in the same Coillte Report, timber products have the lowest embodied carbon of any mainstream building material. However, at present timber frame homes in Ireland make up approximately 20% of Irish homes. Coillte aim to help Ireland achieve its housing ambition of 300,000 new homes by 2030, and in turn also increase the level of timber frame homes from 20% to 80% by 2050[25] (Coillte, 2022).

Coillte is currently the major supplier of logs to the processing sector in Ireland. The mix of species and harvest types can vary from quarter to quarter and so, this can have an impact on contracted prices of wood, in addition to impacts that may occur from other market factors.

[22] DAFM (2022) Press Release – Forestry and wood sectors worth more than €2 billion annually to economy according to new COFORD study. Available at: gov.ie - Forestry and wood sectors worth more than €2 billion annually to economy according to new COFORD study (www.gov.ie)

[23] Coillte (2023) Our Divisions. Available at: Coillte Divisions - Three businesses Forestry, Land Solutions, Smartply

[24] Coillte (2022) A Green Future for All. Available at: Coillte-Annual-Report-2022.pdf

[25] Coillte (2022) A Green Future for All. Available at: Coillte-Annual-Report-2022.pdf

In relation to forest roads, over the five-year period of 2016-2020, new road construction averaged 84km per year in the private forestry sector. Coillte's estate in comparison saw new road construction lengths of 82km over the same time period. New road construction in the private sector since 1996 totals 1,545 km and it is assumed that only minimal road construction occurred prior to 1996. Based on the Coillte roads survey (2014) there were 7,950 km of roads constructed and since 1996, there has been additional road construction in order to facilitate wind farms and also to access commercial forest crops, these forest roads comprise of approximately 518 km. In total, the estimated length of road infrastructure constructed for 2020 is 10,013 km between both Coillte's forest estate and the private sector.

5.2.1.2 Human Health

The EU Forest Action Plan[26] (European Commission, 2021) acknowledges forestry's social and cultural values to be "*attractive to city dwellers, they provide opportunities for recreational and healthy activities and represent a not inconsiderable cultural heritage*" and not just to be sole sources of wood production. The increased demand for access to forests is recognised as an important aspect of sustainable forestry.

Recreation and Forestry

As outlined in the COFORD document 'Recreational value of Irish forests'[27] (COFORD, 2009), the value of walking trails is currently greater in Ireland for the domestic user than for overseas visitors. For both categories the demand for trails is likely to be greatest in urban areas and around existing popular tourist venues.

According to the DAFM report 'Ireland's Forest Statistics 2022'[28] (DAFM, 2022), there has been a long-standing policy in place of encouraging the use of forests for outdoor recreation. Table 5.1, which is reproduced from Table 34 of the same report shows an upward trend in visitor numbers to Irish publicly owned forests between 1999 and 2015.

Table 5.1 Visitor Numbers to Public Forests Source: [28] (DAFM, 2022)

Year	Number
1999	8,500,000
2004	11,000,000
2005	18,000,000
2015	29,105,759

According to the same DAFM report 'Ireland's Forest Statistics'[28] (DAFM, 2022), there are over 250 recreational sites, 12 forest parks and over 3,000 km of hiking trails across Coillte's estate at the present time. In addition to providing recreational sites such as picnic areas and trails, Coillte has an open forest policy that allows free public access to its circa 440,000 ha estate.

The NPWS provide access to national parks and certain nature reserves, and arboreta managed by the Office of Public Works are open to the public. Also, urban forests (public forests established and managed for recreation) owned by County Councils or local communities are quite intensively used, being close to population centres.

The most recent figures from 2015 estimate 29,105,759 visits to Irish forests per annum, and values forest recreation at €179 million per annum.

[26] European Commission (2021) EU Forest Action Plan. Available at: https://ec.europa.eu/environment/strategy/forest-strategy_en#:~:text=The%20strategy%20sets%20a%20vision,brought%20about%20by%20climate%20change.

[27] COFORD (2009) Recreational value of Irish forests. Available at: COFORD - Irish Forests and Recreation

[28] DAFM (2022) Forest Statistics Report 2022. Available at: 228969_78d3faac-d083-4660-bc04-1ca670df5007 (2).pdf

The decision to allow public access to private forest estates rests predominantly with the forest owner, however there are a number of private forest owners running recreation or sports related businesses from their forests, e.g., Centre Parks and Glencullen Adventure Park.

The COVID-19 pandemic of 2020 has challenged public and institutional structures in relation to our social, technical and administrative abilities to cope with societal disruption. Research undertaken for the Environmental Protection Agency (EPA) demonstrated that, among the citizens surveyed, the previously stated barriers to engaging with their local environment (lack of time from being at work, busy at home and poor weather) diminished in importance during the first half of 2020[29] (Kindermann *et al*., 2020).

The results of this survey also noted increases in early 2020 relative to 2019 of between 30 per cent and 45 per cent in the time spent outdoors for physical and mental health, with nearly half of the respondents reporting discovering new, or rediscovering old, green and blue spaces in their community.

Coillte is the leading provider of outdoor recreation in Ireland with existing recreation areas consisting of both forest parks and high use forests. Coillte's high use forest areas amount to 260 recreation sites and, with walking and mountain bike trails which receive more than 18 million visitors per annum. Coillte also owns 12 forest parks and over 3,000 km of trails located across the country, which receive approximately one million visits per annum[30] (Coillte, 2022). Coillte's estate also includes orienteering courses, aerial trails and tree-tops walks[31] (Coillte, 2023).

Significant demand for recreation across the Coillte estate continued during 2021 with visitor numbers increasing by more than 25% at the most popular recreational sites. As a result, Coillte invested approximately €3.5 million in partnership with the Department of Rural and Community Development for the maintenance and enhancement of recreation facilities across the estate. Since which time, new mountain biking trails were established at Slieve Blooms, Coolaney and Ballinastoe despite the pandemic halting construction activities in early 2021. All new trail centres have held strong visitor numbers since their establishment, with 180,000 riders recorded across the five mountain bike centres in 2021[32] (Coillte, 2021).

In July 2022, the official opening of 'Beyond the Trees Avondale' by President Michael D. Higgins took place in Co. Wicklow. The new visitor destination was developed by Coillte in partnership with Fáilte Ireland and EAK Ireland and combines a 700m Treetop Walk with a 12-storey high Viewing Tower amongst a Seed Café, all of which have been developed using Irish wood products. It was constructed for visitors of all ages to have the opportunity to learn about the multiple benefits of forestry whilst also utilising a new recreation area. Visitor numbers have already exceeded 300,000 for 'Beyond the Trees Avondale' at present.

5.2.1.3 Transboundary Baseline

Northern Ireland, like the Republic of Ireland (ROI), is experiencing a rise in population as seen by their most recent Census (2021)[33] (NISRA, 2021).

[29] Britton, E., Kindermann, G., Domegan, C., & Carlin, C. (2020). Blue care: a systematic review of blue space interventions for health and wellbeing. *Health promotion international*, *35*(1), 50–69. Available at: Blue care: a systematic review of blue space interventions for health and wellbeing - PubMed (nih.gov)

[30] Coillte (2022) Coillte's Strategic Vision. Available at: Strategic Vision - Coillte

[31] Coillte (2023) Recreation. Available at: Recreation - Coillte

[32] Coillte (2021) A Greener Future for All – Annual Report. Available at: Coillte-Annual-Report-2021-English-Language.pdf

[33] NISRA (2021) Statistical Bulletin - 2021 Mid-year Population Estimates for Northern Ireland - Summary (nisra.gov.uk)

5.3 Biodiversity (including Flora and Fauna)

5.3.1 Baseline

5.3.1.1 Forests[34] and Biodiversity in Ireland: Overview

Forest habitats support 80% of terrestrial species providing food, shelter and space to a range of plants, invertebrates, mammals and birds[35] (FAOUN, 2020). Forest canopies are species rich terrestrial habitats supporting about 40% of invertebrate species, of which 10% are considered canopy specialists[36] (J O'Halloran *et al.*, 2011).

Native forests tend to have a higher percentage of species diversity[37] (O Sweeney *et al.*, 2010) than non-native forests however, this does not dismiss the biodiversity value of the latter[38] (S Iremonger *et al.*, 2006)

Ireland is home to a range of forest types including a variety of native forests, mixed forests (native and non-native species) and plantation forest (broadleaf and conifer plantations). In 2022, 11.6% forest cover was recorded in Ireland, c. 2% of which is native.

Compared with 'natural forests' or mixed-species forests, plantation forests usually have a lower level of biodiversity of canopy trees and other species, it is likely that their ability to provide certain ecosystem services is reduced. For example, mixed forests tend to be more effective in delivering a range of provisioning services and are more resistant to various disturbances than single species planted forests[39] (Jactel et al. 2017). The relationships between forest type, biodiversity and ecosystem services are highly relevant for informing forest policy and management, although given the multitude of ecosystem services, it is difficult to generalise about the role of forest diversity. There are also trade-offs between different ecosystem services depending on the tree mixture and stand type involved. Some tree mixtures are superior at providing certain services but other tree mixtures or even single-species forests are more effective for other services[40] (Brockerhoff et al. 2017).

Forest areas in general provide a variety of ecosystem services (e.g. protecting/maintaining water quality and flow, nutrient recycling etc.) as well as playing an important role in climate change mitigation (carbon sequestration), conservation and recreation. Threats to forest habitats include spatial fragmentation (i.e., deforestation/clearance), invasive species (e.g. *Rhododendron ponticum*), disease (i.e., *Hymenoscyphus fraxineus*, *Phytophthora ramorum* and *Tetropium fuscum*), deer browsing amongst others[41] (P.M. Perrin, et al., 2008) which can have a knock-on effect for the species and biodiversity value of these habitats.

Historical land uses have contributed to the clearance of native forests and their replacement with agricultural land or urban development. As a result, biodiversity dependent on forest habitats have been negatively impacted. The late 19th century in Ireland saw many mobile sawmills travelling around Ireland

[34] Forests in this term include forests comprised of native species and non-native species, broadleaf s and conifer forests

[35] Food and Agriculture Organization of the United Nations (FAOUN) (2020). The state of the world's forests. Available at: State of the World's Forests 2020 (fao.org)

[36] O'Halloran, J., Irwin, S. , Kelly, D. L., Kelly, T. C., Mitchell, F. J. G., Coote, L., Oxbrough, A., Wilson, M.W., Martin, R. D., Moore, K., Sweeney, O., Dietzsch, A. C., Walsh, A., Keady, S., French, V., Fox, H., Kopke, K., Butler, F. and Neville, P. 2011. Management of biodiversity in a range of Irish forest types. Report prepared for the Department of Agriculture, Fisheries and Food. 391pp

[37] Sweeney O, Wilson M, Irwin S, Kelly T, O'Halloran J: Are bird density, species richness and community structure similar between native woodlands and non-native plantations in an area with a generalist bird fauna? Biodiversity and Conservation 2010, 19:2329-2342

[38] S. Iremonger, J. O'Halloran, D.L. Kelly, M.W. Wilson, G.F. Smith, T. Gittings, P.S. Giller, F.J.G. Mitchell, A. Oxbrough, L. Coote, L. French, S. O'Donoghue, A.-M. McKee, J. Pithon, A. O'Sullivan, P. Neville, V. O'Donnell, V. Cummins, T.C. Kelly and P. Dowding P 2006, Biodiversity in Irish plantation forests - Large Scale Project in the Environmental RTDI Programme 2001-2006. University College Cork, University College Cork. <http://bioforest.ucc.ie/index.htm>

[39] Jactel H, Bauhus J, Boberg J, Bonal D, Castagneyrol B, Gardiner B, Gonzalez-Olabarria JR, Koricheva J, Meurisse N, Brockerhoff EG (2017). Tree diversity drives forest stand resistance to natural disturbances. Curr For Rep 3:223–243

[40] Brockerhoff, E.G., Barbaro, L., Castagneyrol, B. *et al.* Forest biodiversity, ecosystem functioning and the provision of ecosystem services. *Biodivers Conserv* **26**, 3005–3035 (2017). https://doi.org/10.1007/s10531-017-1453-2

[41] Perrin PM, James M, Barron S, O'Neill F, NcNutt K, Delaney A: National Survey of Native Woodlands 2003-2008 - Volume 1; Main Report. BEC Consultants for National Parks and Wildlife Service 2008 [http://www.botanicalenvironmental.com/ wp-content/uploads/2011/03/Volume-I.pdf].

and cutting down the last few of the remaining forests, this meant that by the end of the 19th century, Ireland's forest cover had been reduced from 80% 6,000 years ago to about 1%.

However, this downward spiral was reversed in the early 20th century when the newly independent Irish State began to encourage tree planting. The main aim was to increase our timber self-sufficiency and to provide rural employment opportunities[42] (Teagasc, 2017). After which time, introduced and non-native species such as Sitka spruce, Lodgepole pine and Norway spruce were largely chosen for their growth rates and their ability to grow on marginal soils[43] (C.J., O'Callaghan, et al., 2017).

In relation to afforestation, research has shown that establishing plantation forests on improved and semi-improved grasslands will be neutral or positive for biodiversity[44] (COFORD, 2022), particularly in landscapes that contain little semi-natural forest habitat.

Non-native conifer forests can provide suitable habitat for a range of native flora and fauna and make a positive contribution to biodiversity conservation. While semi-natural forests tend to be richer in biodiversity because they are more diverse in structure and composition, conifer forests can be enhanced for biodiversity through close to nature management practices.

5.3.1.2 Coillte's Approach to Biodiversity

The Coillte estate consists of a varied tapestry of different habitats, ranging from conifer forests and mixed or broadleaved forests to open bogs and heathlands, to lakes and rivers and 20% of the estate is currently managed primarily for nature.

Coillte's approach to biodiversity is influenced and framed by three factors:

- Nature conservation legislation and standards for Sustainable Forest Management (SFM)
- The nature of the Coillte estate and forest history and
- Coillte's legal and regulatory framework.

Coillte first mapped biodiversity areas in 2001-2005, whereby a preliminary review of Coillte's forest inventory, along with the extensive knowledge of Coillte's foresters, revealed locations for potential biodiversity areas within a broad range of site types. Ecologists then surveyed the potential biodiversity areas, and assessed their habitat value, based on standard scientific principles. Additional biodiversity areas were subsequently identified by forest managers. The outcome of this review was that 90,000 ha of Coillte's estate across more than 2,300 sites, are mapped and designated for management as biodiversity areas. The biodiversity areas vary widely in terms of their ecological value and management requirements. Some biodiversity areas are already habitats that are in good condition, while others show the potential to develop into more valuable habitats over time. Coillte currently manage their biodiversity areas including by means of Continuous Cover Forestry interventions (a close to nature silvicultural approach), controlling invasive species and blocking drains on restored bogs [45] (Coillte, 2020).

The proportion of forest habitats[46] in relation to open habitats[47] in Coillte's biodiversity areas is: 46% forest habitats in comparison to 54% open habitats[45] (Coillte, 2020). These habitats have been illustrated in Figure 5.2.

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[42] Teagasc (2017) History of Forestry in Ireland. Available at: History of forestry in Ireland - Teagasc | Agriculture and Food Development Authority

[43] O'Callaghan, C.J., Irwin, S., Byrne, K.A. et al. The role of planted forests in the provision of habitat: an Irish perspective. Biodivers Conserv 26, 3103–3124 (2017). https://doi.org/10.1007/s10531-016-1125-7

[44] COFORD (2022) Irish Forests and Biodiversity. Available at: 00504 Forestry 2030 Inserts - 06 Bio Diversity.pdf (coford.ie)

[45] Coillte (2020) Coillte BioClass 2020. Available at: Coillte_BioClass_Brochure_Sept_2018.pdf

[46] Biodiversity areas comprising a range of forest types: conifer forests, mixed forests, broadleaved forests and native forests.

[47] The Coillte estate has large areas of open land that were never afforested. This includes large areas of bog and heath, as well as smaller areas of rare habitats such as limestone pavement. The best of these are in biodiversity areas.

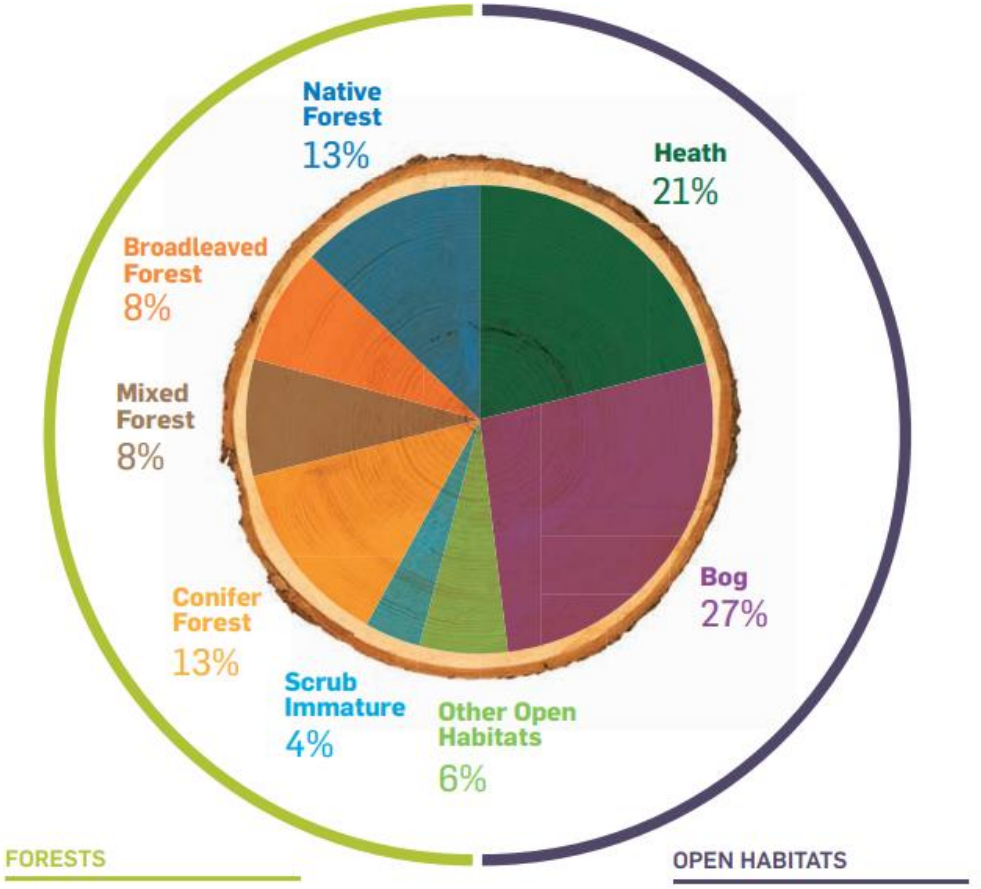

Figure 5.2 Habitats in Coillte's biodiversity areas Source: [45] (Coillte, 2020)

Coillte have developed a science-based approach to determining the ecological value of biodiversity areas called BioClass. Coillte's BioClass Brochure can be found at: Coillte_BioClass_Brochure_Sept_2018.pdf (irishriverproject.com).

Ecologists consider a wide range of criteria to apply BioClass rankings 1-4 to different habitats:

- BioClass 1: Habitats of ecological significance at international or national level
- BioClass 2: Habitats of ecological significance at regional level
- BioClass 3: Habitats of ecological significance at county level
- BioClass 4: Habitats of ecological significance at forest level with good potential for restoration or enhancement and
- In addition, biodiversity features outside of biodiversity areas (e.g., water hotspots, patches of scrub) have also be identified and mapped.

5.3.1.3 Species Protection

As outlined in Section 5.3.1.2, some of the main factors with which Coillte's approach to biodiversity is based on is nature conservation legislation and SFM, whereby the protection of habitats and species is a major theme in both. Approximately 96,000 ha of Coillte land is designated as SAC, SPA, NHA or pNHA and Coillte actively works to engage with regulators in relation to activities planned in designated sites and undertakes any ecological assessments and consents required. Coillte has maintained certification of Sustainable Forest Management (SFM) principles initially since 2001 under the Forest Stewardship Council (FSC) and latterly also under the Programme for the Endorsement of Forest Certification (PEFC). Coillte's SFM and forest certification has allowed for a wide range of measures that enhance biodiversity and nature conservation.

Given that the land cover of semi-natural forest in Ireland is low, planted forests have the potential to provide important habitats for populations of forest species. Managed forests can provide important habitats for a range of native species and may provide habitat for threatened populations of forest specialists including rare plants, animals, and fungi.

Within the last century agriculture has intensified and forests, both planted and semi-natural, have provided a refuge for a wide range of native forest flora and fauna.

Conifer forests are home to a limited diversity of birds as well as nationally important populations of some rare or declining species, e.g., Nightjar and Merlin[48] (O'Halloran, *et al.*, 2002). A review of the bird species of conservation concern in Ireland (Resident/Breeding/Wintering) was undertaken by Birdwatch Ireland (BWI) which included habitat requirements and the likely interactions of species of concern with forestry, some of the main species of concern included (but is not limited to) Hen Harrier, Curlew, Nightjar, Merlin and also, reference must be made to Annex 1 birds in the wider countryside e.g., (but not limited to) geese and swans. This review details each species of concern amongst the interactions and potential conflicts each species may have in relation to forestry. The potential risks posed by forestry have been classified in this review as either low, medium or high[49] (BWI, 2022).

Records have shown that the Great Spotted Woodpecker has bred in Ireland[50] (Biodiversity Ireland, 2021) and their population appears to be expanding. Additionally, the presence of forest specialists, such as breeding crossbills and siskin, and their expansion has been partially accredited to increased afforestation.

Early successional forests can provide habitat for bird species of scrub and open habitat, including those of conservation concern such as the Grasshopper Warbler, Whinchat and Linnet. Such species would be scarcer in the largely agriculture-dominated landscape of Ireland in the absence of forests.

Climate change is known to threaten the species and habitats of value across Ireland and the services they provide. Wind energy, as part of a sustainable energy mix in Ireland, can help to reduce Ireland's GHG emissions and subsequently reduce our climate impact. However, Ireland has obligations under European Law to ensure that the expansion of this relatively new source of energy, including wind turbines and associated infrastructure, do not impact on Ireland's protected habitats and species. Legal action has already been taken against Ireland for failing to adequately protect wild birds and the habitats they rely on, which led to the production of the Group Species Actions Plans by BirdWatch Ireland in 2011. A key recommendation made from these reports was the necessity for better land-use planning using spatial tools. This recommendation, in line with similar initiatives worldwide, has resulted in the development and roll out of the Bird Sensitivity Mapping for Wind Energy Development project[51] (BWI, 2015).

Some mixed forests can also provide habitat for the native red squirrel which is threatened by the introduced non-native grey species. Recent studies have pointed that the success rate of the reds squirrel is underpinned by pine marten predation on grey squirrels[52] (P., Twinning Joshua, *et al.*, 2022). With forests being the primary habitat for pine martens, whose population and range in Ireland has increased in response to afforestation, the future of these habitats can contribute to increases in species populations.

Lesser Horseshoe bats in Ireland are dependent on forest habitats, including planted forests, for foraging. The forest edge provides suitable cover and acts as a corridor for foraging and commuting purposes[53] (NPWS,

[48] O'Halloran, J., Walsh, P.M., Giller, P.S. and Kelly, T.C. 2002. Forestry and bird diversity in Ireland: a management and planning guide. COFORD, Dublin.

[49] Birdwatch Ireland (BWI) (2022) Review of bird species of conservation concern including habitat requirements and likely interactions with forestry. Available at: Birds of Conservation Concern in Ireland - BirdWatch Ireland

[50] Biodiversity Ireland. Great Spotted Woodpecker continues its remarkable spread in Ireland, 2021. Accessed at https://biodiversityireland.ie/great-spotted-woodpecker-continues-its-remarkable-spread-in-ireland/

[51] BWI (2015) Bird Sensitivity Mapping for Wind Energy Developments and Associated Infrastructure in the Republic of Ireland - Guidance Document. Available at: BWI-Bird-Wind-Energy-devt-Sensitivity-Mapping-Guidance_document.pdf (birdwatchireland.ie)

[52] Twining Joshua P., Sutherland Chris, Reid Neil and Tosh David G. 2022Habitat mediates coevolved but not novel species interactions Proc. R. Soc. B.2892021233820212338. http://doi.org/10.1098/rspb.2021.2338

[53] NPWS (2009). Bats & Forestry. Accessed at https://www.npws.ie/sites/default/files/publications/pdf/Forestry_leaflet%5B1%5D.pdf

2009). Forest habitats have a diverse range of invertebrates, including hoverflies of which bat species predate upon.

The variety of invertebrates present within forests is diverse and contributes to the lifecycle of a variety of species that depend on wooded habitats.

Supporting the soil, litter, herb, understorey and canopy as well as providing the base of the forest food chain solidifies the importance of a diverse and healthy forest invertebrate community[54] (J., O'Halloran, et al., 2002).

At present, Ireland has a relatively small number of native species of flowering plants, there is approximately 850. Over recent years, many of these species have declined in numbers and have even disappeared in parts of the country. There are a number of reasons for this, including but not limited to, overgrazing, changing agricultural practices, mowing of roadside verges, drainage schemes and increased development. Under the Wildlife Act, 1976, Ireland's rarest species are protected under the 1999 Flora Protection Order (FPO), which also includes a number of mosses, liverworts, lichens, and algae. It is an offense to uproot, cut or damage these plants unless under license from the Minister for Housing, Local Government and Heritage. It is also an offense to wilfully damage or interfere with the habitat in any way except under license. The FPO lists 68 species of plant for strict protection[55] (IWT, 2020).

Ireland is located within the temperate deciduous forest biome, and most of Ireland's land area was originally covered with these types of woodlands. However, native woodlands in Ireland today are considered semi-natural in nature as interference by man over centuries has changed their character from their original wild state[56] (Forestry Focus, 2023).

Ireland is home to a variety of deer species; deer species are protected under NPWS's Wildlife Acts and are an important part of Irelands natural heritage. Deer species have been present in Ireland since Neolithic times and at sustainable levels, deer numbers are an asset in terms of economic, visual, and sporting purpose. However, where deer numbers become excessive, they can also have significantly negative impacts on land, particularly in relation to farming, forestry, and wider ecosystems. In the absence of a natural predator, it falls on licensed deer hunters to manage their numbers in Ireland[57] (Irish Deer Commission, 2021). As a keystone species, deer can have a profound effect on ecosystem structure, in addition to other damaging impacts. Deer herbivory can determine the structure and composition of forest herb layers, canopy, and sub-canopy, through impacts on regeneration which can lead to an increase in unpalatable species and impacts biodiversity and species composition. Deer populations have increased in distribution and abundance across Ireland and have also been enhanced by the deliberate introductions of non-native species, for example Muntjac, and the release of farmed deer into the wild. These increases in many instances have led to an increase in negative impacts on habitats and increased interactions between deer and humans.

However, woodlands have evolved in the presence of deer and this species does play an important role in creating diverse structure, which favours many woodland plants and animals[58] (D. Burkitt, T., 2009).

Further detail on baseline environmental information relating to biodiversity and forestry in Ireland is detailed in Table 5.2.

[54] O'Halloran, J., Walsh, P.M., Giller, P.S. and Kelly, T.C. 2002. Forestry and bird diversity in Ireland: a management and planning guide. COFORD, Dublin.

[55] Irish Wildlife Trust (IWT) (2020) Rare Plants. Available at: Rare Plants - Irish Wildlife Trust (iwt.ie)

[56] ForestryFocus (2023) Forests of Ireland. Available at: Forests of Ireland | Forestry Focus

[57] The Irish Deer Commission (2021) A Review of the National Parks and Wildlife Service 2021. Available at: Review-of-the-National-Parks-Wildlife-Service-2021.pdf (irishdeercommission.ie)

[58] D. Burkitt, T., (2009) Deer in forests: a discussion document presented at the All-Ireland Mammal Symposium: Mammals and Forests Workshop. Available at: Deer in forests: a discussion document presented at the All-Ireland Mammal Symposium: Mammals and Forests Workshop, 8 November 2009 on JSTOR

Table 5.2 Baseline environmental information surrounding biodiversity and forestry in Ireland

Environmental Topic	Baseline Information	Source
Forest cover	Forest cover in Ireland has reached 11.6% of the total land area, with a wide variety of forest types present. Coillte own and manage circa 4354,000 hectares of lands, which is nearly 7% of the total land area of Ireland.	[59] (NFI, 2022)
Hedgerows and Trees outside the Forest	The fourth National Forest Inventory (2022) estimates non-forest other wooded land has increased from 68,136 ha to 107,792 ha, while the area of national hedgerow has decreased from 273,144 ha to 267,509 ha.	[59] (NFI, 2022)
New planting	Forests established through afforestation dominate as the main method by which forests have become regenerated with 55.2% of forests established in this way. Reforestation, the man-made establishment of trees on lands that have been cleared of forest within the recent past, comprises 28.1% of forests. Semi-natural forest, which are forests established by natural regeneration, occupy 15.1% of forests. In 2022 afforestation levels in Ireland consisted of 42.19% broadleaf species and 57.81% conifer species composition.	[60] (DAFM, 2022)
Total Irish Afforestation (ha)	Total Afforestation (ha) in Ireland (2022): 2,273 ha State-owned (Public) forests in Ireland are owned mainly by Coillte. • Public forest afforestation in 2022: 48 ha. • Private afforestation in 2022: 2,225 ha.	[61] (DAFM, 2022)
The total estimate of newly established hedgerows and trees under agri-environmental schemes	Since the introduction of agri-environmental schemes in 1994 a total of 6,605km of new hedgerows and more than 3.7 million trees have been established on non-forest land. Scheme 1: Rural Environment Protection Scheme (REPS) 1994 – 2010: • Newly established hedgerows (km): 4,100 • Newly planted trees: 1,702,972 • Newly planted orchard trees: N/A Scheme 2: Agri-Environment Options Scheme (AEOS) 2010 – 2014: • Newly established hedgerows (km): 1,322 • Newly planted trees: 464,910 • Newly planted orchard trees: N/A. Scheme 3: Green Low Carbon Agri-Environment (GLAS) 2014 – 2018: • Newly established hedgerows (km): 1,183 • Newly planted trees: 1,617,516 • Newly planted orchard trees: 11,182.	[62] (DAFM, 2022)
Peatland Habitat Restoration	• The EU Habitats Directive and the Natura 2000 network of protected areas are vital for saving Europe's peatlands. At present, 33,000 km² of peatlands are already protected under this Directive over the area of 8,700 Natura 2000 sites across the EU.	[63] (EC, 2021),[64] (Coillte, 2023)

[59] NFI (2022) Ireland's National Forest Inventory 2022. Available at: https://www.gov.ie/pdf/?file=https://assets.gov.ie/246992/3c51fe90-afe3-41f9-966d-b8f37133510d.pdf#page=null

[60] DAFM (2022) Afforestation Statistics. Available at: gov.ie - Forest Statistics and Mapping (www.gov.ie)

[61] DAFM (2022) 2022 State-owned (Public) forests in Ireland are owned mainly by Coillte. Available at: gov.ie - Forest Statistics and Mapping (www.gov.ie)

[62] DAFM (2022) 2022 Ireland's Forest Statistics. Available at: Ireland's Forests - Annual Statistics 2019 - 78d3faac-d083-4660-bc04-1ca670df5007.pdf (www.gov.ie)

[63] EC (2021) How LIFE is protecting Europe's degraded peatlands. Available at: How LIFE is protecting Europe's degraded peatlands (europa.eu)

[64] Coillte (2023) PEATLAND HABITAT RESTORATION. Available at: https://www.coillte.ie/our-business/our-projects/nature-conservation/

Environmental Topic	Baseline Information	Source
	• The European Commission's EU Biodiversity Strategy for 2030 also calls for peatland restoration and their strict protection. • The most recent EU LIFE programme (2021-2027) encourages projects to aim to preserve and restore peatlands, not only in the Natura 2000 network but also outside of it. Thus, includes areas of severely degraded peatlands from agricultural and forestry use as well as from industrial peat extraction. • Coillte's Raised Bog Restoration: – In 2004, Coillte began an EU LIFE - Nature Programme to actively restore 571 hectares of raised bog on 14 midland sites in Galway, Roscommon, Longford, Westmeath, Meath, Cavan and Laois. All 14 sites are designated as candidate Special Areas of Conservation (cSACs) under the EU Habitats Directive and provide habitat for a range of nationally important rare plant and animal species. Coillte undertook another raised restoration project in 2009 in conjunction with the National Parks and Wildlife Service (NPWS) at 17 sites across the midlands and mid-west. • Coillte's Blanket Bog Restoration: – In 2007, Coillte completed their five-year EU LIFE – Nature Blanket Bog restoration project. Various restoration techniques were utilised such as tree removal, felling of trees to waste and blocking drains to re-wet previously drained areas. This project was extended into 2007 and resulted in almost 2,000 hectares of blanket bog being restored. Link to Coillte's Peatland Habitat Restoration Projects: Peatland Habitat Restoration - Coillte	
Reforestation	Annual reforestation rates are mainly driven by harvesting levels (with a time lag between harvesting and reforestation). In relation to Public forest reforestation, up until the early 1980's reforestation rates were low due to relatively low afforestation up to 1950. At present, any felling that takes place in Ireland has to be followed by reforestation under the Forestry Act 2014. In the 1950s and 1960s afforestation greatly expanded, which in turn was reflected in the increasing reforestation of the 1980's and 1990's. By 2008 and 2009, the area of public reforestation had fallen by about a third, since a peak of 10,000 ha in 2003 and in recent years the level of reforestation has significantly increased.	[62] (DAFM, 2022)
Tree species	Composition of total forest area: • Conifers occupy: 495,100 ha; and • Broadleaved species: 218,100 ha. Percentage tree species composition in Ireland, as taken from DAFM's Forest Statistics Ireland 2022 report include: • Sitka spruce: 44.6 % • Norway spruce: 3.8% • Scots Pine: 1.2% • Other pine spp.: 8.8% • Doughlas fir: 1.3% • Larch spp.: 3.3% (generally no longer planted due to diseases) • Other conifers: 0.4% • Pedunculate and sessile oak: 2.5% • Beech: 1.3% • Ash: 3.0% (No longer planted due to diseases, maybe in the future based on tree breeding) • Sycamore: 1.3% • Birch spp.: 7.2% • Alder spp.: 2.4% • Other short living broadleaves: 7.8%	[62] (DAFM, 2022)

Environmental Topic	Baseline Information	Source
	• Other long living broadleaves: 1.4%	
Native forest cover	Ireland's once expansive native forests covered 80% of Ireland following the last Ice Age but have since dwindled to small fragments that now cover less than 2% native cover. Types of Native Woodlands in Ireland include: Native tree species • Sessile and pedunculate oak; • Ash; • Hazel; • Birch and alder; • Willow; • Scots Pine; • Holly; • Crab Apple; • Aspen; • Wild Cherry; • Eared Willow; • Goat Willow; • Rusty Willow; • Rowan; and • Yew. Annex I of the Habitats Directive lists natural habitat types of Community interest whose conservation requires the designation of SACs. Annex I includes five woodland habitat types that occur in Ireland, as listed below: • Bog woodland: A priority habitat type; • Residual alluvial forests: A priority habitat type; • Yew forests: A priority habitat type; • Scrubby facies of limestone pavement: A priority habitat type. Including (inter alia) hazel and ash; and • Old oak forests with holly and hard fern. Link to the Article 17 Report that details their status can be found at: 1. Microsoft Word - 01_AR1719_hab_1110_Sandbanks.docx (npws.ie)	[65] (Coillte, 2020),[66] (DAFM, 2022),[67] (NPWS, 2019)

[65] Coillte (2020) A Brief History Of Ireland's Native Woodlands. Available at: A brief history of Ireland's native woodlands - Coillte

[66] DAFM (2022) Irelands National Forest Inventory 2022. Available at: 1 - 3c51fe90-afe3-41f9-966d-b8f37133510d.pdf (www.gov.ie)

[67] NPWS (2019) The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments. Unpublished NPWS report. Available at: Microsoft Word - 01_AR1719_hab_1110_Sandbanks.docx (npws.ie)

Environmental Topic	Baseline Information	Source
Forest habitat types in Ireland (as per Fossitt)	• Woodland Annex habitats: • Bog woodland: A priority habitat type; • Residual alluvial forests: A priority habitat type; • Yew forests: A priority habitat type; • Scrubby facies of limestone pavement: A priority habitat type. Including (inter alia) hazel and ash; and • Old oak forests with holly and hard fern. • Semi-natural Forest: • Oak-birch-holly Forests; • Oak-ash-hazel Forests; • Yew Forests; • Wet pedunculate oak-ash Forests; • Riparian Forests; and • Wet willow-alder-ash Forests. • Bog Forests Highly Modified/ Non-Native Forests: • (Mixed) broadleaved; • Mixed broadleaved/conifer Forests; • (Mixed) conifer Forests; • Conifer plantation Forest; and • Scattered trees and parkland. Scrub/ Transitional Forests: • Scrub; • Immature Forests; • Ornamental/non-native shrub; • Short rotation coppice; and • Recently felled Forests Linear Forests/ Scrub: • Hedgerows; and • Tree lines.	[68] (A., Fossit, 2000)
Designated protected areas Ireland	SPA sites: • Required under the terms of the EU Birds Directive (2009/147/EC) to designate Special Protection Areas (SPAs) for the protection of birds. • SPAs in Ireland: 165 sites SAC sites: • SACs are selected and designated under the EU Habitats Directive, transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), as amended. • The Directive lists certain habitats and species that must be protected within priority habitats. • SACs in Ireland: 445 sites.	[69] (NPWS, 2022), [70](NPWS, 2022),[71] (NPWS, 2022),[72] (NPWS, 2022)

[68] Fossit, A., (2000) A Guide to Habitats In Ireland. Available at: A Guide to Habitats in Ireland - Fossitt.pdf (npws.ie)

[69] NPWS (2022) Special Areas of Conservation (SAC). Available at: Special Areas of Conservation (SAC) | National Parks & Wildlife Service (npws.ie)

[70] NPWS (2022) Nature Reserves in Ireland. Available at: Nature Reserves in Ireland | National Parks & Wildlife Service (npws.ie)

[71] NPWS (2022) National Parks. Available at: National Parks in Ireland | National Parks & Wildlife Service (npws.ie)

[72] NPWS (2022) Natural Heritage Areas (NHA). Available at: Natural Heritage Areas (NHA) | National Parks & Wildlife Service (npws.ie)

Environmental Topic	Baseline Information	Source
	Nature reserves: • An area designated as important to wildlife, which is protected under Ministerial order. The majority of nature reserves are owned by the State. Although, some are owned by organisations or private landowners. • Nature reserves in Ireland: 76 sites. National Parks: The International Union for the Conservation of Nature (IUCN) recommended that all governments agree to reserve the term 'National Park' in 1969, to areas sharing the following characteristics: • An area where one or several ecosystems are not materially altered by human exploitation and occupation; where plant and animal species, geomorphological sites and habitats are of special scientific, educational and recreational interest or which contain a natural landscape of great beauty; • An area where the highest competent authority has taken steps to prevent or eliminate the exploitation or occupation in the whole area while effectively enforcing the respect of ecological, geomorphological or aesthetic features which have led to the area's establishment; and • An Area where visitors are allowed to enter, under special conditions for educational, cultural inspirational and recreational purposes. • National Parks in Ireland: 6 sites. NHA sites: • Under national legislation the basic designation for wildlife is the Natural Heritage Area (NHA). It is an area considered important for the habitats present or which holds species of plants and animals whose habitat needs protection. To date 75 raised bogs and 73 blanket bogs designated as NHAs. Dual consent process applies to NHAs. • NHAs in Ireland: 148 sites. • pNHAs although not statutorily proposed or designated they are afforded protection in that the Forest Service will not approve afforestation in pNHAs without agreement from NPWS. • A further 630 sites have been proposed for NHA designation (pNHAs) in Ireland. Designated Sites across Ireland are illustrated in Figure A4 in Appendix A-1.	
Legally protected species listed in Ireland: Animal and plant species listed in Annex II, Annex IV and Annex V under EU Habitats Directive (Council Directive 92/43/EEC) And	Flowering Plants (Angiosperms): 90 protected species. Ferns and Fern-allies (Pteridophytes): 20 protected species. Hornworts and Liverworts: 82 protected species. Mosses: 257 protected species. Algae: 14 protected species. Lichens: 6 protected species.	[73] (B., Nelson, et al., 2019), [74] (NPWS, 2022), [75] (EC, 1992), [76] (EC, 2009), [77] (Irish Statute Book, 2000), [78] (Irish Statute Book, 2015)

[73] Nelson, B., Cummins, S., Fay, L., Jeffrey, R., Kelly, S., Kingston, N., Lockhart, N., Marnell, F., Tierney, D., Jackson, M.W. (2019) CHECKLISTS OF PROTECTED AND THREATENED SPECIES IN IRELAND. Available at: IWM 116 Checklists Protected and Threatened Species 2019.pdf (npws.ie)

[74] NPWS (2022) Protected Sites in Ireland. Available at: Protected Sites in Ireland | National Parks & Wildlife Service (npws.ie)

[75] EC (1992) The Habitats Directive. Available at: The Habitats Directive (europa.eu)

[76] EC (2009) The Birds Directive. Available at: Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (europa.eu)

[77] Irish Statute Book (2000) Wildlife (Amendment) Act. Available at: Wildlife (Amendment) Act, 2000 (irishstatutebook.ie)

[78] Irish Statute Book (2015) S.I. No. 356/2015 - Flora (Protection) Order, 2015. Available at: S.I. No. 356/2015 - Flora (Protection) Order, 2015. (irishstatutebook.ie)

Environmental Topic	Baseline Information	Source
Bird species listed in Annex I under EU Birds Directive (Council Directive 09/147/EC). Red Listed species also included as per the NPWS Checklist of Protected and Threatened species in Ireland, as in danger of extinction, and or assessed as Near Threatened and likely to qualify for a threat category in the future:	Mammals: 49 protected species. Birds: 128 protected species. Reptiles: 5 protected species. Amphibians: 3 protected species. Freshwater Fish: 10 protected species. Bees (Hymenoptera, Apoidea): 45 protected species. Butterflies (Lepidoptera): 12 protected species. Damselflies and Dragonflies (Odonata): 5 protected species. Macro-moths (Lepidoptera): 73 protected species. Mayflies (Ephemeroptera): 8 protected species. Stoneflies (Plecoptera): 3 protected species. Water Beetles (Aquatic Coleoptera): 41 protected species. Crayfish (Astacoidea): 1 protected species. Non-marine Mollusca: 53 protected species. Legally protected species in particular are protected under: 1. EU Directives: – EU Habitats Directive (Council Directive 92/43/EEC); and – EU Birds Directive (Council Directive 09/147/EC). 2. National legislation: – Wildlife Act, 1976, Wildlife (Amendment) Act, 2000 and other relevant amendments; and – Flora (Protection) Order, 2015 (S.I. No. 356 of 2015).	
Irish Species types	• Land mammals: Approximately 50 species. • Birds: Over 400 species. • Plant species: More than 4,000 species. • Insects: Over 12,000 species.	[79] (IWT, 2020)
Invasive Species: Biotic factors affecting forestry and its biodiversity levels.	Invasive species: • Ash dieback disease caused by the fungus *Hymenoscyphus fraxineus* was first found in Ireland in October 2012. By the end of 2020 there had been findings in ash in over 660 locations in various settings – forests, nurseries and garden centres, on farm planting, roadside planting, hedgerows and private gardens in all 26 counties. • *Phytophthora ramorum* was first detected in Japanese larch in 2010 and at the end of 2020 has been confirmed present at a total of 56 locations in this tree species. • In 2020 the brown spruce longhorn beetle *Tetropium fuscum* was found for the first time in Ireland in Norway spruce in a forest plantation in Co. Roscommon. A list of harmful organisms for which Ireland has Protected Zone status have been outlined as followed. Pests: • Cephalcia lariciphila (European web-spinning larch sawfly) • Gilpinia hercyniae (European spruce sawfly) • Dendroctonus micans (great spruce bark beetle) • Ips amitinus (small spruce bark beetle)	[80] (DAFM, 2022)

[79] Irish Wildlife Trust (IWT) (2020. Species List. Available at: Species List - Irish Wildlife Trust (iwt.ie)

[80] DAFM (2022) Irelands Forest Statistics 2022. Available at: Ireland's Forests - Annual Statistics 2019 - 78d3faac-d083-4660-bc04-1ca670df5007.pdf (www.gov.ie)

Environmental Topic	Baseline Information	Source
	• Ips cembrae (large larch bark beetle) • Ips duplicatus (northern bark beetle) • Ips sexdentatus (six-toothed bark beetle) • Ips typographus (eight-tooted spruce bark beetle) • Thaumetopoea processionae (oak processionary moth) • Thaumetopoea pityocampa (pine processionary moth) Diseases: • Gremmeniella abietina (Brunchorstia disease) • Hypoxylon mammatum (hypoxylon canker) • Cryphonectria parasitica (chestnut blight)	
Deer population in Forest habitats	Four species of wild-ranging deer present in Ireland and their expansion between 1978–2008: • Red Deer (Semi-Native): 565%. • Sika Deer (Introduced 1860): 354%. • Fallow Deer (Introduced 12th Century): 174%. • Muntjac Deer (Introduced c. 2006): N/A.	[81] (P., Purser, et al., 2009)
Wetlands	The team from Wetland Surveys Ireland have undertaken numerous studies and surveys, and proposed plans for the protection and conservation of wetland habitats for over 20 years. The on-line Map of Irish Wetlands shows the location of more than 12,600+ known and potential wetlands in Ireland. The wetland habitats on sites displayed include the following types: • Lake (Dystrophic/ Acid/ Alkaline/ Mesotrophic/ Eutrophic) • Reservoir • Turlough • Artificial Pond • Canal • Calcareous Spring • Non-Calcareous Spring • Reed Swamp • Tall Herb Swamp • Marsh • Wet Heath • Raised Bog • Lowland Bog • Upland Bog • Cutover Bog • Alkaline Fen • Cladium Fen • Poor Fen • Transition Mire • Wet Woodland (Oak Ash Or Willow Alder) • Riparian Woodland • Bog Woodland • Scrub (Birch Willow Alder) • Lagoon And Saline Lake	[82] (WSI, 2012)

[81] Purser, P., Wilson, F., Dr. Carden, R. (2009) DEER AND FORESTRY IN IRELAND: A REVIEW OF CURRENT STATUS AND MANAGEMENT REQUIREMENTS. Available at: Microsoft Word - Deer Policy_Final Feb21_ (woodlandsofireland.com)

[82] Wetlands Surveys Ireland (WSI) (2012). Available at: http://www.wetlandsurveysireland.com/wetlands/map-of-irish-wetlands--/map-of-irish-wetlands---2/

Environmental Topic	Baseline Information	Source
	• Dune Slacks • Estuaries	

An AA Screening (Stage 1) will be carried out to examine potential impacts of the FESLUP on Natura 2000 sites. The AA Screening will inform the SEA process. Should it be found that the FESLUP is likely to have a significant effect on any Natura 2000 site, a Natura Impact Statement will be prepared.

5.3.1.4 Transboundary Baseline

A wide variety of sites have been designated as SPAs, SACs, Ramsar Sites, Areas of Special Scientific Interest in Northern Ireland (NI). In total, NI has 58 SACs, 16 SPAs, 20 Ramsar Sites and 394 Areas of Special Scientific Interest (ASSIs)[83] (DEARA, 2022). A number of these internationally and nationally designated sites are considered as part of the baseline.

Designated sites located either in proximity to the NI/ROI boundary or have ecological connections to the Republic, including the rivers listed in Section 4.5.1.4 (Water) are considered to be within the study area.

Two additional European Sites and five National Sites were recently adopted under the Marine Act (Northern Ireland) 2013 which are in close proximity to transboundary waters:

- Carlingford Marine Proposed SPA (pSPA)
- East Coast Marine pSPA
- Marine Conservation Zone (MCZ) Strangford Lough
- Outer Belfast Lough (MCZ)
- Waterfoot (MCZ)
- Rathlin (MCZ) and
- Carlingford (MCZ).

Some designations in the ROI, such as Carlingford Lough SPA and Carlingford Shore SAC, extend into NI and as such are considered in the baseline.

There is potential for transboundary issues to occur in relation to mobile species such as salmon within the Lough Melvin SAC, amongst other migratory fish species such as eels and lamprey; these species require access to various habitat types to fulfil their lifecycle.

5.4 Land and Soils

5.4.1 Baseline

5.4.1.1 Land-Use

According to data from Eurostat, and as described in the report 'Climate Change and Land Use in Ireland'[84] (EPA, 2021), land use in Ireland is markedly different from the average across the Member States of the European Union (EU). The main differences are in the proportions of land devoted to agriculture, which in Ireland is 57.9%, 18.8% higher than the average in the EU-28. (39.1%)[85] (EC, 2021).

[83] DAERA (2022) Protected Areas. Available at: Protected areas | Department of Agriculture, Environment and Rural Affairs (daera-ni.gov.uk)

[84] EPA (2021) Climate Change and Land-Use in Ireland. Available at: https://www.epa.ie/publications/research/climate-change/Research_Report_371.pdf

[85] EC (2021) Eurostat Land cover statistics. Available at: Land use statistics - Statistics Explained (europa.eu)

Also, the proportions of land devoted to forestry in Ireland, at 11.6%, is substantially lower than the rest of the EU. In total forest across the EU cover 37.7% of lands[86] (EC, 2022).

According to the same EPA report, the main source of national scale information on land cover in Ireland is the European Environment Agency (EEA) CORINE (Coordination of Information on the Environment) land cover data series, which is an EU-wide inventory of land cover in 44 classes categorised from satellite photography. According to 2018 CORINE data, the main land cover type in Ireland is agricultural land, which accounts for approximately two-thirds (67%) of the national landmass. Most of this is permanent grassland pastures. Peatlands and wetlands are the second most widespread land cover type, covering almost one-fifth (18%) of the country, while forested areas cover 11% of the country. Refer to Figure A3 of Appendix A-1 for Ireland's overall Forest Cover. Bedrock Geology in Ireland has also been illustrated in Figure A6 in Appendix A-1.

There has been a general upward trend in the percentage of the national area covered with forestry since 1990, with a 0.02 per cent increase since 2012. Most of this growth relates to an increase in commercial coniferous plantations.

According to the DAFM, the mid-1980s saw a significant increase in private forest development, with the introduction of EU-funded grant schemes that were aimed at encouraging private landowners, mainly farmers, to become involved in forestry[87] (Teagasc, 2021). Today, the area of forest is estimated to be 808,848 ha or 11.6% of the total land area of Ireland[10].

For the first time over half, approximately 411,484ha or 50.9%, of forests are in private ownership and approximately 397,364ha or 49.1% are in public ownership, mainly owned by Coillte[88] (DAFM, 2022).

The availability of land for afforestation depends on a number of factors, including current land use, site suitability and the impact of other agricultural support schemes and policies. Land types that are suitable for forestry can provide a range of ecosystem services including economic, wood production, climate change mitigation, habitat enhancement, recreation etc.

There are three land types with regards forestry suitability in Ireland - 'Suitable Land GPC 2-12,' 'Suitable Land GPC 1' and 'Unsuitable Land'[89] (DAFM, 2017). Land suitability refers to the fitness of a given type of land for a specified kind of land use, which in analogy is the degree of fitness of a given type of cropland for production of a given crop species[90] (FAO, 1976).

Suitable land GPC 2-12 in Ireland includes:

- Cultivated and fertilised fields used for tillage, crops and pasture grazing, and land reclaimed for grazing prior to the 1st of January 2011
- Fields and dry grassland hill sites where the parent material is limestone or Silurian shale, or where steeper slopes limit the use of agricultural machinery
- Pasture dominated by soft rush, where poorer drainage restricts agricultural activity
- Areas of Midland fen peats that cannot be wetted, and peats previously reclaimed for agriculture and now supporting rush pasture vegetation

[86] EC (2022) The European Union and forests. Available at: The European Union and forests | Fact Sheets on the European Union | European Parliament (europa.eu)

[87] TEAGASC (2021) A Historical View of Woodlands in Ireland. Available at: Forestry - A Historical View of Woodlands in Ireland - Teagasc | Agriculture and Food Development Authority

[88] DAFM (2022) Ireland's National Forest Inventory 2022. Available at: 1 - 0b1fafb5-9475-4955-bbbc-26bd9effb509.pdf (www.gov.ie)

[89] DAFM (2017) Land Types for Afforestation. Available at: https://assets.gov.ie/121183/49933794-2a40-4cef-be2b-cef1adacd43f.pdf

[90] FAO (1976) LAND USE, LAND COVER AND SOIL SCIENCES - Vol. II - The FAO Guidelines for Land Evaluation. Available at: The FAO Guidelines for Land Evaluation (eolss.net)

- Lands showing evidence of agricultural improvement, either through the soil conditioning of animal husbandry / manuring or historic crop production
- Old hill pastures composed predominately of velvet bent, tufted hair-grass, sheep's fescue, Yorkshire-fog and sweet vernal-grass
- Sites with the following species of rush: sharp-flowered rush, compact rush, bulbous rush and soft rush
- Drier sites on hillsides, comprising dense bracken and
- If present, purple moor-grass should occur with better pasture grasses, i.e., sweet vernal-grass or bent grass, or with abundant soft rush, and should not constitute heathland-type vegetation.

According to the DAFM, unsuitable land for forestry in Ireland includes the following:

- Sites which, for any reason, are not capable of growing to full rotation a commercial timber crop of Sitka spruce of yield class 14 or greater, based on one standard application of phosphorus at establishment
- Sites with a R+N (Reaction + Nitrogen) score[91] of 5.3 or less (with the exception of sites that score between 5.0 to 5.3 and which have an average peat depth of less than 50 cm and which are capable of being suitably drained – such sites fall under Suitable Land: GPC 1)
- Sites over 300 metres above sea level in the west of Ireland, and over 400 metres above sea level in the east of Ireland
- Sites that cannot be adequately drained, and sites that are prone to flooding
- Sites with rock outcrop and associated shallow soils in excess of 25% of the area
- Severely exposed sites and some sea-facing locations
- Former and existing industrial cutaway peatlands
- Sites with shell marl within 70 cm of the soil surface
- Sites where it is not possible or practical to access or construct forest roads to facilitate the movement of timber to a suitable public road network
- Private gardens
- Golf courses (however, areas that are not an integral part of the playing course can be considered for afforestation on application) and
- Lands excluded for environmental reasons.

The DAFM's Forest Service 'Environmental Requirements for Afforestation'[92] (Forest Service, 2016) sets out a range of considerations for exclusions of unsuitable land for forestry in Ireland.

Despite the increase in total forestry area in Ireland, the rate of afforestation has decreased in the past 20 years. Annual afforestation in Ireland over the period 1922–2022 peaked in the 1990s, the highest level being recorded in 1995 at 23,710 ha. Since then it has declined steadily. Afforestation levels in Ireland in 2022 were recorded at 2,273 ha[93] (DAF, 2022).

[91] R+N scoring is an indicator of productivity.

[92] Forest Service, DAFM (2016) Environmental Requirements for Afforestation. Available at: https://www.bing.com/ck/a?!&&p=7418a98a466830b796a8f6255272e8bdb8baf4eaa2cf353352a387363967af4bJmltdHM9MTY1Mjc5Nzk1OSZpZ3VpZD0wZmU2MTc0NC1hMzk4LTQwMTUtYWYwNy1jZGEzNzY4NjE3NjkmaW5zaWQ9NTE1Nw&ptn=3&fclid=33fda8b9-d5ee-11ec-864f-34516e621b0f&u=a1aHR0cHM6Ly9hc3NldHMuZ292LmllLzEwOTI1My9lOWFkMzczYS00NzY3LTQ1OTYtYmM5MC0yYjE2NmY4ZTZmMDYucGRm&ntb=1

[93] DAFM (2022) Afforestation Statistics. Available at: gov.ie - Forest Statistics and Mapping (www.gov.ie)

The DAFM's draft Forest Programme 2023-2027 which will guide forestry in Ireland, including Coillte's forest estate, will discontinue the afforestation of GPC 1 and 2 & 12 categories.

5.4.1.2 Soils

The quality of soils in Ireland is considered generally good, although there are pressures impacting on its long-term protection and maintenance particularly from land use changes, intensification of use, urbanisation and contamination of soils[94] (EPA, 2020). Teagasc Soil types have been illustrated in Figure A5 in Appendix A-1 of this report. The soils of Ireland are an immensely valuable, and finite, national resource, which forms and evolves slowly over very long periods of time and can easily be damaged and lost. The Great Soil Groups of Ireland are set out in Table 5.3.

Table 5.3 The Great Soil Groups of Ireland Source: [95] (Teagasc, 2020)

Soil Group	Details
Ombrotrophic	Ombrotrophic peat soils are rain-fed peat soils in lowland (raised bog) and upland positions (blanket peat).
Minerotrophic	Minerotrophic Peat soils are ground water-fed peat systems occurring in river valleys, inter-drumlin hollows and on the periphery of raised bogs. They are eutrophic and have a pH > 4.0.
Rendinza	Rendzinas are shallow (< 30 cm depth) calcareous soils with hard rock or skeletal material comprising > 80% coarse fragments at or above 30 cm.
Lithosol	These are shallow (> 30 cm depth) non-calcareous soils, commonly overlying hard rock or skeletal and gravelly material made up of > 80% coarse material. They tend to be stony soils, or with shattered bedrock and are associated with frequent rock outcrops.
Alluvial	Alluvial soils are formed in deposits of river, lake, estuarine or marine alluvium. The majority of series described are associated with recent rivers and streams. The lake alluviums found in Ireland are mostly associated with depressions at the sites of glacial or post-glacial lakes.
Groundwater Gley	These soils have gleyed sub-surface horizons, displayed by prominent mottling or uniformly grey subsoils within 40 cm depth. The gleying is caused by periodic waterlogging resulting from a shallow fluctuating groundwater table.
Surface Water Gley	Surface-water gleys have a gleyed sub-surface horizon and a slowly permeable subsurface horizon. The slowly permeable sub-surface horizon impedes vertical water movement from in situ precipitation and/or lateral run off from upslope positions resulting in seasonal waterlogging.
Podzol	Podzols have a dark, humose or peaty surface horizon and an albic horizon overlying a podzolic B horizon. If the topsoil is peaty it should be < 40 cm thick. The albic horizon has a moist colour value > 4. An iron pan may be present and if the topsoil is peaty a Bh horizon may also develop. Gleying can also occur within the profile.
Brown Podzolic	Brown Podzolic Soils show features of incipient podzolic processes but are not sufficiently expressed to classify them as Podzols. This Great Group includes degraded Podzols, primarily through cultivation or land improvement and in some cases there may also be a thin discontinuous iron pan present.
Luvisol	These soils are associated with clay eluviation which results in a horizon with significant accumulation of clay compared to the overlying horizons.
Brown Earth	Brown Earths are well drained soils possessing rather uniform profiles with little differentiation between horizons. 4 or more) or structural change compared with lower horizons. They have not been extensively leached or degraded (i.e. they lack argillic (Bt) or podzolic B (Bs, Bh) horizons) although some leaching has resulted in the translocation of calcium and magnesium.

The report 'Land Types for Afforestation'[96] (DAFM, 2017) outlines the types of conifers and broadleaves that are suited to particular soil types - refer to Table 5.4. Conifers suit a wide range of forest soils, from brown earths to peaty gleys and podzols. Broadleaves demand more fertile sites.

[94] EPA (2020) Soil quality or contamination. Available at: Causes of environmental issues: land and soil | Environmental Protection Agency (epa.ie)

[95] Teagasc (2020) Soils - the multifunctional resource. Available at: 2020 - Soils - the multifunctional resource - Teagasc | Agriculture and Food Development Authority

[96] DAFM (2017) Land Types for Afforestation. Available at: https://assets.gov.ie/121183/49933794-2a40-4cef-be2b-cef1adacd43f.pdf

Table 5.4 Sites and soils suited for specific conifer and broadleaved species Source: [96] (DAFM, 2017)

Species	*Site/Soil*
Lodgepole pine	Blanket peats Midland peats Old Red Sandstone podsols Cutaway bog
Sitka spruce/lodgepole pine (North Coastal) mixture	Blanket peats Old Red Sandstone podsols
Sitka spruce/Japanese larch mixture	Old Red Sandstone podsols
Sitka spruce	Fertile peats Peaty gleys Surface water gleys Podsols
Norway spruce	Drier surface water gleys Machine and manual cutaway bog Free-draining mineral soils Frost prone sites
Douglas fir	Free-draining mineral soils
Scots pine	Free-draining mineral soils Cutaway bog
Corsican pine	Mineral soils
Other conifers	Mineral soils Cutaway bog (some species)
Pedunculate oak	Fertile moist mineral soils
Sessile oak	Free-draining mineral soils Cutaway bogs (subject to further research)
Common beech	Unexposed (or tree-sheltered), free-draining, low elevation acid soils
Common ash	Frost-free, fertile, free-draining mineral soils
Sycamore	Free-draining mineral soils
Birch and alder	Riparian zones
Other broadleaves	Fertile, free-draining mineral soils (cherry unsuitable in pure stands)

Soil is not only a key parameter that is essential for forestry but is also a core cross cutting environmental resource that hold effect on climate, water, biodiversity, human health and landscape.

Land management activities can either aid or hinder carbon sequestration in soils. The health of soils can play a large role in carbon sequestration from the atmosphere. According to the Report 'Ireland's Environment – An Integrated Assessment 2020'[97] (EPA, 2020) land-use, land-use change and forestry in Ireland is a net source of CO_2, where net emissions of 3.3 million tonnes CO_2 equivalent were seen in 2018.

As outlined in the same EPA report, some 88% of Irish grasslands have sub-optimal soil fertility, despite soil fertility management techniques being well established. Low soil fertility is problematic as it encourages farmers to apply more nitrogen fertiliser to the soil. An increase in the use of synthetic fertilisers leads to an increase in nitrous oxide emissions. Nutrient source pressures and transfer pathways vary considerably throughout different regions of the country depending on several factors, including soil type and geology. The EPA report goes on to state that there are six overarching degradation processes that can impact on soils.

These processes include compaction, erosion, organic matter decline, salination, landslides and soil sealing which is where soils are closed off from the surface of the land, e.g., road and building developments close off soils from the land surface. The construction of new forest roads therefore should be adequately assessed. If not planned and managed correctly, the construction of roads in forest areas can lead to increased surface run-off, erosion, and the transport of nutrients to open water.

[97] EPA (2020) Irelands Environment – An Integrated Assessment 2020. Available at: https://www.epa.ie/publications/monitoring--assessment/assessment/state-of-the-environment/EPA_Irelands_Environment_2020.pdf

Though the potential for major destructive landslides is slight, there have been isolated instances of severe events in Ireland in the past across a range of land uses. The majority of the country (approximately 80%) is classed as having 'Low' landslide susceptibility.

Peatlands (Organic Peat Soil)

Peatlands provide a range of functions, including the maintenance of biodiversity and water quality, carbon storage and sequestration, water regulation, agriculture, forestry, recreation and flood attenuation. In addition, peatlands form unique landscapes that can also act as amenity areas for locals and visitors and can attract tourists, for activities such as hill-walking and wildlife watching which can bring economic benefit.

According to the National Peatlands Strategy[98] (DCHG, 2015) over recent years, along with increased understanding and concern over climate change, scientific research has established the importance of peatlands as carbon stores and potential reinforcement against some of the projected effects of climate change. As peatlands develop, they slowly remove carbon from the atmosphere and store it in the form of peat. By taking the carbon dioxide from the atmosphere over long periods and by emitting other greenhouse gases such as methane, natural bogs both impact and regulate the global climate. Over a long period of time, peatlands have been naturally "cooling" the atmosphere, the opposite to human-induced "warming" caused by the emission of carbon dioxide into the atmosphere, natural peatlands act as natural climate regulators. However, once degraded, through drainage, cutting or burning, this process is reversed.

Along with the emissions of carbon dioxide from the burning of peat, drained bogs across Ireland now also emit vast amounts of carbon dioxide as the peat that they stored decomposes. Damage to peatlands, particularly where channels have been created from cutting, drainage and loss of vegetation can increase the amount and speed of unfiltered water leaving bogs. Peatlands are also important in terms of regulating flows into water courses and can mitigate flooding and drought, where peatlands are damaged or inappropriately managed, the services they provide can be degraded or lost entirely. These loses can result in additional costs arising from flooding of properties and land, damage to rivers and lakes, losses of fish spawning and nursery grounds, increased cost of water treatment and increased emissions of carbon dioxide to the atmosphere. The function of healthy peatlands includes the provision of clean water, regulating climate and providing support for unique biodiversity and associated aesthetic values which in the past, has not been widely appreciated in comparison to the production values of a drained peatland in the form of peat, turf or support for agriculture and forestry. An understanding of these peatland ecosystem services is key to sound decision making regarding the management and use of peatlands, which will centre on balancing the needs and interests of the entire community. However, works to restore peatland areas has begun over the past number of years widely across Ireland.

The National Peatlands Strategy is the key national Plan responsible for management and conservation of peatlands. The NPWS has published National Peatlands Strategy Progress Reports in 2018 and 2019 and a National Peatlands Strategy mid-term review document has been subject to a two-month public consultation period ending on 30 June 2021.

The National Peatlands Strategy estimates that our peatlands store some 1,566 million tonnes of carbon and represent about 64% of the total soil organic carbon stock present in Ireland. The Peatlands Strategy aims to restore, protect and manage our peatlands and the benefits they provide us. It reports that only 10% of the original raised bogs and 28% of the original blanket peatlands were deemed suitable for conservation in Ireland (as natural peatlands).

Coillte to date has worked on a number of Peatland habitat restoration projects, including:

- Raised Bog Restoration - In 2004, Coillte began an EU LIFE - Nature Programme to actively restore 571 hectares of raised bog on 14 midland sites in Galway, Roscommon, Longford, Westmeath, Meath, Cavan and Laois. All 14 sites are designated as candidate Special Areas of Conservation (cSACs) under the EU Habitats Directive and provide habitat for a range of nationally important rare plant and animal species. Coillte recently completed their third bog restoration project "Demonstrating Best Practice in Raised Bog Restoration in Ireland" in conjunction with the NPWS.

[98] DCHG (2015) The National Peatlands Strategy. Available at: National Peatlands Strategy | National Parks & Wildlife Service (npws.ie)

The project is a nature conservation project jointly funded by EU DG-Environment, the Department of Arts, Heritage and the Gaeltacht and Coillte (The Irish Forestry Board) under the EU LIFE-Nature Programme. The project focuses on the restoration of 636 ha of raised bog habitat on 17 Coillte owned sites within the Natura 2000 Network and in Natural Heritage Areas. This project implements best practice restoration techniques developed in Coillte's previous Raised Bog Restoration Project as detailed above.

- Blanket Bog Restoration - In 2007, Coillte completed their five-year EU LIFE – Nature Blanket Bog restoration project. Various restoration techniques were utilised such as tree removal, felling of trees to waste and blocking drains to re-wet previously drained areas. This project which was originally scheduled for completion by the end of 2006, with a target of restoring 1,212 hectares but was extended into 2007 and resulted in almost 2,000 hectares of blanket bog being restored99 (Coillte, 2023).

Ireland's peatlands comprising of raised bog, blanket bogs and fens, are unique on a European and a global scale as Ireland is home to over 50% of the total habitat resource of raised bog and 99.9 % of that of blanket bog, within the EU Atlantic Biogeographic Zone. By rewetting and restoring peatlands they can be transformed from a carbon emission source into a healthy carbon sink, while maintaining their rich heritage beneath[100](DHLGH, DAFM, 2022).

According to Coillte's 'Forests for Climate'[101] (Coillte, 2022), the rewetting of drained organic forested peatland soils does not have any short-term climate change mitigation benefit; however, it has been found to provide benefit in the longer term. It is important to note that the research related to the rewetting of forested peatlands in Irish (or temperate) conditions is limited both in terms of time and space.

As detailed in the same report, afforestation of organic soils has been found to result in a change of GHG emission profile from a large methane (CH4) emission to large carbon dioxide (CO_2) and nitrous oxide (N_2O) emissions due to drainage. The extent of emissions from soils, following drainage is dependent on peat type, hydrology, nutritional status and previous land-use history. Studies related to Irish peatland forests are currently limited both in number and range of site types covered. The first study undertaken was that of Byrne and Farrell[102] who measured total soil respiration in a range of afforested sites on blanket peats and found that there was a large range in values from 1 to 2.6 tC ha-1 yr-1 (mean annual carbon fluxes). The work by Byrne and Farrell was used to derive an Emission Factor (EF), 0.59 tC ha-1 yr-1 which has since been used for peatland forests in the national greenhouse gas inventory[103] (P., Duffy, et al., 2021). More recently, Jovani-Sancho et al.[104] (J., Sancho, et al., 2021) investigated the soil carbon balance of forested blanket peatland in southwest Ireland. In this study, both soil carbon inputs and losses were assessed, and it was discovered that afforested peatlands are a net soil carbon source of between 0.63 ± 0.92 tC ha-1 yr-1 and 3.09 ± 0.67 tC ha-1 yr-1.

The mean soil carbon loss across eight afforested sites was 1.68 ± 0.33 tC ha -1 yr-1. This value has since been used for peatland forests in the national greenhouse gas inventory 2022 submission.

[99] Coillte (2023) PEATLAND HABITAT RESTORATION. Available at: https://www.coillte.ie/our-business/our-projects/nature-conservation/

[100] DHLGH, DAFM (2022) European Peatlands Initiative: a step towards government-supported collaboration. Available at: gov.ie - European Peatlands Initiative: a step towards government-supported collaboration (www.gov.ie)

[101] Coillte (2022) Forest for Climate – Report on Carbon Modelling of the Coillte Estate. Available at: Report-on-Carbon-Modelling-of-the-Coillte-Estate_August2022.pdf

[102] Byrne, K.A. & Farrell, E.P. 2005. The effect of afforestation on soil carbon dioxide emissions in blanket peatland in Ireland. Forestry, 78(3): 217-227

[103] Duffy, P., Black, K., Fahey, D., Hyde, B., Kehoe, A., Murphy, J., Quirke, B., Ryan, A.M. and Ponzi, J. (2021) National Inventory Report 2021. EPA

[104] Jovani Sancho, A.J., Cummins, T. & Byrne K.A. 2021. Soil carbon balance of afforested peatlands in the maritime temperate climatic zone. Global Change Biology. 27(15): 3681-3698.

Similar to these findings and as published in the recently published Climate Action Plan 2023[105](DECC, 2022), the understanding of greenhouse gas emissions associated with the LULUCF sector has fundamentally changed since the publication of the EPA's National Inventory Report (NIR) 2021 and the Climate Action Plan 2021.

Primarily as a revision of the emission factor for forestry on peaty or organic soils, the Climate Action Plan 2023 has since stated that the emissions from planting trees on this type of soil are far higher than previously envisaged.

5.4.1.3 Transboundary Baseline

The ROI and NI share a similar land cover for forestry, peatlands and agriculture, with farmland covering 75% of the area in NI. Forests are on the decline in NI as urban sprawl and developments such as within the wind energy sector expand. Some peatlands, have legal protection as a result of European, national and local legislation in NI.

Bedrock geology in NI is considered to be similar to that of the ROI whereby, limestone, basalt, granite and sandstone are largely present[106] (OSNI, 2022).

5.5 Water

5.5.1 Baseline

5.5.1.1 Surface Water

Nearly half of the surface waters in Ireland are failing to meet the legally binding water quality objectives set by the EU Water Framework Directive because of pollution and other human disturbance. Surface water features and their status' across Ireland are illustrated in Figures A8, A9, A10, A11, A12, A13 and A14 in Appendix A-1.

The EPA's report 'Water Quality in Ireland 2016-2021'[107] (EPA, 2020) found that overall Ireland's water quality has declined. Furthermore, the 'Water Quality in 2022'[108] (EPA 2023), stated that Ireland surface water and groundwater continues to be under pressure from human activities. Two of the main issues driving this deterioration are the excessive levels of nutrients and sediment entering our water courses. In relation to land management practices, agriculture is seen to be the main pressure in Ireland, forestry and peat extraction are also contributors to this problem.

Based on the Water Framework Directive monitoring programme, five categories are used to assess water quality: high, good, moderate, poor, and bad. The same EPA Report[107] (EPA, 2022) detailed the ecological status of 54% Irish surface waters to be in satisfactory ecological health, with either good or better ecological status. However, as a result almost half, approximately 46% of the surface water bodies are not as ecologically healthy or resilient as they should be.

This means that nearly half of the surface water bodies in Ireland are failing to meet the objectives set by the EU Water Framework Directive (2000/60/ EC) because of pollution and other human disturbance. The proportion of all surface water bodies in Ireland and their ecological status class from 2016-2021 have been illustrated in Figure 5.3.

[105] DECC (2023) Climate Action Plan 2023. Available at: gov.ie - Climate Action Plan 2023 (www.gov.ie)

[106] OSNI (2022) OSNI Spatial NI Map Viewer. Available at: OSNI Spatial NI - Map Viewer

[107] EPA (2022) Water Quality in Ireland 2016-2021. Available at: EPA_WaterQualityReport2016_2021.pdf

[108] EPA (2023) Water Quality in 2022: An indicator report. Available at: https://www.epa.ie/news-releases/news-releases-2023/

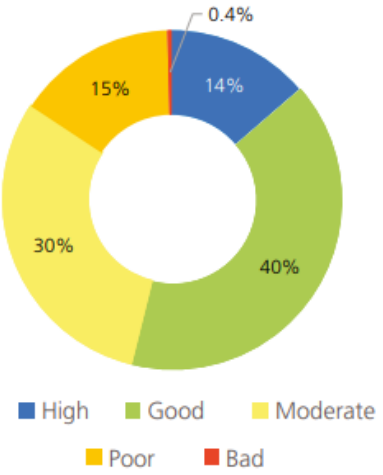

Figure 5.3 Proportion of all surface water bodies in each ecological status class 2016-2021 Source: [107] (EPA, 2022)

Coastal waters were recorded to have the highest percentage of waters in high or good ecological status at 81%, followed by lakes at 69%, rivers at 50% and transitional waters at 36% having the worst water quality, as illustrated in Figure 5.4. Coastal waterbodies are closely monitored in order to comply with the EU Marine Strategy Framework Directive (Directive 2008/56/EC)[109]. The Marine Strategy Framework Directive was transposed into Irish Law in 2011 to help reach good environmental status (GES) in the marine environment by the year 2020 at the latest[110]. The directive is very similar to the Water Framework Directive, but the focus is on the marine environment.

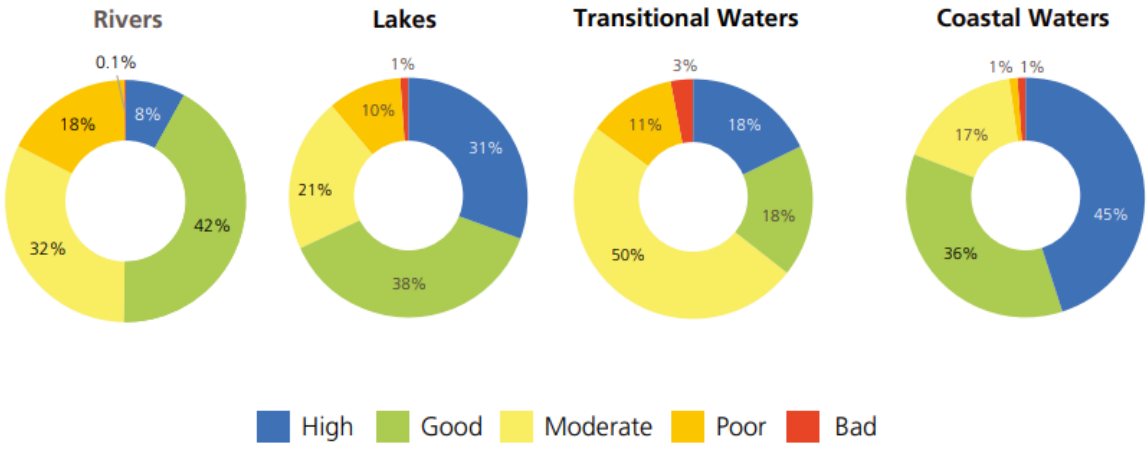

Figure 5.4 Proportions of surface water body categories in each ecological status class 2016-2021 Source: [107] (EPA, 2022)

In relation to the chemical status of Irelands surface waters, half of surface water bodies assessed in the EPA Report[107] are in good chemical status and half have failed to achieve a good standard. Many of these failures were due to substances, such as mercury and polycyclic aromatic hydrocarbons (PAHs), which are known as ubiquitous substances because they can be found nearly everywhere in the environment, in assessing surface water where these substances are excluded, 88% of water bodies are in good chemical status.

Surface water and groundwater across Ireland continue to be under pressure from different human activities. The main pressure damaging water quality in Ireland is the presence of high levels of nutrients, coming mainly from agriculture, wastewater discharges and the damage that various activities such as land drainage and urban development do to the physical condition of our water habitats[107] (EPA, 2022).

[109] EC (2008) Marine Strategy Framework Directive 2008/56/EC. Available at: EUR-Lex - 32008L0056 - EN - EUR-Lex (europa.eu)

[110] Government of Ireland (2011) S.I. No. 249/2011 – European Communities (Marine Strategy Framework) Regulations 2011. Available at: https://www.irishstatutebook.ie/eli/2011/si/249/made/en/print

The most significant pressures, those considered to put a water body at risk of not meeting its environmental objectives, were identified, and reported in the draft River Basin Management Plan 2022-2027, following a comprehensive assessment by the EPA of various human activities and their potential impact on the aquatic environment. The complete breakdown by number of water bodies impacted (x-axis) and the sources of pressures impacting each water body (y-axis) is shown in Figure 5.5 below.

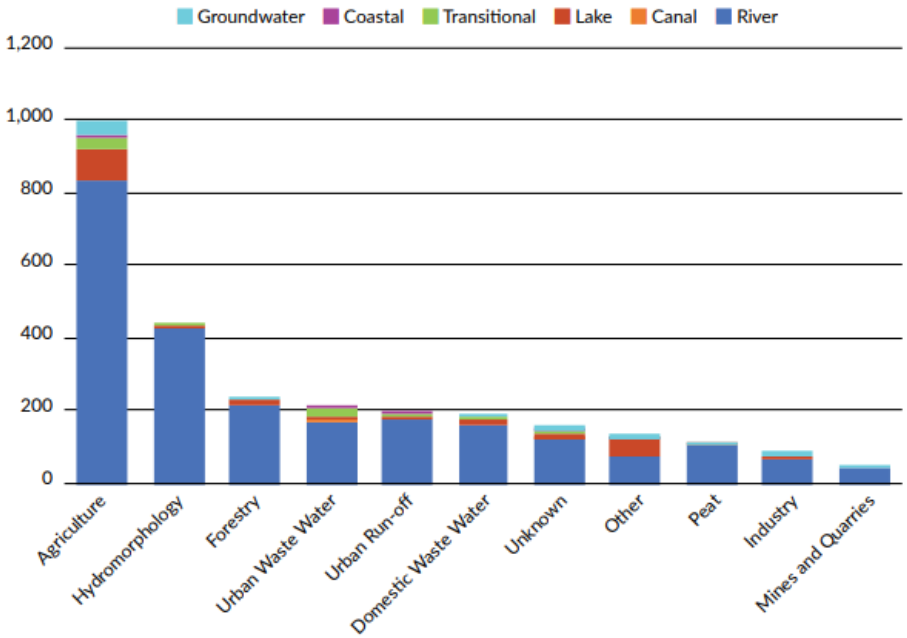

Figure 5.5 Representation of significant pressures in the rivers monitoring programme Source: [111] (DHLGH, 2022)

Forestry is the third most significant pressure impacting on water quality as illustrated above, and there has been little net change in the relative scale of its impacts between assessment periods including in the EPA Report[107] (EPA. 2022). The available evidence from this report shows that water quality declines can be caused by forestry activities such as planting, thinning and clear-felling and that declines can often be very substantial, dropping by two or sometimes three status classes. However, there is evidence that the water bodies can recover within a few years, and that they can remain in very good condition when the forests are stable. However, high status waters can be particularly sensitive to the impacts that can arise from forestry operations, for example, sediment losses from forestry operations in upland catchments are the most significant pressure impacting high-status waters in Ireland. High status waters can also be impacted by nutrients and chemicals, and by alteration of the physical habitat conditions (hydro morphology) of streams, all of which have potential to occur during afforestation, deforestation, and thinning operations, when ground conditions are disturbed, especially when the soils are organic as they are typically less stable than mineral soils. Drained organic soils also give rise to high ammonium levels in high status waterbodies which is harmful to aquatic habitats and species. Herbicides and pesticides used in forestry operations have also been found to negatively impact both water quality and biodiversity, for example cypermethrin is one such plant-protection product that has been found to negatively impacts water quality and biodiversity across Ireland. Cypermethrin is included in the EU Priority Substances list, and is highly toxic to aquatic life, particularly to some invertebrates such as insects and crustaceans. It can enter watercourses through several routes, including surface run-off following application to spray forest plantations.

Ireland's Environment- An Integrated Impact Assessment 2020 Report[112] (EPA,2020) reiterates that one of the main problems damaging the quality of surface waters is nutrient pollution caused by too much nitrogen and phosphorus. Excess nitrates mainly come from agriculture, however from a forestry perspective excess phosphorus would be the main cause for concern, especially in freshwaters and in some of Irelands more river-dominated estuaries. Phosphorus concentrations are elevated in various parts of the country,

[111] DHLGH (2022) Draft River Basin Management Plan for Ireland 2022-2027. Available at: gov.ie - Public Consultation on the draft River Basin Management Plan for Ireland 2022-2027 (www.gov.ie)

[112] EPA (2020) Irelands Environment – An Integrated Assessment 2020. Available at: https://www.epa.ie/publications/monitoring--assessment/assessment/state-of-the-environment/EPA_Irelands_Environment_2020.pdf

particularly along the east coast and in parts of the south and phosphorus losses have been found to come primarily from wastewater discharges and run-off from agricultural land on poorly draining soils.

The national WFD monitoring programme for Ireland was undertaken for 2019-2021 and comprises of 3,169 surface and groundwater bodies. This represents 66% of the total number of water bodies nationally (4,829), including 2,422 river water bodies, 224 lakes, 84 transitional water bodies, 47 coastal waters and 392 groundwater bodies. In addition, there are 159 sites used to assess groundwater quantitative status. The programme includes two main types of monitoring networks:

1. A surveillance monitoring network which provides a comprehensive and long-term picture of water body status across the State.
2. An operational network to assess the status of water bodies at risk of failing to meet their environmental objectives and to assess if a change in the status of a water body is the result of a programme of measures[113] (EPA, 2021).

As outlined in the same report 'Ireland's National Water Framework Directive Monitoring Programme 2019-2021'[113] (EPA, 2021), Forestry in Ireland is monitored within the Operational Sub network, the number of water bodies in the forestry operational sub-networks of the national monitoring programme 2019-2021 are displayed in Table 5.5.

Table 5.5 Operational Sub network of WFD monitoring programme 2019-2021 Source: [113] (EPA, 2021)

Operational Sub network	Rivers	Lakes	Transitional	Coastal
Forestry	215	17	0	0

5.5.1.2 Groundwater

As described in the EPA Report 'Water Quality in Ireland 2016-2021'[114] (EPA, 2022), groundwater originates as rainfall that soaks through the soil to the underlying subsoil and bedrock. During periods when there is little or no rainfall, almost all the water flowing in streams and rivers originates from groundwater. For management purposes, groundwater in Ireland is assigned, assessed and managed within 514 groundwater bodies, which range in size from less than 1 km² to 1,887 km².

At approximately 91%, the majority of Ireland's groundwaters are in a satisfactory condition. Groundwater quality in the country has been stable generally, however there has been a slight increase in the number of groundwater bodies in poor status. In relation to Ireland's river and marine environment, groundwater in the south and southeast of the country have been recorded to have elevated nitrate concentrations and are showing an increasing trend. There are localised issues across Ireland's groundwater, with elevated nutrients and chemical substances affecting an increased number of drinking waters and in addition to this, chemical pollution related to historical mining, industrial and waste sites still persist in some areas[115] (EPA, 2022).

Nitrogen concentrations in groundwater have been recorded as occurring predominantly from agriculture, not forestry. The ecology of groundwater-dependent terrestrial ecosystems (GWDTEs) is fundamentally reliant on the supporting hydrogeology. GWDTEs are wetlands such as turloughs, springs, flushes and fens which are fed by groundwater rather than rainfall or surface runoff.

The nature of groundwater dependency in these wetlands differs distinctly with respect to quality, level and contribution or duration and combinations thereof, and these have been identified as key metrics of environmental supporting conditions for GWDTEs[116] (EPA, 2022).

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[113] EPA (2021) Ireland's National Water Framework Directive Monitoring Programme 2019-2021. Available at: https://www.epa.ie/publications/monitoring--assessment/freshwater--marine/EPA_WFD_MonitoringProgramme_2019_2021-(1).pdf

[114] EPA (2022) Water Quality in Ireland 2016-2021. Available at: EPA_WaterQualityReport2016_2021.pdf

[115] EPA (2022) Water Quality in Ireland 2016-2021. Available at: EPA_WaterQualityReport2016_2021.pdf

[116] EPA (2022) EcoMetrics – Environmental Supporting Conditions for Groundwater-dependent Terrestrial Ecosystems. Available at: Water | Environmental Protection Agency (epa.ie)

Groundwater features and public supply source protection zones in Ireland are identified in Figure A15 in Appendix A.1 of this report. Groundwater vulnerability levels in Ireland are illustrated in Figure A16 in Appendix A.1. The Water Framework Directive Groundwater Body Quality Status can also be seen in Figure A17 in Appendix A.1.

5.5.1.3 Flood Risk

Catchment Flood Risk Assessment and Management (CFRAM) Studies have been undertaken and Flood Risk Management Plans (FRMPs) are currently being prepared in line with the European Directive 2007/60/EC (Floods Directive).

It requires member states to carry out preliminary flood assessments in order to identify areas of potentially significant flood risk, or Areas for Further Assessment (AFA). Each CFRAM Study is required to produce flood maps, flood risk management objectives and the FRMPs.

This programme studied 80% of Ireland's primary flood risk and identified solutions that can protect over 95% of that risk. The CFRAM programme is central to the medium to long-term strategy for the reduction and management of flood risk in Ireland.

Flood Risk Measures currently in place in Ireland include:

- 33 Flood Relief Schemes are underway in order to protect 12,000 properties across Ireland
- 42 Flood Relief Schemes have been completed to date that protect 9,500 properties
- There has been €465 million worth of investment utilised to date for Flood Risk Measures
- Planning Guidelines and Emergency Response
- Ongoing Arterial Drainage and
- Maintenance that benefits 650,000 acres of agricultural land[117] (OPW, 2018).

National Indicative Flood Maps (NIFM) are also used in Stage I Flood Risk Assessments, these maps are 'predictive' flood maps showing indicative areas predicted to be inundated during a theoretical fluvial flood event with an estimated probability of occurrence, rather than information for actual floods that have occurred in the past, which are presented, where available, within the 'past' flood maps[118] (OPW, 2022).

The NIFMs in combination with Surface Water Flood Maps from the Geological Survey Ireland compliment the CFRAMS data.

5.5.1.4 Transboundary Baseline

NI adheres to the same EU Water Framework Directive 2000/60/EC[119] (EC, 2000) that has been implemented by the government for the protection of Northern Irish rivers. A 2021 report of the national Water Framework Directive[120] (DEARA, 2021) states that river water quality is in decline in NI with no river bodies achieving good or high overall status unlike in 2018 where they reported 31% of the rivers to be of those standards. Similarly, to rivers, there were no lakes of good or high overall status in 2021. The same report reveals that 95% of the groundwater of water bodies in NI was of good quantitative status in 2021.

[117] OPW (2018) Implementing the National Flood Risk Policy. Available at: 7062c10df9954b318633278cb2dd7a81.pdf (www.gov.ie).

[118] OPW (2022) National Indicative Fluvial Mapping (NIFM). Available at: NIFM User Guidance Notes - Floodinfo.ie

[119] EC (2000) Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy. Available at: EUR-Lex - 32000L0060 - EN (europa.eu)

[120] DAERA (2021) Northern Ireland Water Framework Directive Statistics 2021 (daera-ni.gov.uk)

A number of watercourses, listed as follows, extend from ROI into NI and as such present potential for transboundary effects:

- The River Foyle is a cross border catchment that covers a surface area of 2,919km², of this, 914km² is located within the ROI. The eastern half of the catchment, located in Northern Ireland, drains most of County Tyrone and a small part of north western County Derry. The Foyle catchment includes the area drained by the River Foyle and by all streams entering tidal water between Coolkeeragh, Co. Derry and Culmore Point, Co. Derry
- The Fane, Newry, Glyde and Dee catchment includes a surface area of 2,125 km², of which 1390 km² is located within the ROI. This catchment area is drained by the Fane, Newry, Fane, Glyde and Dee rivers, and by all streams entering tidal water between Murlough Upper and The Haven, Co. Louth and
- Lough Neagh and the Lower Bann River includes a surface area of 5,787km², of which 374km² is located within the ROI. This catchment includes the area drained by the River Bann and by all streams entering tidal water between the Barmouth and Ballyaghran Point, Co. Derry.

Equally, the Marine Strategy Framework Directive 2008/56/EC[109] was implemented by the government in Northern Ireland in 2010 with the Marine Strategy Regulations[121] to help achieve or maintain Good Environmental Status (GES) in Northern Irish seas. The Northern Ireland Environmental Statistics Report[122] for 2023 found that in 2022 thirteen of the twenty-five inshore coastal waterbodies delineated in Northern Ireland were of "good" or "better" ecological condition.

There is potential for transboundary issues relating to water quality, as the river catchments stated above and the inshore coastal waterbodies delineated in Northern Ireland cross border from the ROI to NI, thus transportation of any polluting substances may be facilitated in this way.

5.6 Air Quality and Climate (including Noise)

5.6.1 Baseline

5.6.1.1 Air Quality

In order to protect human health, vegetation and ecosystems, EU Directives set down air quality standards in Ireland and the other Member States for a wide variety of pollutants. These pollutants are generated through fuel combustion, in space heating, traffic, electricity generation and industry and, in sufficient amounts, could affect the well-being of the areas inhabitants. The EU Directives include details regarding how ambient air quality should be monitored, assessed and managed.

The EPA measures the levels of a number of atmospheric pollutants throughout Ireland in order to measure compliance with Ambient Air Quality Standards Regulations, 2022 (S.I. No. 739 of 2022). For the purposes of monitoring in Ireland, four zones are defined in the Regulations:

- **Zone A:** Dublin Conurbation
- **Zone B:** Cork Conurbation
- **Zone C:** Other Cities and Large Towns and
- **Zone D:** Rural Ireland which is the remainder of the State excluding Zones A, B and C.

[121] UK Government (2010) The Marine Strategy Regulations 2010. Available at: https://www.legislation.gov.uk/uksi/2010/1627/contents/made

[122] DAERA (2023) Northern Ireland Environmental Statistics Report. Available at: https://www.daera-ni.gov.uk/sites/default/files/publications/daera/ni-environmental-statistics-report-2023.pdf

While air quality in Ireland has been considered to be generally good, new evidence from increased monitoring and modelling, coupled with new research on the health impacts at lower levels of exposure to particulate matter, raises questions about that status.

EU Air quality standards (AQS) are highlighted in Table 5.6 these annual limits must not be exceeded in order to protect human health and environmental quality across Ireland. These air quality standards have been listed in micrograms per cubic meter of air (µg/m^3) below.

Table 5.6 Limit values of CAFE Directive 2008/50/EC Source:[123] (Government of Ireland, 2022)

Parameter	Air quality standard (µg/m^3) (annual limits)
NO_2	40
SO_2	20
CO	10,000
PM_{10}	40
$PM_{2.5}$	25
Benzene	5

The EPA manages the National Ambient Air Quality Network. This network sets legislative limit and target values for the protection of human health and vegetation.

According to the 'Air Quality in Ireland Report 2021'[124] (EPA, 2022), monitoring carried out by the EPA in 2021 continues to highlight the need for action on the two key issues that have a negative impact on air quality in Ireland: emissions from the burning of solid fuels in our homes and transport emissions from vehicles in urban areas. These key issues relate to fine particulate matter ($PM_{2.5}$) which are mainly occurring from burning solid fuel in our homes, and nitrogen dioxide (NO_2) which is occurring mainly from road transport. EPA monitoring shows that $PM_{2.5}$ and NO_2 levels are currently within the EU legal limits under the Clean Air For Europe (CAFE) Directive and CAFE legal limits, however these pollutants exceed the World Health Organisation (WHO) Air Quality Guidelines (AQGs) for health.

Ireland was compliant with EU legal limits in 2020 under the CAFE Directive and CAFE legal limits, largely assisted by the reduction in traffic due to Covid - 19 restrictions. However, similarly to 2021, monitored levels were above the WHO Air Quality Guideline values for health, all pollutants at 52 monitoring stations were above these levels, largely due to the burning of solid fuel for home heating[125] (EPA, 2020).

As outlined in the report 'Ireland's Environment- An Integrated Assessment'[126] (EPA, 2020), emissions from solid fuel use (coal, peat and wet wood) continue to contribute to localised high levels of particulate matter and Polycyclic Aromatic Hydrocarbons (PAH) during the heating season. The most recent year's data for particulate matter show exceedances of the WHO Guideline values for health throughout the country. There is a need to reduce the use of wet or green wood (i.e., wood that has not been either seasoned for a long period or dried). The level of harmful particulate emissions from such wood is almost four times higher than that for seasoned or dried wood. Having a standard to control the quality of wood for sale would support this reduction in use of wet or green wood. The wood fuel quality assurance scheme (WFQA) administered by

[123] Government of Ireland (2022) S.I. No. 739/2022 - Air Quality Standards Regulations 20122. Available at: S.I. No. 739/2022 - Ambient Air Quality Standards Regulations 2022 (irishstatutebook.ie)

[124] EPA (2021) Air Quality in Ireland 2021. Available at: EPA-Air_Quality_in-Ireland-Report_2021_-flat.pdf

[125] EPA (2020) Air Quality in Ireland 2020. Available at: https://www.epa.ie/publications/monitoring--assessment/air/Air-Quality-in-Ireland-2020.pdf

[126] EPA (2020) Irelands Environment – An Integrated Assessment 2020. Available at: https://www.epa.ie/publications/monitoring--assessment/assessment/state-of-the-environment/EPA_Irelands_Environment_2020.pdf

the Irish Bioenergy Association (IrBEA) is such a scheme and ensures that quality fuel wood enters the market.

This scheme independently certifies and verifies suppliers of firewood, wood pellets, woodchip and wood briquettes as described above. All certification is carried out against EN ISO 17225 standards for biomass fuels and since early January 2022, all wood burning stoves must comply with the Eco-design European directive in a bid to tackle air pollution and particulate emissions.

Firewood at 20% moisture content produces less than 33% of the emissions of wood fuel at 30% moisture content when burned in older stoves, however, if firewood is burned in modern Eco-Design stoves the emission levels are reduced by almost 90%. Firewood will continue to provide an important market for forest owners in the thinning of forests[127] (IRBEA, 2023).

Particulate matter levels in 2021, according to the Air Quality in Ireland 2021 Report[128] (EPA, 2021) continue to be a concern in villages, towns and cities. All solid fuels (e.g., coal, peat and wood) produce fine particulate matter emissions when burned in open fires or stoves. However, the burning of wood with moisture contents below 25% and combusted in an efficient stove that meets the requirements of the Ecodesign Directive significantly reduces particulate matter emissions.

Fine particulate matter in our air greatly impacts respiratory and cardiovascular health. This is particularly problematic in or near villages, towns and cities because of the cumulative effects of multiple sources of the pollutant and the large numbers of people exposed.

Monitored levels of fine particulate matter were above annual WHO Air Quality Guidelines (AQG) for health values at 65 stations and were above daily WHO AQG for health values at 61 stations, out of a total of 81 monitoring stations. Most of these were as a result of pollution from the burning of solid fuel for home heating.

In October 2022, the government introduced new regulations on the use of solid fuels, under these regulations all coal products and manufactured solid fuels are required to be low-smoke, with smoke emission rates of less than 10g/hour. Manufactured part biomass must also have a smoke emission rate of less than 5g/hour and coal products and manufactured solid fuels, including manufactured part biomass products, must have a sulphur content of less than 2% by weight on a dry ash-free basis. Lastly, 100% biomass products, wood products and wood logs, supplies in units under 2m³, will be required to have a moisture content of 25% or less[129] (DECC, 2022).

Monitored nitrogen dioxide levels were much reduced in 2020 when compared to previous years. Reductions of up to 50% compared to 2019 were observed at many traffic-oriented monitoring stations. Nitrogen Dioxide levels in 2021, according to the Air Quality in Ireland 2021 Report were monitored to have exceeded WHO annual or 24-hour AQG for health levels at 23 stations out of a total of 30 monitoring stations.

Nitrogen and ammonia emissions to air have been found to impact forestry in Ireland, various forms of nitrogen occur naturally, however human activity has caused increased reactive nitrogen concentrations and deposition levels that have led to a number of negative impacts. The EPA has quantified the emissions of ammonia and oxides of nitrogen in Ireland for 2019. This report highlights agriculture as a source of both, accounting for 99.4% of ammonia and 34.4% of emissions of oxides of nitrogen. The primary source of oxides of nitrogen is traffic which contributes 38.6% of total national emissions. Example indicators of

[127] Irish Bioenergy Association (irbea) (2023) Wood and Solid Biomass Fuels factsheet. Available at: 4714-IrBEA-Fact-Sheets-Biomass-1.pdf

[128] EPA (2021) Air Quality in Ireland 2021. Available at: EPA-Air_Quality_in-Ireland-Report_2021_-flat.pdf

[129] DECC (2022) Government agrees new regulations on solid fuels**.** Available at: gov.ie - Government agrees new regulations on solid fuels (www.gov.ie)

ammonia and nitrogen impacts that relate to forestry include proliferation of green algal slimes on trees, other plants (e.g., Heather), moss and lichens[130] (NPWS, 2022).

5.6.1.2 Noise

The Environmental Noise Directive (2002/49/EC) was transposed into Irish law as SI No. 140/2006.

- The Environmental Noise Directive (END) requires member states to prepare and publish strategic noise maps and noise management action plans, every five years
- The aim of the END is to provide a common framework to avoid, prevent or reduce, on a prioritised basis, the harmful effects of exposure to environmental noise. This can be done through the preparation of strategic noise maps and the development and implementation of action plans.

Noise maps are published in Ireland to provide noise exposure levels in a given area, resulting from particular noise sources for:

- Major roads (>3 million vehicle movements per year)
- Major rail (>30,000 rail passages per year)
- Major airports (>50,000 air movements per year)
- Major cities (i.e. agglomerations >100,000 inhabitants), which include Dublin, Cork and (from 2020) Limerick.

5.6.1.3 Climate

According to Met Eireann[131] (Met Eireann, 2022), the general climatic conditions for Ireland as a country are dominated by the Atlantic Ocean and its air and oceanic currents. Consequently, the region does not suffer from extremes of temperature. According to Met Eireann, average annual temperature is about 10.5°C. Average annual rainfall varies between about 790 and 2,000mm.

Rainfall accumulation tends to be highest in winter and lowest in early summer. Winters tend to be cool and windy, while summers, when the depression track is further north and depressions less deep, are mostly mild and less windy.

In line with the global picture, Ireland's average temperature has increased by about 0.7°C over the last 100 years, and the rate of increase has been higher in the last couple of decades, as reported by the EPA[132] (EPA, 2022).

Climate change data recorded in the report 'The Status of Ireland´s Climate 2020'[133] (EPA, 2020) has recorded:

- **Annual precipitation:** 6% higher in the 30-year period 1989 to 2018, compared to the 30-year period 1961 to 1990. The decade 2006 to 2015 was the wettest on record.
- **Rises in greenhouse gas (GHG) emissions:** Background carbon dioxide (CO_2) concentrations in Ireland reached 413 ppm in 2020 which is approximately a 50% increase compared to pre-industrial levels. Nitrous oxide (N2O) concentrations are now above 330 ppb, which is approximately a 20% increase compared to pre-industrial levels. Methane (CH4) concentrations are at 1940 ppb, which is approximately a 170% increase compared to pre-industrial levels.

[130] NPWS (2022) AGRICULTURAL ATMOSPHERIC AMMONIA: IDENTIFICATION & ASSESSMENT OF POTENTIAL IMPACTS. Available at: IWM135.pdf (npws.ie)

[131] Met Eireann (2022) Climate of Ireland. Available at: https://www.met.ie/climate/climate-of-ireland

[132] EPA (2022) What Impact Will Climate Change have on Ireland? Available at: https://www.epa.ie/environment-and-you/climate-change/what-impact-will-climate-change-have-for-ireland/#:~:text=Ireland's%20climate%20is%20changing%20in,depending%20on%20the%20emissions%20trajectory.

[133] EPA (2020) Climate Status Report for Ireland 2020. Available at: https://www.epa.ie/publications/research/climate-change/Research_Report_386.pdf

- **Sea level rise:** Levels around Ireland have risen by approximately 2-3mm per year since the early 1990s. Analysis of sea level data from Dublin Bay suggests a rise of approximately 1.7mm per year since 1938 which is consistent with global average rates.
- **Average sea surface temperature:** Malin Head saw increases of 0.47 Degrees Celsius over the 10 years between 2009 and 2018 above the 1981-2010 mean.
- **Surface water:** Measurements in the surface waters to the west of Ireland between 1991 and 2013 indicate an increase in ocean acidity which threatens calcifying species such as corals, shellfish and crustaceans
- **River flows:** There is an increase in river flows across most of the country as a trend from 1972-2017. However, there is evidence in recent years of an increase in potential drought conditions especially in the east of Ireland.
- **Land cover:** Observations made since 1990 show increases in the area covered by both artificial surfaces and forests. Decreases in wetland areas which include peatlands have also been seen across Ireland.
- **Vegetation fires:** Recorded burnings of 4,000 - 6,000 ha of land on average annually, most fires occur between March and June each year and upland heaths and blanket bogs have been seen to hold the strongest association with fires and
- **Ground biomass:** The total volume of trees and hence carbon sequestered in forest areas has increased.

According to the EPA's latest emissions data[134] (EPA, 2023), Ireland's GHG emissions in 2022 were estimated to be 60.76 million tonnes carbon dioxide equivalent (Mt CO_2eq), this estimate is 1.9% lower (or 1.19 Mt CO_2eq) in comparison to 2021and follows a 5.1% increase in emissions reported for 2021.

In 2021 national total emissions excluding Land Use, Land Use Change and Forestry (LULUCF) increased by 5.2%, emissions in the stationary ETS sector increased by 15.2% and emissions under the ESR (Effort Sharing Regulation) increased by 2.2%. When LULUCF is included, the total national emissions increased by 5.1%.

In 2021, the Energy Industries sector in Ireland displayed an increase of 17.6% in GHG emissions as a result of Ireland more than tripling both coal and fuel oil use in electricity generation. The use of peat in Ireland has continued to decline, by 66% in 2021 from 2020 levels, and is currently at an all-time low within the power generation sector. There has also been a reduction in natural gas use by 8.9% as plants were offline in 2021. Renewables in 2021 accounted for 34.8%, (a reduction from a high of 42.3% in 2020) and natural gas accounted for 46% of electricity generated in 2021. Ireland imported almost 1,600 GWh of electricity in 2021, which would have resulted in additional emissions of over 500 kt of CO_2, if generated in Ireland.

Emissions from electricity generation from 2016-2020 had decreased yearly, but 2021 saw an increase of 18.8% compared to 2020. The return to using more carbon intensive fuel along with less renewables and natural gas plant availability has played a big part in reversing the trend[135] (EPA, 2022).

The EPA has reported upon Land Use, Land-use Change and Forestry (LULUCF) largely, particularly within Ireland's National Inventory Report 2022[136] (EPA, 2022) and Ireland's Provisional Greenhouse Gas Emissions 1990-2021 Report[137] (EPA, 2022). Findings from these reports list LULUCF to cover the following categories: Forest land, cropland, grassland, wetlands, settlements, other land and harvested wood products. This sector is known to be a net source of carbon, as seen every year from 1990-2021 reporting. This result is determined largely by the CO_2 emissions from grassland and wetlands, due to drainage of

[134] EPA (2023) Latest emissions data. Available at: Latest emissions data | Environmental Protection Agency (epa.ie)

[135] EPA (2022) Energy. Available at: Energy | Environmental Protection Agency (epa.ie)

[136] EPA (2022) Ireland's National Inventory Report 2022. Available at: Ireland-NIR-2022_Merge_v2..pdf (epa.ie)

[137] EPA (2022) Ireland's Provisional Greenhouse Gas Emissions, Available at: EPA-Ireland's-Provisional-GHG-Emissions-1990-2021_July-2022v3.pdf

organic soils, however this is offset somewhat by forest land, which acts as a major carbon sink. Harvested wood products are also listed as a sink of carbon for all years where reporting has been undertaken.

The complex dynamics of land-use changes between categories and the relative contributions from biomass and soils lead to fluctuating estimates of sectoral emissions and removals in Ireland.

Emissions from the LULUCF sector in 2021 were 24.8% above those in 1990 and saw an increase of 11.9% between 2020 and 2021. There has been a significant long-term decline in the area of land afforested annually in Ireland and an increase on the level of harvest and increased emission from forestry on organic soils which has resulted in reductions for the contribution of the forest land sector to the removal of CO_2 from the atmosphere[138] (EPA, 2022). Figure 5.6 displays the emissions and removals from LULUCF Sector in the past from 1990-2021.

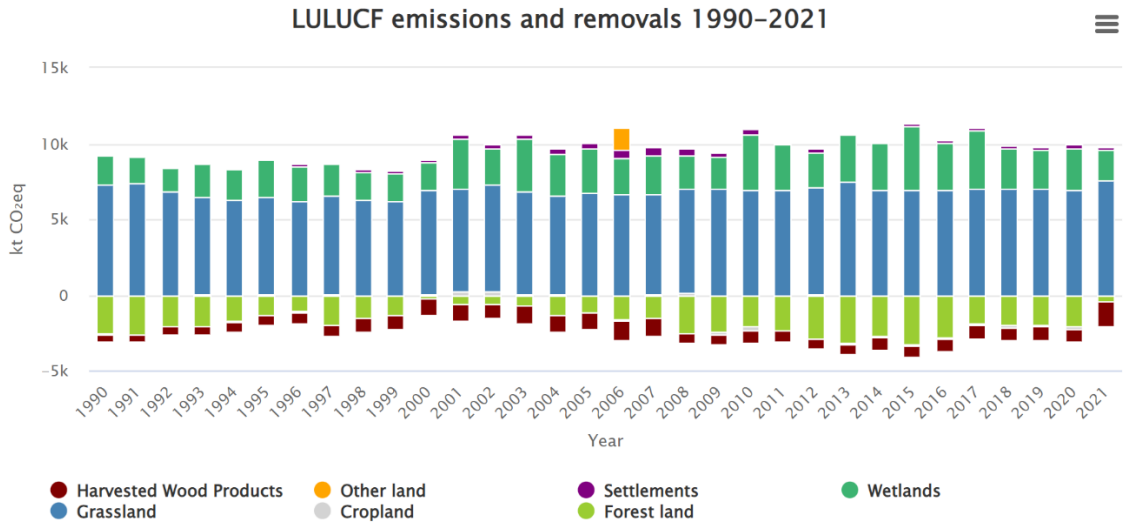
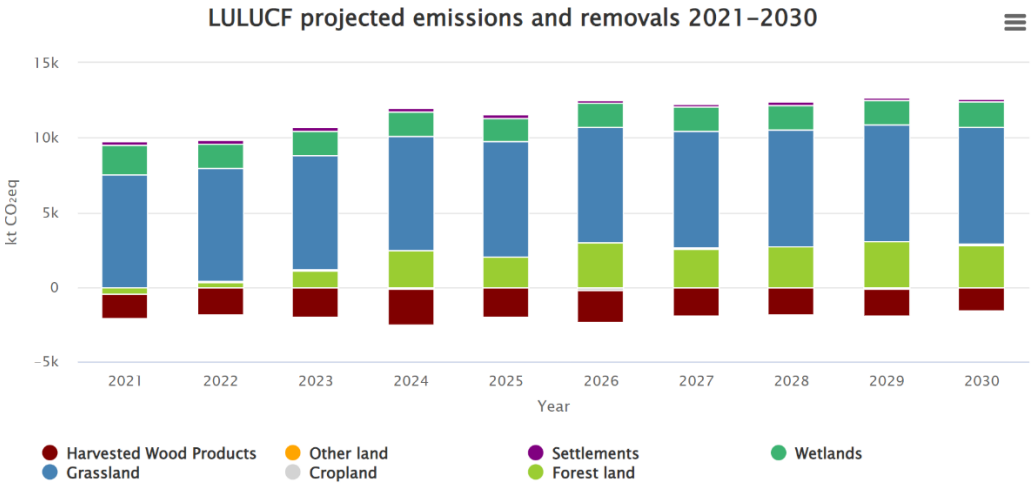


Figure 5.6 LULUCF emissions and removals 1990-2021 Source: [138] (EPA, 2022)

Figure 5.7 displays the projected emissions and removals of the LULUCF Sector for the period of 2021-2030.



[138] EPA (2022) LULUCF. Available at: LULUCF | Environmental Protection Agency (epa.ie)

Figure 5.7 LULUCF projected emissions for 2021-2030 Source: [138] (EPA, 2022)

In 2023, the EPA[139] published its latest emissions projections, showing net LULUCF emissions as being projected to rise to 9.7 Mt CO_2eq. in 2030. On the back of the recently published Climate Action Plan 2023[140] (DECC, 2022), the understanding of greenhouse gas (GHG) emissions associated with the LULUCF sector has fundamentally changed since the publication of the EPA's National Inventory Report (NIR) 2021 and the Climate Action Plan 2021. Primarily as a revision of the emission factor for forestry on peaty or organic soils, the Climate Action Plan 2023 has since stated that the emissions from planting trees on this type of soil are far higher than previously envisaged. Refer to Section 4.4.1.2 for further information on Peatlands.

According to the EPA, in 2021, the overall electricity generated in Ireland from renewables reduced from 42% in 2020 to 35%, due to low rainfall for hydro and low wind. Electricity generated from hydro saw reductions of 20% and wind energy saw reductions of 16% in 2021. The reduction in both hydro and wind generation, combined with an increase in coal and oil use, resulted in the emissions intensity of power generation in 2021 increasing by 11.9%. Renewables accounted for 34.7% and natural gas 49.8% of electricity generated in 2021. Figure 5.8 displays the reductions in emission intensity from the energy sector for 1990 to 2020 and the increase in emission intensity from 2020 to 2021.

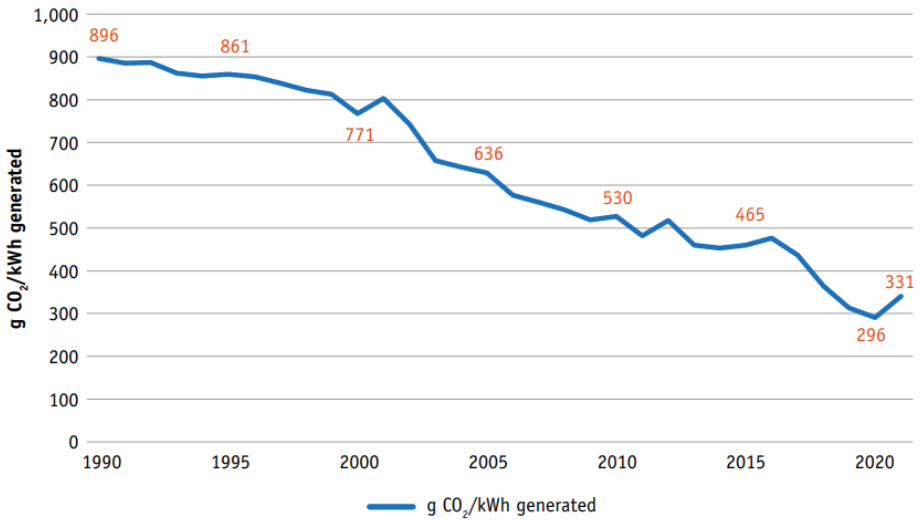


Figure 5.8 Emissions intensity of Electricity Generation 1990-2021 Source: [141] (EPA, 2022)

Figure 5.9 displays the relevant fuel with which electricity was generated at the same time period of 1990-2021, natural gas is seen to be the most predominant fuel type utilised.

[139] EPA (2023) Energy. Available at: LULUCF | Environmental Protection Agency (epa.ie)

[140] DECC (2022) Climate Action Plan 2023. Available at: gov.ie - Climate Action Plan 2023 (www.gov.ie)

[141] EPA (2022) Ireland's Provisional Greenhouse Gas Emissions, Available at: EPA-Ireland's-Provisional-GHG-Emissions-1990-2021_July-2022v3.pdf

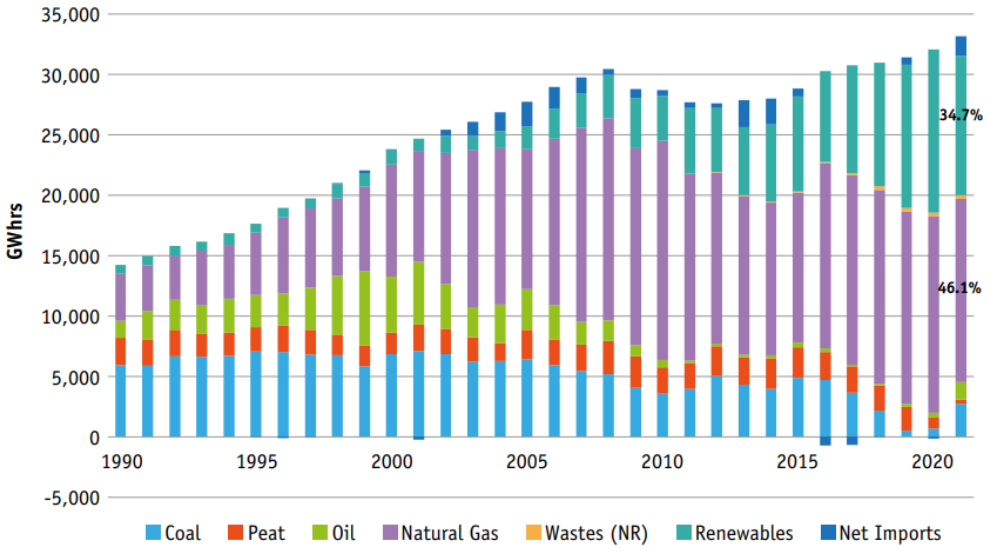


Figure 5.9 Electricity generated by Fuel 1990-2021 Source: [141] (EPA, 2022)

Furthermore, emissions per capita in Ireland were found to have increased from a historic low of 11.9 tonnes CO_{2eq}/person in 2020 to 12.4 tonnes CO_{2eq}/person in 2021. Ireland's average tonnes of GHG/capita over the last ten years was 12.8 tonnes. Recent CSO preliminary 2022 census data has displayed a population of 5.12 million people in Ireland, and the population is projected to increase to 5.5 million in 2030, 5.9 million in 2040 and 6.2 million by 2050, therefore per capita emissions need to reduce significantly.

At current per capita emission levels, each additional 500,000 people would contribute an additional 6 million tonnes of CO_2eq annually[142] (EPA, 2023).

The 'Forest Statistics Ireland 2022'[143] (DAFM, 2022) report made reference to the wood fibre availability for wood energy in the Republic of Ireland, whereby it details how forests are also a source of renewable raw materials and can be enablers to replace materials and energy produced from fossil fuels in Ireland which will also help mitigate rises in greenhouse gases.

The usage of wood fuels is increasing due to renewable energy policies and as young plantations enter the production stage. The potential wood fibre available for energy and other uses is estimated to total 34.78 million m³ over the period of 2021-2040, as illustrated in Figure 5.10. The volume increases steadily from 0.89 million m³ in 2021 to over 2.0 million m³ between 2031 and 2035 and thereafter decreases to 1.82 million m³ in 2040.

[142] EPA (2023) Latest emissions data. Available at: Latest emissions data | Environmental Protection Agency (epa.ie)

[143] DAFM (2022) Forest Statistics Ireland. Available at: Ireland's Forests - Annual Statistics 2019 - 78d3faac-d083-4660-bc04-1ca670df5007.pdf (www.gov.ie)

Year	Roundwood 7 - 13cm	Downgrade + Wood Residues	Harvesting Residues	Total	Energy Content Millions (GJ)
	000 m^3				
2021	184	589	113	886	**6.1**
2022	258	708	93	1,059	**7.3**
2023	348	1,005	112	1,465	**10.1**
2024	325	1,002	86	1,413	**9.8**
2025	357	1,013	95	1,464	**10.1**
2026	394	982	145	1,522	**10.5**
2027	396	1,052	164	1,612	**11.1**
2028	363	1,037	153	1,553	**10.7**
2029	405	1,129	145	1,679	**11.6**
2030	467	1,280	146	1,893	**13.1**
2031	505	1,416	91	2,011	**13.9**
2032	591	1,538	98	2,226	**15.4**
2033	496	1,492	86	2,074	**14.3**
2034	593	1,432	96	2,121	**14.6**
2035	528	1,683	96	2,307	**15.9**
2036	394	1,550	55	1,999	**13.8**
2037	371	1,540	47	1,958	**13.5**
2038	327	1,512	32	1,871	**12.9**
2039	310	1,497	35	1,842	**12.7**
2040	301	1,472	45	1,819	**12.5**
Total	**7,914**	**24,928**	**1,933**	**34,775**	**239.9**

Figure 5.10 Forecast of Wood Fibre and potential for wood energy in the Republic of Ireland (2021-2040) Source: [144] (DAFM, 2022)

5.6.1.4 Coillte's Forests for Climate

As previously discussed, Coillte's forest estate is a large contributor to mitigating the climate crisis in Ireland. Coillte's forest areas in combination with all of Ireland's remaining areas of public and private forest provide a natural carbon sink and store while trees are growing. These forest areas also deliver a substitution benefit as sustainable wood products are being used instead of fossil-based products. During 2021, Coillte replanted over 9,000 hectares of forests with over 22 million plants from Coillte's nurseries[145] (Coillte, 2021).

Coillte's 'Forests for Climate Report on Carbon Modelling of the Coillte Estate'[146] (Coillte, 2022) makes reference to EU LULUCF study findings that highlight forest management as a key mitigation route for emission removals. This report details that Coillte's forest area currently represents circa 86% of the Irish Managed Forest Land (MFL) area reported to the United National Framework Convention on Climate Change (UNFCCC) and will be subject to accounting rules set out in the European Union (EU) LULUCF regulation over the period 2021-2030.

However, MFL also includes private forest lands which were afforested more than 30 years ago, as referred to as transitioning afforestation land. As a result of forests maturing across the national forest estate (both public and private) Coillte's contribution to the national MFL will consist of 50% of the MFL area by 2050.

Ireland submitted a forest reference level (FRL) in a National Forest Accounting Plan (NFAP[147]) to the European Commission (EC) in 2020 and the NFAP estimated that the total carbon stock that was stored between trees, leaf litter and soils in Irish forests in 2017 was circa 312 Mt of carbon; but the NFAP and

[144] DAFM (2022) Forest Statistics Ireland. Available at: Ireland's Forests - Annual Statistics 2019 - 78d3faac-d083-4660-bc04-1ca670df5007.pdf (www.gov.ie)

[145] Coillte (2021) Coillte's Annual Report. Available at: Coillte-Annual-Report-2021-English-Language.pdf

[146] Coillte (2022) Forests for Climate Report on Carbon Modelling of the Coillte Estate. Available from: Coillte

[147] NFAP (2020). Ireland's national forest accounting plan submission under the EU LULUCF regulation. Available at: https://www.gov.ie/en/publication/0ad4b-lulucf/

other studies[148] show that the greenhouse gas profile of the national MFL area will transition from a net removal (sink) to a net emission (source) over the next 5 to 10 years. This transition is detailed to associate with a number of factors, as included below:

- A temporary decline in productivity due to a shift in age class structure to younger conifer stands that will be in a less productive phase of their development
- A significant increase in the levels of harvest due to shifts in age class structures
- Continued emissions from peatland forests where the net carbon balance is negative and
- A decline in productivity of the broadleaf estate as woodlands get older and become over mature due to limited management.

In November 2021, following receipt of regulatory approval from the Competition and Consumer Protection Commission and consent from Coillte's Shareholder Departments, Coillte and ESB established a joint venture, FuturEnergy Ireland (FEI). FEI's objective is to deliver more than 1GW of new renewable energy, which aims to provide enough energy to power half a million homes by 2030. This also makes Coillte a key player in Ireland's transition to a more sustainable future in electricity generation, which will be a central component of the 2020 Programme for Government, Ireland's Climate Action Plan 2023 and the National Development Plan (2021-30). Coillte's land currently enables and has previously enabled other third party renewable activities.

5.6.1.5 Climate Change Targets

Ireland's National and EU Climate Targets:

The Climate Action and Low Carbon Development (Amendment) Act 2021, commits Ireland to reach a legally binding target of net-zero emissions no later than 2050, and a cut of 51% by 2030 (compared to 2018 levels). Under the Act, Ireland's national climate objective requires the state to 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.

Ireland's statutory national climate objective and 2030 targets are aligned with Ireland's obligations under the Paris Agreement and with the European Union's objective to reduce GHG emissions by at least 55% by 2030, compared to 1990 levels and also achieving climate neutrality in the European Union by 2050[149] (Government of Ireland, 2021).

The EU has split GHG emissions into two categories, namely the Emissions Trading System (ETS) and the non-ETS. Emissions from electricity generation and large industry in the ETS are subject to EU-wide targets which require that emissions from these sectors must be reduced by 43% by 2030, relative to 2005 levels. Within the ETS, participants are required to purchase allowances for every tonne of emissions, with the amount of these allowances declining over time to ensure the required reduction of 43% in GHG emissions is achieved at EU-level.

Emissions from all other sectors, including agriculture, transport, buildings, and light industry are covered by the EU Effort Sharing Regulation. In 2023, this established new binding annual GHG emission targets for member states for the period 2021–2030. Ireland will need to reduce its emissions from these sectors by 42% by 2030, relative to 2005 levels.

The legislation discussed sends a clear signal to businesses, farmers and communities that climate action is good for the economy. It will allow Ireland to reach climate targets while creating jobs and sustainable growth in new sectors. Forests and forest products have been acknowledged to play an important role in mitigating climate change. Sustainably managed forests are a net absorber of carbon. Using wood and wood-

[148] Black, K., Hendrick, E., Gallagher., G.,Farrington, P. 2012. Establishment of Ireland's projected reference level for Forest Management for the period 2013-2020 under Article 3.4 of the Kyoto Protocol. Irish Forestry 69: 7-32

[149] Government of Ireland (2021) CLIMATE ACTION PLAN 2021 Securing Our Future. Available at: gov.ie - Climate Action Plan 2021 (www.gov.ie)

based products for construction is a sustainable substitute for conventional carbon-heavy construction products, such as concrete, brick and steel.

In July 2023, the EPA published Ireland's Provisional Greenhouse Gas Emissions Report 1990-2022[150] (EPA, 2023), which makes reference to Ireland's EU and National legislative commitments having different emissions reduction requirements and timeframes for achievement. Ireland's revised 2030 target under the EU's Effort Sharing Regulation (ESR) is to deliver a 42% reduction of emissions compared to 2005 levels by 2030. There are also annual binding emission allocations over the 2021-2030 period to meet that target. Ireland's compliance status in 2030 can only be determined when the 2030 inventory is compiled. Under the ESR two flexibilities may be utilised (use of credit from action undertaken in the Land use, Land use Change and Forestry (LULUCF) sector and EU Emissions Trading Scheme allowances) to allow for a fair and cost-efficient achievement of the targets. Ireland's national emission reduction objectives as set in the Climate Action and Low Carbon Development (Amendment) Act 2021, are to achieve a 51% emissions reduction (including LULUCF) by 2030 compared to 2018 and achieve a climate neutral economy by no later than the end of 2050.

Previous EPA projection reports have referred to use of the full (theoretically available under the EU's Effort Sharing Regulation (ESR)) LULUCF flexibility of 26.8 Mt CO_2 eq in order to achieve compliance with EU 2030 targets. However, research that has been published since last year's projections has led to a revision to the emission factor associated with forestry on organic (peat) soils and this has led to decreased removals and increased emissions associated with forest land for all periods, with over 2 Mt CO_2 eq less removals in 2019. Although wetland rehabilitation and grassland water-table management offset this issue to some degree, in future years the 'credits' available from the LULUCF regulation accounting mechanism are much reduced. The predicted projection scenarios as outlined in Ireland's Greenhouse Gas Emissions Projections 2021-2040 are as follows:

- With Existing Measures (WEM): There is no flexibility projected to be available to be used in either the 2021-2025 or the 2026-2030 accounting periods. The 'no-debit rule' pre-condition is not met for either period (i.e., total 'debits' exceed total 'credits' as measured under the LULUCF regulation accounting rules)

- With Additional Measures (WAM): For the 2021-2025 accounting period it is projected that 5 Mt CO2eq of LULUCF flexibility will be achieved and for the 2026-30 period 1.7 Mt CO2eq. The 6.7 Mt CO_2eq flexibility can only be achieved if the Climate Action Plan 2021 afforestation rate of 8,000 hectares per annum is implemented[151] (EPA, 2022).

According to the same EPA Report, the majority of emissions within Energy industries in Ireland come from power generation and are largely regulated under the EU Emissions Trading Scheme (ETS). This sector contributed 14.9% of Ireland's total emissions in 2020 and is projected to reduce to 10.3% in 2030 (in the With Existing Measures scenario). The predicted projection scenarios are as follows:

- With Existing Measures: Emissions from the energy industries sector are projected to decrease by 37.8% from 8.7 to 5.4 Mt CO2eq over the period 2020 to 2030. This scenario projection details Ireland reaching approximately 70% of electricity consumption from renewable energy by 2030. Renewable electricity generation capacity is dominated by wind energy, with solar and hydro sources also contributing to the mix. Within this scenario, one power station generating electricity from peat (cofiring with 30% biomass) continues to operate until planning permission expires in 2023. Ireland's non-renewable energy generation is projected in this scenario to be a mix of fuels such as natural gas, coal and peat.
  - This scenario assumes that the Moneypoint power station will be operating in the market up to the end of 2025, at which point this power station will no longer generate electricity from coal. In terms of inter-connection, this scenario has the Greenlink 500MW interconnector to the UK coming on

[150] EPA (2023) Ireland's Provisional Greenhouse Gas Emissions 1990-2022. Available at: 2023-EPA-Provisional-GHG-Report_Final_v3.pdf

[151] EPA (2022) Ireland's Greenhouse Gas Emissions Projects. Available: EPA-Ireland's-GHG-Projections-Report-2021-2040v4.pdf

stream in 2025 and the Celtic 700MW interconnector to France coming on stream in 2027. This scenario assumes a roll out of approximately 2.25 million smart meters by 2024, on a phased basis.

- With Additional Measures: Emissions from the energy industries sector are projected to decrease by 48.9% from 8.7 to 4.5 Mt CO2eq over the period 2020 to 2030, which is an additional 1.0 Mt CO2eq more than the WEM scenario. In this scenario it is assumed that by 2030 renewable energy generation will increase to approximately 80% of electricity consumption (as set out in the Climate Action Plan 2021). This is mainly a result of further expansion in wind energy, which in this scenario is likely to comprise 5.0 GW of offshore energy.
  - Expansion of other renewables such as, solar photovoltaics is set to increase to 2.2 GW by 2030. Under this scenario, the same assumptions are in place as for the WEM scenario for peat, electricity generation, Moneypoint power station and inter-connection. Finally, in this scenario, 2 GW storage is to be in place by 2030, including Turlough Hill pumped storage.

5.6.1.6 Transboundary Baseline

NI's 2021 Air Quality Report revealed that air quality in NI has improved substantially in recent decades. In particular, concentrations of sulphur dioxide have declined significantly since the 1990s. An overall decreasing trend in NO_2 concentrations was also observed at many monitoring sites in NI over the past decade. However, some pollutants in some parts of NI continue to exceed air quality objectives. EU limit values, target values and corresponding AQS objectives. There were 22 air quality monitoring stations that operated for all or part of 2021 in Northern Ireland. Regulations limit values, target values and corresponding AQS objectives, have been met for the following pollutants in NI:

- Particulate matter as PM10
- Particulate matter as PM2.5
- Nitrogen Dioxide
- Ozone
- Carbon monoxide
- Benzene
- Sulphur dioxide
- The elements lead, arsenic, cadmium and nickel and
- All three sites where benzo(a)pyrene is monitored exceeded the AQS objective of 0.25 ng m-3 in 2021152 (DAERA, 2021).

The ROI shares a land boundary with NI and therefore, there is potential for transboundary air quality impacts, whereby, depending on the strength and direction of the wind, forestry related emissions can be distributed locally or transported to locations large distances away. Ireland is a party to a range of European and global initiatives in relation to air pollution issues, including the Convention on Long-Range Transboundary Air Pollution (CLRTAP), and its Gothenburg Protocol[153] (UNECE, 2009).

[152] DAERA (2021) Air Pollution in Northern Ireland 2021. Available at: Air Pollution in Northern Ireland 2021 report (Screen Version).pdf (daera-ni.gov.uk)

[153] UNECE (2009) UNECE's Convention on Long-range Transboundary Air Pollution. Available at: UNECE's Convention on Long-range Transboundary Air Pollution celebrates 30th Anniversary

5.7 Archaeology, Architectural and Cultural Heritage

5.7.1 Baseline

The sites and features considered as part of the cultural heritage baseline for Ireland include those listed on the following:

- Record of Monuments and Places (RMP), which is the statutory list of all known archaeological monuments in Ireland as compiled by the Archaeological Survey of Ireland, part of the Department of Arts, Heritage and the Gaeltacht and
- National Inventory of Architectural Heritage (NIAH), which identifies, records and evaluates the post-1700 architectural heritage of Ireland, uniformly and consistently as an aid in the protection and conservation of the built heritage. NIAH surveys provide the basis for the recommendations of the Minister for Housing, Planning and Local Government [previously the Minister for Environment, Heritage and Local Government] to the planning authorities for the inclusion of particular structures in their Record of Protected Structures; and United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage List, which includes cultural and natural heritage sites around the world considered to be of outstanding value to humanity.

Ireland is particularly rich in archaeological sites and monuments which form a central component of Irish Heritage. Many of Ireland's archaeological or cultural heritage sites occur on forest land or lands likely to be developed for forestry. Archaeological sites and monuments range from substantial above-ground structures to easily damaged subterranean traces of human activity. Types of monuments vary greatly and include ecclesiastical ruins, ancient trackways, standing stones, fortifications, megalithic tombs, earthwork mounds and cairns.

In 2015 DAFM recognised the landscape value of protected archaeological sites with the designation of the protected sites as Landscape Feature under the Good Agricultural and Environmental Condition aspect of Cross Compliance. Additionally, the ACRES agri-environment scheme included two archaeological actions to recognise and capitalize on the obvious biodiversity value of many archaeological monuments. These actions enable farmers in ACRES to manage archaeological monuments in accordance with the rules of the scheme, in ways that enhance their biodiversity and habitats value, bringing positive outcomes for the monuments and for farmers.

Geological Heritage Sites in Ireland are illustrated in Figure A7 in Appendix A-1.

5.7.1.1 Transboundary Baseline

NI has been legally protecting its historic monuments with legislative measures since 1869. The Northern Irish Historic Monuments and Archaeological Objects Order 1995 protects archaeological monuments or objects of significance by either taking them into State care or by scheduling and also places restrictions on searching for archaeological material. Their sites of interest are registered on a government database which gives them protection from development.

The historical and cultural settings of many sites and monuments will overlap within the border area. Such heritage assets include for instance, the Black Pigs Dyke and the Ulster Canal, and designed landscapes which sought to take advantage of key vistas such as lake or mountains. The Northern Ireland Department of Communities historic environmental datasets have been utilised in the consideration of potential transboundary impacts on the setting of heritage assets along the RoI/ NI border and areas in proximity. Available at: https://www.communities-ni.gov.uk/services/historic-environment-map-viewer.

Cultural Heritage designations of Northern Ireland include:

- 1 World Heritage Site – The Giant's Causeway
- Nearly 200 Monuments in State Care

- Nearly 2,000 scheduled Historic Monuments
- 10 Areas of Significant Archaeological Interest
- Approximately 8,500 Listed Buildings and
- 60 Conservation Areas.

Other cultural heritage of importance include the following:

- Approximately 16,000 Sites and Monuments
- Over 9,000 Historic Buildings
- Over 30 Battlefields
- Over 600 Defence Heritage Features and
- Over 154 Heritage Gardens Inventory.

5.8 Landscape and Visual

5.8.1 Baseline

The Council of Europe Landscape Convention 20/10/2000[154] (Council of Europe, 2016) promotes the protection, management and planning of European landscapes and organises European co-operation on landscape issues. It defines "landscape" as an area perceived by people, whose character is the result of the action and interaction of natural and/ or human factors. This holistic definition incorporates all aspects of an area and in so can be useful when considering development in that area. Ireland's National Landscape Strategy[155] (DHLGH, 2015) is the country's way of meeting its obligations and delivering on the objectives set by the European Landscape Convention.

The National Landscape Strategy for Ireland 2015-2025 was produced in line with Ireland's obligations under the European Landscape Convention. The overall vision of the strategy is stated as: "*Our landscape reflects and embodies our cultural values and our shared natural heritage and contributes to the well-being of our society, environment and economy. We have an obligation to ourselves and to future generations to promote its sustainable protection, management and Planning*"[156] (DHLGH, 2015).

The Landscape Character Guidelines for Ireland[157] (Mosart, 2016) classify Ireland's landscape into four distinct character types, which vary considerably in regard to both landform and landcover. The four landscape character types include:

- Rolling moorland
- Rolling fertile farmland
- Drumlins and
- Mountain and farmland complex.

The following outlines forest landscape planning and design for the four distinct landscape character types commonly found in Ireland, according to Mosart.

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[154] Council of Europe (2016) Council of Europe Landscape Convention as amended by the 2016 Protocol. Available at: https://www.coe.int/en/web/conventions/full-list?module=treaty-detail&treatynum=176

[155] Department of Housing, Local Government and Heritage (2015) National Landscape Strategy for Ireland 2015-2025. Available at: https://www.gov.ie/en/publication/8a59b-national-landscape-strategy/

[156] DHLGH (2015) The National Landscape Strategy. Available at: gov.ie - National Landscape Strategy (www.gov.ie)

[157] Mosart (2016) Landscape Character Guidelines for Ireland. Available at: https://mosart.ie/wp-content/uploads/2016/02/forestry-and-landscape-guidelines-ireland.pdf

- **Rolling Moorland Landscape interpretation:** Many mountain slopes in Ireland are sweeping and extend as open, expansive and undulating moorland. Existing forests in such areas have tended to be angular in nature, because of their straight boundaries. Due to poor site conditions and exposure, they have inclined to be of limited species and age diversity, resulting in a severe visual impact on the landscape

- **Rolling Fertile Farmland Landscape interpretation:** This landscape type is a man-made 'working landscape'. The rolling hills are characterised by a patchwork of clearly defined fields with farmsteads and houses scattered throughout. These fields are typically under pasture or tillage.
  The scale of the landscape is usually relatively enclosed. Soil fertility should allow broadleaf forests, with a potential for silvicultural systems other than clear felling

- **Drumlins Landscape interpretation:** The typical continuity of small rolling hills with wet inter-drumlin flats, combined with a close network of fields and hedgerows, creates a small scale, intimate and visually complex landscape. Many fields have reverted to rush and scrub in recent years. Soils on drumlins are typically gleyed and thus limit species choice

- **Mountain and Farmland Complex Landscape interpretation:** Landscapes comprising mountain moorland on upper ground falling through marginal land and on to farmland at lower levels, are very common in Ireland. The farmland will usually comprise either rolling hills or a plane of patchwork fields which sweeps up forming a continuum with the open mountainside. The strip of marginal land running between these two landcovers is typically identified by bracken, rush and scrub.

In the absence of a national landscape character assessment, the CORINE Land Cover is used as a proxy for the purposes of landscape, refer to Figure A2 in Appendix A-1. Overall Forest Cover in Ireland has also been illustrated in Figure A3 in Appendix A-1.

In terms of landscape and visual amenity, local authorities in Ireland conserve and protect scenic value as Areas of High Amenity, Areas of Outstanding Natural Beauty and Protected Views. Each local authority is responsible for the designation of these within their individual jurisdictions, with each Development Plan providing objectives to protect such views.

5.8.1.1 Transboundary Baseline

NI as part of the United Kingdom (UK) abides by the Council of Europe Landscape Convention 20/10/2000[158] (Council of Europe, 2016) however they have a more detailed Landscape Character Assessment system than the ROI. Their assessment outlines the same main landscape types as the ROI.

The NI countryside has been divided into 130 Landscape Character Areas (LCAs), each based upon local patterns of geology, landform, land use, cultural and ecological features. The key characteristics are described and an analysis of landscape condition and its sensitivity to change are also included within each.

There is potential for transboundary effects, particularly relating to landscape and visuals surrounding the NI and the ROI border as these border areas share the same landscapes, examples include the Ring of Gullion Area of Outstanding Natural Beauty (AONB), Lough Foyle, Carlingford Lough and the views across mountain ranges and hills which are enjoyed by residents in both the ROI and NI.

5.9 Material Assets

5.9.1 Baseline

SEA legislation includes 'material assets' as a topic to be addressed in SEA but does not include a definition of what this topic might encompass, consequently, it is interpreted in a number of different ways. This baseline description is set in the context of Ireland's forestry sector, particularly with reference to Coillte's estate. Thus, this section focuses mainly on material assets related to these areas, including energy (forest based and renewable wind energy) and forest products, land and land-use is discussed in Section 4.4.

[158] Council of Europe (2016) Council of Europe Landscape Convention as amended by the 2016 Protocol. Available at: https://www.coe.int/en/web/conventions/full-list?module=treaty-detail&treatynum=176

5.9.1.1 Energy

Since the formation of the state, energy consumption in Ireland has increased significantly in line with population growth as a result technologies have advanced, and economic activity has increased. As reported in the Sustainable Energy Authority of Ireland's (SEAI) 'Energy in Ireland 2022' Report[159] (SEAI, 2022), in absolute terms, Ireland's current total primary energy requirement is comparable to that from 20 and 10 years ago, despite intervening periods of significant growth and decline. However, the mix of fuels and energy types in primary energy across Ireland has evolved significantly over this time.

The broad trend has been the growth of renewables and natural gas displacing oil, coal, and peat, although at this time and despite the meaningful development of renewables, fossil fuels still dominate Ireland's primary energy supply. The trends of primary energy requirement in Ireland have been illustrated by fuel and energy type in Figure 5.11.

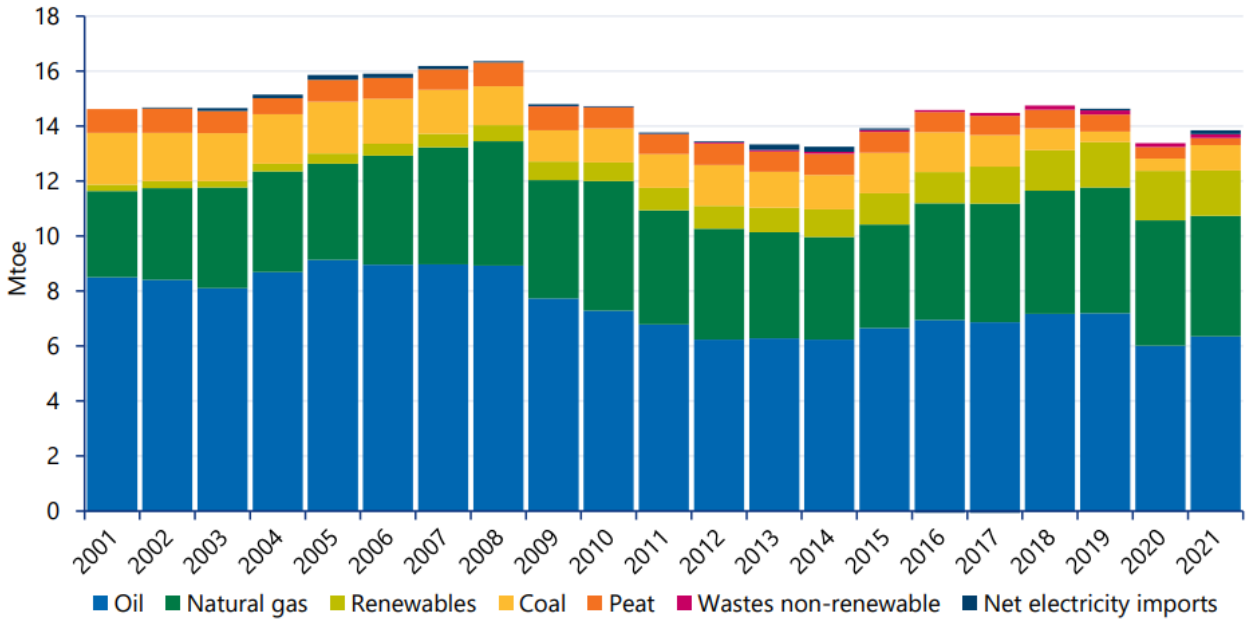

Figure 5.11 Total primary energy requirement by fuel and energy type Source: [160] (SEAI, 2022)

Although Ireland has committed to reducing its CO_2 emissions by 4.8% per annum from 2021- 2025 under the first carbon budget, energy related emissions were instead up by 5.4% in 2021. Provisional data from the SEAI's monthly surveys indicate that energy related emissions will increase by a further 6% in 2022.

As a result of a low wind year for renewable generation in 2021, Ireland used more coal and oil for electricity generation, which increased the carbon intensity of electricity by 12.5%. In relation to transport, in 2021, the transport sector emitted 12.0 $MtCO_2$ and accounted for 34% of Ireland's total energy emissions and the residential sector was found to emit 9.8 $MtCO_2$ in 2021, which was 27.5% of Ireland's total energy emissions.

From 2021, the first EU Renewable Energy Directive (REDI) was replaced by the second EU Renewable Energy Directive (REDII), which continues to promote the growth of renewable energy and set renewable energy share (RES) targets out to 2030. REDII introduces new sustainability and verification criteria for biomass fuels and puts counting caps on certain biofuels. These changes in criteria and caps modify how Irelands RES results were calculated in 2021 compared to 2020, even where there has been minimum change in the underlying renewable energy, outlined as follows:

- Under REDII, Ireland's overall renewable energy share was 12.5% in 2021
- Under REDII, Ireland's renewable energy share in electricity (RES-E) was 36.4% in 2021

[159] SEAI (2022) Energy in Ireland 2022. Available at: Energy-in-Ireland-2022.pdf (seai.ie)

[160] SEAI (2022) Energy in Ireland 2022. Available at: Energy-in-Ireland-2022.pdf (seai.ie)

- Under REDII, Ireland's renewable energy share in heat (RES-H) was 5.2% in 2021 and
- Under REDII, Ireland's renewable energy share in transport (RES-T) was 4.3% in 2021[160] (SEAI, 2022).

National energy targets beyond 2021 have since been established for Ireland to establish improvements across widespread sectors. Ireland's 2023 Climate Action Plan (CAP-23) has been established and is the first CAP to be prepared under the Climate Action and Low Carbon Development (Amendment) Act 2021, and following the introduction, in 2022, of economy-wide carbon budgets and sectoral emissions ceilings.

The Plan implements the carbon budgets and sectoral emissions ceilings and sets a roadmap for taking decisive action to halve Irelands emissions by 2030 and reach net zero no later than 2050, as Ireland is committed to in the Programme for Government[161] (Government of Ireland, 2023)

Forest Based Energy

Biomass from Irish forests is a clean renewable energy source, provided trees are replaced and forests are managed on a sustainable basis, the replacement of fossil fuels by forest-based biomass will over time lead to a reduction in greenhouse gas in the atmosphere.

Bioenergy is a form of renewable energy generated when we burn biomass fuel[162] (SEAI, 2023). Bioenergy encompasses a wide range of different types and origins and can take the form of solid, liquid, or gaseous fuel. In relation to solid fuels, particularly with reference to wood fuels, bioenergy includes wood pellet, woodchip, energy crops, firewood, and biomass briquettes, a description of each has been included as follows[163] (IRBEA, 2023).

- **Wood pellets** are produced from sawdust, a by-product of sawmilling timber. Wood pellets are convenient and reliable fuels that are produced by a number of companies at present in Ireland. Wood pellets are traded across the EU and some are traded into Ireland. They can be transported long distances while maintaining a low impact on carbon emissions in their life cycle analysis as a result of their high energy density. These pellets are suited to heating systems ranging from domestic stoves to industrial boilers of several hundred kW capacity, although they need to be stored in dry conditions to maintain their quality.
- **Woodchip** is produced from the by-products of forestry operations that are unsuitable for sawmilling due to crooked stems, high numbers of knots and or otherwise damaged stock. Woodchip is primarily used at industrial and commercial level for space heating and process heating. It is suitable for all temperature demands up to several hundred degrees Celsius when used as a fuel. Woodchip is a low-cost fuel which has low carbon emissions and is particularly suited to larger boiler systems.
- **Firewood** can be used in highly efficient stoves and boilers, however, must be properly dried to below 25% moisture content and ideally below 20% to burn efficiently and sustainability. Firewood should be sustainably sourced from forest thinning and pulpwood as part of sustainable forest management. It is primarily used for domestic heating and is best used in Eco-Design stoves rather than open fires. Firewood can come from softwood or hardwood sources as both contain the same energy per kilogramme (kg), however, hardwood is a denser and more compact material[163]. Between 2006 and 2018 the firewood market in Ireland has grown by 63%, from 147,000m³ in 2006 to 284,000m³ in 2020164 (DAFM, 2022).
- **Biomass briquettes** can be made from clean, compressed sawdust, straw, wood shavings, energy crops and other solid biomass materials. These briquettes utilise by-product material from timber manufacturing and agricultural processes and are suited to domestic heating. They can be used in any stove, but the best efficiency is achieved when used in Eco-Design stoves.

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[161] Government of Ireland (2023) Climate Action Plan 2023. Available at: 1c20a481-bb51-42d6-9bb9-08b9f728e4b5.pdf (www.gov.ie)

[162] SEAI (2023) What is bioenergy? Available at: What is Bioenergy | Bioenergy & Biomass | SEAI

[163] Irish Bioenergy Association (irbea) (2023) Wood and Solid Biomass Fuels factsheet. Available at: 4714-IrBEA-Fact-Sheets-Biomass-1.pdf

[164] DAFM (2022) Ireland's Forest Statistics 2022. Available at: Ireland's Forests - Annual Statistics 2019 - 78d3faac-d083-4660-bc04-1ca670df5007.pdf (www.gov.ie)

Trees produce a valuable commodity in wood as they sink carbon from the air, which is then stored within wood. The stored carbon within wood can be used to develop long-life products that store carbon well into the future in order to displace or substitute less sustainable, higher carbon fossil-based products, which can in turn can help to decarbonise the Irish economy. The burning of wood has been largely common in Ireland and across the world in the past, however burning of wood releases biogenic carbon which goes against the sustainable principles that Ireland at present is striving towards. Wood burning should be the last consideration for this valuable natural resource.

The EU Green Deal, Fit for 55, EU Forestry policy, the upcoming Renewal Energy Directive (RED III) and recent debates in the European parliament promote the use of wood under the "cascade" principle. The principle implies the use of wood material according to a priority based on the added value and carbon storage that can be potentially generated, raw material from the forests should be preferably used for building, furniture, and other products with long life span capable of storing the biogenic carbon in the products, while bioenergy should preferably derive from the use of waste wood, wood residues or recycled end of life products. The energy use of wood (after recycling opportunities to produce other products have been exhausted) is considered as the least valuable option among several uses and should only be considered when no other use is possible, to prevent the release of the biogenic carbon into the atmosphere.

According to COFORD's All Ireland Roundwood Production Forecast 2021-2040[165] (COFORD, 2021), the potential wood fibre available for energy and other uses totals 34.78 million m^3 over the period of the forecast.

The volumes increase steadily from 0.89 million m^3 in 2021 to over 2.0 million m^3 between 2031 and 2035, which thereafter is likely to see a decrease to 1.82 million m^3 in 2040. These figures represent a significant decline on previous forecasts, as a result of a combination of the exclusion of harvested brash from thinning's and post-consumer recovered wood (PCRW) volumes, as well as a very large decrease in the projected recovery of clear fell harvesting residues, particularly over the final ten years of the forecast. However, there is potential to increase the recovery of these assortments, depending on the underlying level of demand.

Renewable Wind Energy Developments

Renewable energy consumption data from 2005 to 2021 is reported in the Climate Action Plan 2023 (CAP 23)[166] (Government of Ireland, 2023) and is shown in Figure 5.12. This data shows that peak renewable energy production occurred in 2020, with nearly 40% of all energy consumed in Ireland in that year coming from renewable sources. The estimated amount of CO_2 avoided through the use of renewable energy reached a peak in 2020 before decreasing slightly to 6.2 Mt CO_2 in 2021.

[165] COFORD (2021) All Ireland Roundwood Production Forecast 2021-2040. Available from: CofordAllIrelandRoundwoodBookREVISED150721.pdf

[166] Government of Ireland (2022) Climate Action Plan 2023. Available at: https://www.gov.ie/pdf/?file=https://assets.gov.ie/243585/9942d689-2490-4ccf-9dc8-f50166bab0e7.pdf#page=null

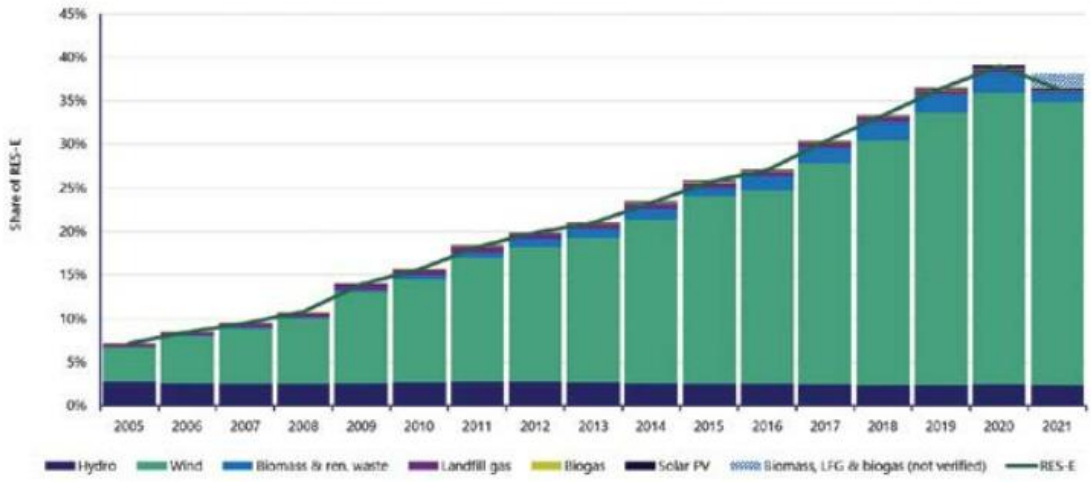

Figure 5.12 Renewable Energy Share in Electricity Gross Final Consumption (GFC) Source: [166] (Government of Ireland, 2023)

As seen in Figure 5.10, a large proportion of the renewable energy produced in Ireland is from wind energy developments. CAP 23 sets out targets that align with the renewable energy targets set out by the Paris Agreement (2015)[167] to alleviate the threat of global warming. The EU 2030 Climate and Energy Framework (2018) incorporates EU legislative measures to achieve three EU-level key targets:

- At least a 40% reduction in greenhouse gas emissions
- At least a 32% share for renewable energy and
- At least a 32.5% improvement in energy efficiency.

As outlined in SEAI Energy in Ireland 2022 Report[168] (SEAI, 2022), 2021 saw the lowest annual wind capacity addition since 2002, as illustrated in Figure 5.13. This Figure displays the annual growth in installed wind generation capacity and overall cumulative capacity since 2000.

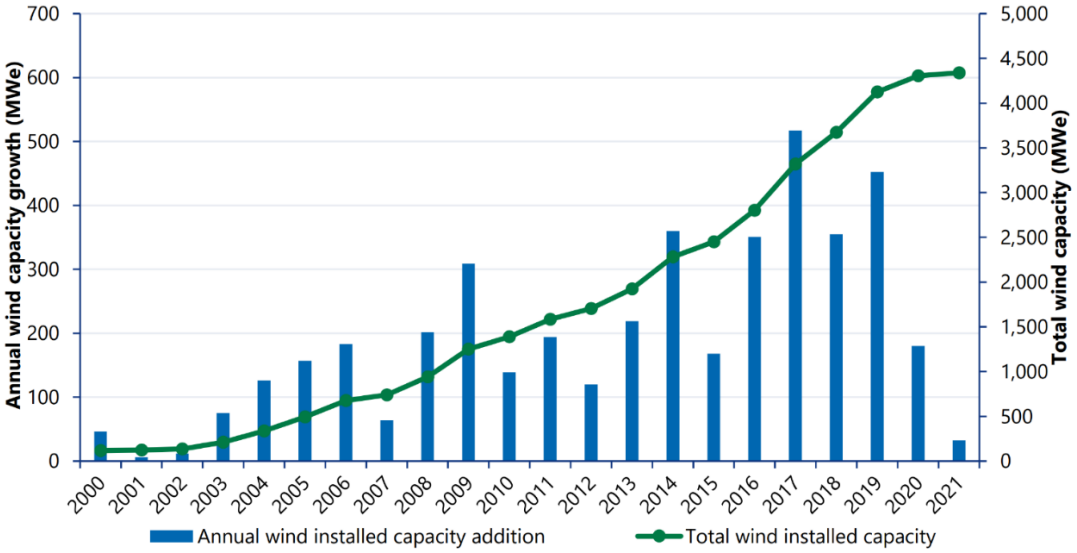

Figure 5.13 Installed wind generating capacity Ireland Source: [169] (Eirgrid/SEAI, 2022)

[167] United Nations (2015) Paris Agreement. Available at: https://unfccc.int/sites/default/files/english_paris_agreement.pdf

[168] SEAI (2022) Energy in Ireland 2022. Available at: Energy-in-Ireland-2022.pdf (seai.ie)

[169] SEAI (2022) Energy in Ireland 2022. Available at: Energy-in-Ireland-2022.pdf (seai.ie)

The output from wind generation is affected by the amount of wind resource available in any particular year. It is also affected by the extent of outages of the plant for reasons such as faults, maintenance and curtailment[168].

According to Wind Energy Ireland (WEI)[170] (WEI, 2023), there are just over 300 wind farms in the Republic of Ireland and the number of windfarms across the entire island of Ireland is just under 400. The installed wind capacity in the Republic of Ireland, as of May 2022 is 4,332 megawatts (MW). Ireland's largest wind farm is located in Co. Galway and has an installed capacity of 169 MW. This windfarm was co-developed by SSE and Coillte in Connemara's Cloosh Valley and is Ireland's best performing wind farm, generating more green energy than any other wind generation site on the island.

5.9.1.2 Forest Products

The document 'Woodflow and forest-based biomass energy use on the island of Ireland'[171] (COFORD, 2018) states that the Irish forest products sector is largely export oriented, primarily driven by exports of sawn timber and Wood-Based Products. The key market for Irish forest products exports is the UK. However, at the time of writing, Brexit remains an issue of concern for the Irish forestry and forest products sector.

According to the DAFM's Forest Statistics Report 2022, forests also provide a source of renewable raw materials and replace materials and energy produced from fossil fuels which help mitigate rises in greenhouse gases. Refer to Section 5.9.1.1 for details on forest products used in Ireland for bioenergy.

According to the same report, the total roundwood harvest in 2021 was 4.33 million m³ (excluding firewood) and 52% of the roundwood available for processing came from Coillte, with the balance coming from the private wood sector. The total forecast of net realisable volume production for the Republic of Ireland over the forecast period of 2021-2040 is estimated as being 120.4 million m³ over bark.

Exports of wood and panel products from Ireland were valued at €751 million in 2020 compared with a value of €1.8 billion for imports of wood and paper products in 2020. In 2020 the volume of roundwood input purchases by industry was 3 million cubic metres, which in comparison to 2019 is a decrease of 3.9% compared with 2019 purchases of 3.1 million cubic metres[172] (DAFM, 2022).

The value of roundwood removals in Ireland increased by 36% in 2021 according to CSO Data on Forest Wood Removals for 2021[173] (CSO, 2021), a total removal value of €227 million was recorded for roundwood. Roundwood removals increased 11% from 3.89 million cubic metres in 2020 to 4.33 million cubic metres in 2021, whereby coniferous roundwood accounted for over 99% of removals in 2021. In 2021 removals from public forests comprised 52% of total removals volume, compared with 60% in 2020. Large sawlog accounted for the highest proportion of roundwood removals volume in Ireland at 40% in 2021, followed by small sawlog (26%) and pulpwood (25%).

The most recent All-Ireland Roundwood Forecast[174] (COFORD, 2021) was published by COFORD in 2021 for the period 2021-2040. The forecast predicts that the annual potential roundwood supply, will increase from 4.7 million in 2021 to 7.9 million cubic metres by 2035, followed by a small decrease to remain constant at circa 7.6 million cubic metres up to 2040. Realising this large increase in potential production will entail significant capital investment in roads, harvesting equipment and wood processing.

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[170] Wind Energy Ireland (WEI) (2023) Wind Statistics. Available at: Latest Wind Energy Stats (windenergyireland.com)

[171] COFORD (2018) Woodflow and forest-based biomass energy use on the island of Ireland'. Available at: WoodflowForestBasedBiomassEnergyUseIslandIreland141218.pdf (coford.ie)

[172] DAFM (2022) Ireland's Forest Statistics 2022 Report. Available at: Ireland's Forests - Annual Statistics 2019 - 78d3faac-d083-4660-bc04-1ca670df5007.pdf (www.gov.ie)

[173] CSO (2022) Forest Wood Removals 2021. Available at: Forest Wood Removals 2021 - CSO - Central Statistics Office

[174] COFORD (2021) All-Ireland Roundwood Forecast. Available at: http://www.coford.ie/media/coford/content/COFORDAllIrelandRoundwoodBookREVISED150721.pdf

Wood and the Built Environment

Timber products have the lowest embodied carbon of any mainstream building material, meaning they take less energy to produce and are better for the environment. Growing Ireland's capacity to build more with wood through the greater use of off-site Modern Methods of Construction (MMC) could significantly increase the overall capacity to build homes in the State, while also supporting Ireland's local forestry and forest products industry. Furthermore, a manufacturing industry based around the use of Irish timber, with increased utilisation of Irish-grown timber in added-value applications, could also lead to increasing financial returns to forest owners and therefore could drive further interest to plant new forests.

The new EU Forest Strategy for 2030[175] (EC, 2021) highlights that "*Promoting the use of wood products also requires demand-side actions, including combating misconceptions about fire risk and lack of durability, and acknowledging the multiple advantages of wood products in terms of reducing pollution and energy consumption during the construction, use and deconstruction phases. Construction engineers and architects should be incentivised to design buildings with wood."* Embedding mandatory Life Cycle Assessments (LCAs) and embodied carbon thresholds within local and national building plans and introducing wood-first procurement policies could help to expedite the transition to increased wood use in Ireland.

Coillte, working with international experts, have undertaken significant analysis and produced a range of reports to validate the benefits of increased wood use and its contribution to meeting Ireland's climate targets. Recently, Coillte contributed to a study by COFORD[176] (COFORD, 2022) on "forests and wood products, and their importance in climate change mitigation" which shows the potential to reduce net CO_2 emissions by 3.4 million tonnes over the coming years by changing the way we build Irish homes. These carbon savings are equivalent to removing 2.4 million cars from the road in one year or the equivalent of a 5.6% reduction in Ireland's current annual emissions of 60 million tonnes of CO_2. A similar study from Germany's Potsdam Institute found that a global boom in wood buildings could lock in up to 700 million tonnes of carbon a year.

Analysis undertaken by Coillte and Dr Peter Holmgren, the former Director-General of the Centre for International Forestry Research (CIFOR) and Director Climate, Energy and Tenure at Food and Agriculture Organisation (FAO) shows that in 2019, an overall 4.9 million m^3 of wood fibre was processed into a range of wood-based products and bioenergy[177] (P., Holmgren et al., 2021). On average each cubic metre of wood led to a downstream fossil or process emission displacement of 0.77 t CO_2eq for a total displacement effect of 3.7 million t CO_2eq, corresponding to about 6% of reported emissions for the Republic of Ireland.

Forestry and the forest products sector is one example of a successfully functioning bioeconomy and circular economy. The Sink, Store and Substitution of Carbon has a triple beneficial effect to climate change mitigation, and to complete the circle, once trees are harvested, they are immediately replanted to commence the circular process once again. At their end-of-life, wood products have then the potential to be reused in their current form, recycled to produced new wood products or used as a fuel to create heat or power.

5.9.1.3 Transboundary baseline

Forestry is a significant asset to NI however, out of any UK regional territory or EU member states NI has the lowest level of tree cover at approximately 8%. Resource depletion is becoming an increasingly

[175] EC (2021) New EU Forest Strategy for 2030. Available at: resource.html (europa.eu)

[176] COFORD (2022) Forests and wood products, and their importance in climate change mitigation. Available at: COFORDSTRATEGYFULLFINALREPORTJAN2022240122.pdf

[177] P. Holmgren, Coillte (2021) Fossil displacement and value chain emissions related to primary wood-based products in Ireland. Available at: Holmgren-Report.pdf (coillte.ie)

significant issue at a global and national level. Forests are recognised for the significant part they play in tourism and recreation as well as enhancing and protecting habitats and biodiversity. Given the role forestry plays in carbon offsetting, and the current low levels of afforestation at present it is expected that the area covered by forest will not increase significantly but the level of protection will remain high.

In NI a large proportion of land, at approximately 75%, is used as agricultural and is a key asset to NI's economy.

The installed capacity of renewable wind capacity in NI is 1,276 megawatts (MW)[178] (WEI, 2023).

The total forecast of net realisable volume production for the ROI over the forecast period of 2021-2040 is estimated as being 120.4 million m^3 over bark with an additional 13 million m^3 potentially available from NI sources[178] (WEI, 2023).

5.10 Likely Evolution of the Baseline Environment in the Absence of the Implementation of the Plan

In the absence of the implementation of the FESLUP, the baseline environment outlined in Section 5 is likely to continue as follows:

Population and Human Health

- Ireland's National Planning Framework projects that Ireland will be home to an additional one million people by 2040. These projected population increases will increase pressure on land use
- In the absence of the FESLUP, uptake of renewable energy sources within Coillte's estate would potentially remain constant and carbon storage, substitution and displacement effects may not be fully realised
- There would potentially be no change in the amenity and recreational offerings of Ireland's forest areas, particularly across Coillte's forest estates which at present make up circa 440,000 hectares of land
- The number of people employed across Coillte's forestry sector would potentially remain constant and
- Economic contributions from Coillte's forest estate would potentially rise in line with current global wood prices, however potentially to a lesser scale of production than contributions that may be facilitated through the FESLUP.

Biodiversity (including Flora and Fauna)

- The likely improvement and / or enhancement of flora and fauna, habitats and ecological connectivity areas is unlikely to occur in the absence of the FESLUP
- In the absence of the FESLUP, there would potentially be reduced habitat creation if increased afforestation, peatland restoration and habitat enhancement (through other forestry activities such as clear fell, thinning, planting, CCF)
- Without the FESLUP, the existing pressure on aquatic and terrestrial flora, fauna and habitats is likely to continue with key drivers from development and land-use changes. This may lead to habitat loss and/or fragmentation. In addition, there are changes expected to occur through climate change that may alter species and habitat ranges, with potential for range expansion of some invasive alien species which are an increasing concern, the FESLUP could aid the remediation of these issues
- Without the FESLUP, forest biodiversity levels across Coillte's estate would likely be lower than what is likely to be facilitated through the FESLUP and
- In the absence of the FESLUP, the impact of deer species on the environmental quality of forests and open habitats may continue to worsen without appropriate action.

[178] Wind Energy Ireland (WEI) (2023) Wind Statistics. Available at: Latest Wind Energy Stats (windenergyireland.com)

Land and Soils

- In the absence of the FESLUP, levels of afforestation and reforestation have potential to remain relatively constant, which will be significantly reduced in comparison to what is likely to be facilitated through the FESLUP
- In the absence of the FESLUP, the level of peatland restoration across the Coillte estate has potential to remain relatively constant, and similarly, the level of GHGs currently being emitted from degraded peatland and sequestered from healthy peatlands are likely to remain relatively constant. Carbon sequestration from restored and healthy peatlands over the medium/longer-term is likely to be significantly reduced in comparison to what is likely to be facilitated through the FESLUP
- Ireland meeting its own targets for afforestation may be jeopardised and
- Potential improvements in the existing forest resource and related ecosystem services flowing from support schemes would not be realised.

Water

- Addressing issues from source and diffuse pollution associated with nutrient management in particular may be not supported in the absence of the FESLUP;
- In the absence of the FESLUP, the level of afforestation and associated fertilisation would potentially remain similar to existing trends and as such, water quality and key issues relating to the same would potentially remain constant.

Air Quality and Climate (including Noise)

- No significant improvements on local air quality from increased tree coverage particularly with relation to public forest estate and associated removal of certain pollutants would potentially be notable
- In the absence of the FESLUP, there would potentially be lower increases in use of machinery or construction of forest roads, compared to existing trends which has potential to result in positive impacts to air quality and noise and
- In the absence of the FESLUP, mitigation of the impacts of climate change through sequestration of CO^2 from trees, potential emission reductions from increased renewable wind energy developments and, the store and substitute of carbon intensive construction materials would potentially be reduced.

Archaeological, Architectural and Cultural Heritage

- Legislation and guidance at both international and national level afford both the architectural and archaeological elements a high level of protection and will continue to do so.

Landscape and Visual

- Without the FESLUP, the enhanced landscape appearance resulting from the spatial distribution and species structure of forests would potentially be limited to the existing baseline.

Material Assets

- In the absence of the FESLUP, renewable energy sources on or related to Coillte's estate would potentially remain constant, furthermore carbon storage, substitution and displacement potential across the estate may not be fully realised;
- In the absence of the FESLUP the amount of forest products produced on an annual basis is likely to not increase significantly; and
- In the absence of the FESLUP, renewable wind energy capacity on or related to Coillte's estate would potentially remain stagnant.

6. SEA Objectives, Targets and Indicators

6.1 Introduction

The SEA is designed to assess the potential environmental effect of the policies of the FESLUP against the environmental baselines established.

The policies and associated recommendations are assessed against a range of established environmental objectives and targets. Indicators that are recommended in the SEA are utilised over the lifetime of the FESLUP to quantify the level of impact that the policies and recommendations have on the environment.

6.2 SEA Objectives and Targets

Strategic Environmental Objectives (SEOs) are methodological measures against which the environmental effects of the FESLUP can be assessed. If complied with in full, SEOs would result in an environmentally positive, or neutral impact from realisation of the FESLUP. The SEOs are set out under a range of topics and are used as standards against which the provisions of the FESLUP can be evaluated in order to help identify areas in which potential significant adverse impacts may occur. SEOs are distinct from the objectives of the FESLUP and are developed from international and national policies which generally govern environmental protection objectives. Such policies include those of various European Directives which have been transposed into Irish law and which are intended to be implemented across the country.

The SEA Directive requires that the evaluation of the FESLUP be focused upon the relevant aspects of the environmental characteristics of areas likely to be significantly affected. In compliance with this requirement the SEA will focus upon the most relevant aspects of the environmental characteristics. The SEOs are linked to indicators which can facilitate monitoring the environmental effects of the FESLUP as well identifying targets which the Plan can help work towards.

6.3 SEA Indicators

The assessment of aims and commitments with respect to the Environmental Objectives and Targets is required to be measurable. The Environmental Indicators need to be capable of the following:

- Describing trends in the baseline environment
- Demonstrating the likely significant effect of the implementation of the FESLUP
- Being used in a monitoring programme
- Providing an early warning of significant unforeseen adverse effects
- Prioritising key environmental effects and
- Ensuring the number and range of environmental indicators are manageable in terms of time and resources.

SEA Objectives, Indicators and Targets are as described in Table 6.1.

Table 6.1 SEA Objectives, Indicators and Targets

Environmental Component	Draft Objectives	Draft Targets	Draft SEA Indicators
Population and Human Health	**Environmental Protection Objective (EPO):** **Protect, enhance, and improve human health and wellbeing.** • Coillte aim to ensure the following is carried out with respect to Population and Human Health: • Protect, enhance and improve human health and wellbeing. • To ensure forest operations are carried out safely. • Contribute to the well-being of workers and local populations. • Provision of green spaces for amenity and recreational uses. • Promote economic growth. • Support forest owners and or managers to sustainably and effectively manage their plantations.	• Minimisation and mitigation of health and safety incidents among forest workers. • Increase number of green spaces, amenities, walking and or cycling routes, where appropriate, through forests areas for the public, particularly in line with Coillte's Strategic Vision and its Forests for People pillar. • Implementing the FESLUP to contribute to and facilitate towards economic growth. • Increased number of people working across Coillte's estate.	• Number of health and safety incidents among forest workers. • Number of people utilising Coillte's estate for amenity and recreational purposes. • Economic growth statistics for individuals working across Coillte's estate. • Achievement of Coillte's Forests for People pillar outlined in Coillte's Strategic Vision. • Number of individuals employed directly and indirectly as a result of activity on or arising from the Coillte estate.
Biodiversity (including Flora and Fauna)	**EPO:** **Support achievement of the conservation objectives and requirements of the Birds and Habitat Directives, and other sites of nature conservation value.** • Coillte proposes to take the following measures with respect to biodiversity: • To achieve the conservation objectives of European Sites (SACs and SPAs) and other sites of nature conservation. • Preserve, protect, maintain, restore and, where appropriate, enhance or restore the terrestrial,	• No deterioration of protected[180] habitats and species during the lifetime of the Plan, seeking to maintain and restore status of European sites where possible. • Maintenance of favourable conservation status for all habitats and species protected under the Habitat Directive. • Ensuring any forest management practises, including felling, afforestation, reforestation, maintenance, and any construction of new forest roads do not impact negatively on biodiversity and are subject to appropriate environmental assessments. Particularly where they may affect European Sites. • Siting of forestry related development and or infrastructure installation, including wind energy developments on non-sensitive sites[181]. • Biodiversity, ecosystem services and forestry are integrated into all decision making across the Plan and within development plans,	• Number and condition of Natura 2000 network, European sites in proximity to or on Coillte's estate, as per Article 17 Reports, and the maintenance of conservation objectives. • Status of Annex 1 forest habitats and species as per Article 17 Reports. • Achievement of favourable conservation status of designated sites. • Area of new forest creation across Coillte's estate. • Area of new infrastructure development across Coillte's estate. • Achievement of the Objectives of the National Biodiversity Action Plan.

[180] Protected refers to any habitats and or species protected under the EU Directive on the Conservation of Habitats, Flora and Fauna (92/43/EEC), commonly known as "the Habitats Directive" and Article 17 Reports.

[181] Sensitive areas are defined as 'areas of a country where special measures may be given to protect the natural habitats which present a high level of vulnerability' (EEA, 2000).

Environmental Component	Draft Objectives	Draft Targets	Draft SEA Indicators
	aquatic[179] and soil biodiversity, particularly EU designated sites. Ensuring no adverse effects on the integrity of any European site, with regard to its qualifying interests, associated conservation status, structure and function. • Conserve and protect other sites of nature conservation including NHAs, pNHAs, National Parks, Nature Reserves, Wildfowl Sanctuaries as well as protected and threatened species outside these areas. • Conserve sustainable populations of native animals and plants in line with the Habitats and Birds Directives e.g., (but not limited to) Curlew, Waders, Hen Harrier, Fresh Water Pearl Mussel. • Safeguard national, regional and local designated sites and supporting features related to areas of forestry which function as stepping stones for migration, dispersal and genetic exchange of wild species. • Enhance biodiversity of forest areas and ecosystems in line with the National Biodiversity Plan and its targets. • Preserve genetic resources of forests long term. • To protect, maintain and conserve biodiversity and natural capital of forest areas. • To develop metrics, set targets and develop an effective regime to monitor and report on the ecological benefits of biodiversity management actions across Coillte's estate. • Protect, conserve, enhance where possible and avoid loss of diversity and integrity of the broad range of habitats, species and wildlife corridors within forests. • Ensure forest operations do not damage forests.	internal guidance documents, planning application considerations, and Department-led projects. • An increase in biodiversity in line with the 4th National Biodiversity Action Plan and Coillte's Strategic Vision, particularly with reference to Coillte's Forests for Nature pillar – restoration, biodiversity management and expansion of native woodland. • Reduced incidents of eutrophication/ water pollution, sediment loss. • Reduced number of forest fires. • No loss of forest health and vitality as a result of forestry operations. • Implementation of appropriate biosecurity measures to aim to protect and conserve Irish native species. • Identify invasive species in Irish forest and non-forest areas and develop appropriate management techniques for their control and spread. • Reduced prevalence of tree disease and maintenance of tree health and control/manage/eradicate invasive species. • Avoid aggravating adverse impacts on deer populations and woodland areas arising from deer fencing and other deer management approaches (in line with the Deer Management in Ireland Framework for Action) e.g., promoting the benefits of sustainable deer management.	• Achievement of Coillte's Forest for Nature pillar outlined in Coillte's Strategic Vision. • Status of protected Freshwater Species on or related to the Coillte estate. • Status of protected Bird Species – BOCCI on or related to the Coillte estate. • Area damaged by forest fires. • Number of incident responses e.g., following flooding, fire, invasive species occurrence, deer incidents etc.

[179] Aquatic refers to marine and riverine aquatic biodiversity.

Environmental Component	Draft Objectives	Draft Targets	Draft SEA Indicators
	• Maintain forest health and vitality through protection against pests and diseases and, where possible, eliminate threats to biodiversity. • Support sustainable deer management. • Support a policy of biodiversity net gain.		
Land and Soils	**EPO:** **Protect and enhance soil quality, function, and fertility.** • Coillte aim to ensure the following is carried out with respect to Land and Soils: • Protect high quality and sensitive soils against pollution, erosion and acidification and prevent degradation of the soil resource. • Achieve good soil fertility. • Minimise the off-site impact of forest operations on the environment, sensitive habitats and soils. • Increase the level of afforestation and reforestation in appropriate locations. • Conserve, protect and avoid loss of integrity of designated geological features. • Protect and enhance geodiversity features and geomorphological processes. • Maintain and improve soil stability. • Help to prevent or reduce soil erosion, slope failure, and compaction in forest areas. • Where appropriate, restore peatland habitats in order to sequester and store carbon reduce emissions.	• Protect and enhance soil quality, function, and fertility. • Avoid soil contamination as a result of forest management practises or construction of forest roads. • To achieve annual afforestation and reforestation targets, in appropriate locations. • To reduce level of illegal deforestation or tree felling. Illegal deforestation consists of tree removal that is not required and or permitted for development or habitat restoration during the lifetime of the Plan. • Limited and controlled forestry developments. • To adopt appropriate environmental protection procedures during all construction and maintenance works on site for forestry developments and operations and potential wind energy developments and operations. • To restore further areas of peatland habitat across Coillte's forest estate.	• Number and condition of designated geological features within Coillte estate. • Incidences of pollution events related to activities on Coillte's estate. • Concentrations of nitrogen dioxide, sulphur dioxide and ammonia in proximity to Coillte's estate that may give rise to nitrogen deposition and acidification of soils. • Number of hectares forested annually by Coillte and number of tree-felling licences granted to Coillte. • Area of Coillte estate subject to illegal deforestation. • Rates of forestry creation, forestry related developments and or wind energy developments e.g., forest roads, wind turbines and construction, where permitted and appropriate across Coillte's estate. • Area of peatland restored across Coillte's estate.
Water	**EPO:** **Support achievement of the objectives of the Water Framework Directive.** • Coillte aim to carry out the following with respect of water: • Ensure that the status of water bodies are protected, restored and no deterioration will be seen in line with the objectives of the Water	• All waters within the Plan area to achieve the objectives of the Water Framework Directive and the relevant River Basin Management Plan by 2027. • Achieve compliance with Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC (protection of groundwater). • Improvement or at least no deterioration in surface and ground waters. Avoid declines in surface water and groundwater quality and quantity as a result of forestry-related activity.	• Proportion of water bodies in Coillte forestry catchments meeting their WFD Ecological Status objectives, as reported by the EPA Water Monitoring Programme for the WFD. • Status of aquatic habitats and species on the Coillte estate. • Number of significant pollution events recorded arising from Coillte activity.

Environmental Component	Draft Objectives	Draft Targets	Draft SEA Indicators
	Framework Directive and Marine Strategy Framework Directive. • Improve and or maintain water quality and the management of watercourses to comply with the standards of the Water Framework Directive and incorporate the objectives of the Floods Directive into sustainable development. • Reduce the impact of polluting substances from forestry operations and developments to all waters and prevent pollution and contamination of ground water by adhering to aquifer protection plans. • Reduce incidences of sedimentation and eutrophication and address existing and ongoing sedimentation or hydrological issues. • Avoid inappropriate development in areas at risk of flooding and areas that are vulnerable to current and future erosion. • Protect flood plains and areas of flood risk from forestry development through avoidance, mitigation and adaptation measures, as appropriate. • Improve catchment hydrology in the Plan area to reduce flooding.	• Minimise flood risk through appropriate management of flood vulnerable zones. Support flood prevention measures, where appropriate. • Promote sustainable drainage practices to improve water quality and flow in and around forest areas. • Improve status and quality of catchment areas in and around forest areas.	• The area of land assigned to permanent water setback across Coillte's estate.
Air and Climate (including Noise)	**EPOs:** **Continue to comply with air quality standards to prevent or reduce harmful effects on human health and the environment; and** **Seek to reduce Coillte's greenhouse gas emission to help in achieving Ireland's net zero commitments by 2050.** • Coillte aim to carry out the following with respect of air quality and climate: • To avoid, prevent or reduce harmful effects on human health and the environment as a whole resulting from emissions to air from transport and forestry related activities including wood burning (biomass/renewable).	• Improvement in Air Quality trends, particularly in relation to transport related emissions of NOx and particulate matter from Coillte's forestry transport and operations. • Maintain ambient air quality through reduction of private vehicle usage for forestry operations, amongst promoting the electrification of forestry transport fleets, use of biofuels etc. • Meeting and improving Air Quality Standards for human health and vegetation, and reduction in nitrogen deposition. • Contribute towards the target of aggregate reduction in carbon dioxide (CO2) emissions in accordance with the Climate Action Plan. • Maintain and enhance the carbon sequestration of forest ecosystems in line with Coillte's Strategic Vision, particularly its Forest for Climate pillar. • Achievement of Irish / EU GHG emission reduction targets.	• Coillte's forestry related traffic, transport and vehicular survey data. • Area of forest cover across Coillte's estate. • Annual afforestation, reforestation, restoration and rewilding targets for Coillte's forest estate and achievement of Coillte's Forests for Climate pillar outlined in Coillte's Strategic Vision. • GHG emission reductions over the Plan period on or related to Coillte's estate and the achievement of Coillte's Forests for Climate pillar outlined in Coillte's Strategic Vision • Noise monitoring data from licensed forestry operations.

Environmental Component	Draft Objectives	Draft Targets	Draft SEA Indicators
	• Meet Air Quality standards for the protection of human health and vegetation and move towards compliance with WHO guidelines. • Reduction of emissions of sulphur dioxide, nitrogen oxides, volatile organic compounds, ammonia and fine particulate matter which are responsible for acidification, eutrophication and ground-level ozone pollution. • Contribute towards the reduction of greenhouse gas emissions in line with national targets. • Adaptation to climate change. • Achieve Irish and EU reduction in emissions of greenhouse gases. • Integrate sustainable design solutions into infrastructure. • Minimise emissions of greenhouse gases and contribute to a reduction and avoidance of human-induced global climate change. • Reduce forestry related transport operations within the Plan area by way of an integrated approach to sustainable transport. • Decrease noise and air pollution for forestry operations and move closer to WHO recommended levels.	• Increase in renewable energy use in Ireland, particularly increasing the potential for low carbon technology to support forestry activities. • Increased uptake in appropriately sited renewable energy projects on or related to Coillte's estate. • Increase the facilitation of timber use throughout the construction sector. • Contribute towards transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050. • To achieve a 51% reduction on GHG emission levels (compared with 2018 levels) by 2030 and achievement of Coillte's Strategic Vision, particularly its Forest for Climate pillar. • Contribute towards the target of the Renewable Energy Directive (2009/28/EC), for all Member States. • Minimise noise and emissions during construction and operation of new forestry related developments.	• Onsite dust monitoring of forestry operations.
Archaeological, Architectural and Cultural Heritage	**EPO:** **Protect, conserve, and enhance the cultural heritage and historic environment**. • Coillte aim to carry out the following with respect of archaeological, architectural and cultural heritage: • To protect, conserve and where possible enhance the cultural heritage including the historic environment and settings; archaeological recorded and unrecorded monuments, architectural (Protected Structures, Architectural Conservation Areas, vernacular buildings, materials, and urban fabric) and manmade landscape features (e.g., field walls, footpaths, gate piers etc.) within and surrounding Coillte's forest estate.	• Protect entries to the Record of Monuments and Places, and the immediate setting of these entries including relationships with the surrounding landscape where relevant, from adverse effects resulting from potential development resulting from the FESLUP; and where archaeological sites or monuments (or portions of such) have to be removed due to development the approach of preservation by record is applied. • More generally ensure permitted developments, where possible, avoid impacts on cultural heritage, including Protected Structures, Architectural Conservations Areas and other significant landscape features; and protect the amenities of such structures, and features. • Avoid direct impacts for forestry operations on heritage assets, including archaeological sites and monuments. • Avoid adverse impacts on historic landscapes. • Protect and enhance areas of ancient and semi-natural woodland.	• Number of entries to the Record of Monuments and Places, and the immediate setting of these entries including their relationships with Coillte's forestry projects, forest areas and the surrounding landscape. • Full or partial loss to entries to the RPSs/NIAHs across Coillte's estate. • Results of Archaeological Impact Assessments and or archaeological investigations undertaken, related to forest creation and or development. • Number of uninhabited and derelict structures across Coillte's estate.

Environmental Component	Draft Objectives	Draft Targets	Draft SEA Indicators
	• Increase understanding and awareness of woodland-related natural and cultural heritage. • To ensure the restoration and re-use of existing uninhabited and derelict structures where possible opposed to demolition and new build (to promote sustainability and reduce landfill).	• Maintenance and enhancement of archaeological heritage- including entries to the Record of Monuments and Places and unknown archaeology- and the context of the above within the surrounding landscape where relevant. • To increase the number of uninhabited and derelict structures that are restored opposed to demolition.	
Landscape and Visual	**EPO:** **Conserve, protect and enhance valued natural, cultural and built landscapes, seascape, views of local value and features.** • Coillte aim to carry out the following with respect Landscape and Visual: • To implement the identification, assessment, protection, management and planning of landscapes having regard to the European Landscape Convention, where forest creation and or development are permitted. • Conserve, protect and enhance valued natural, cultural and built landscapes, seascape, views of local value and features including those of geological and aesthetic value, in relation to forest creation and or development. • Maintain and enhance landscape quality within the Plan area by minimising visual impacts through appropriate forest design, assessment and siting. • Contribute to scenic value, including distinctiveness and diversity of landscapes in the Plan area. • Conserve, protect and enhance valued natural, cultural and built landscapes, views of local value and features including those of geological and aesthetic value, in relation to increased wind development.	• Minimise afforestation and or development which will result in avoidable adverse visual impacts on the landscape, in so far as possible. • Ensure forestry development and or creation is sensitive to its surroundings. • Minimise visual impacts to landscape in so far as possible, as a result of forestry operation, creation and or developments. • Improve protection for landscapes of recognised quality and protected views. • Improve degraded landscapes across Ireland. • Enhance provision of, and access to, green space in forest areas, where appropriate. • Ensure no significant disruption of historic and or cultural landscapes and features through objectives of the Plan. • Ensure wind development is sensitive to its surroundings.	• Rates of Coillte's forestry development within designated landscapes. • Rates of Coillte's forest developments and planting. • Number and scale of wind developments across Coillte's estate.

Environmental Component	Draft Objectives	Draft Targets	Draft SEA Indicators
Material Assets	**EPOs:** **To promote the effective and sustainable use of forest products; and** **Make best use of existing infrastructure and promote the sustainable development of new infrastructure.** • Coillte aim to carry out the following with respect of Material Assets: • To promote the effective and sustainable use of forest products e.g., biomass use for energy. • To promote the effective and sustainable use of forest products e.g., timber use within the construction sector. • Provide productive employment within the forestry sector. • Contribute to the viability of rural communities. • Make best use of existing infrastructure and promote the sustainable development of new infrastructure related to the FESLUP or Coillte's forest estate, where appropriate. • Integrate forestry with other land uses, including minerals agriculture and energy. • Implement the waste hierarchy and encourage reuse/recycling of forestry related waste disposal and materials wherever possible. • To support and encourage future wind energy developments in order to reduce reliance on fossil fuels and aid the achievement of Ireland's climate targets, however, to ensure any such developments are located at appropriate locations.	• Continuation of or increased economic growth from the export of forest products that are efficient and cost effective and achievement of Coillte's Strategic Vision and its Forest for Wood pillar. • Increase in renewable energy developments related to the forestry sector, particularly in line with Coillte's Strategic Vision and its Forests for Climate objectives. • Increase local employment opportunities with increased forest operations and planting. • Increased amount of forest products available for use e.g., forest biomass as a renewable energy source and or timber for construction. • The sustainable management of forests to ensure continuity of supply. • Improve efficiencies of forest transport, energy and communication infrastructure. • Ensuring any potential wind energy developments, including construction, operation and maintenance do not impact negatively on biodiversity and are subject to appropriate environmental assessments. Particularly where they may affect European Sites.	• Statistics on the quantity of forest products produced (and exported) and achievement of Coillte's Forests for Wood pillar outlined in Coillte's Strategic Vision. • Achievement of Ireland's renewable energy targets and increased use of biomass as a renewable energy source amongst, the achievement of Coillte's Forests for Climate pillar outlined in Coillte's Strategic Vision. • Employment Statistics for the activities on or related to Coillte's estate. • Amount of forest products available and the value of and or revenue of products. • Amount of woody biomass used for renewable energy generation in Ireland annually. • Location and/or level of forestry related infrastructure including forest roads across Coillte's estate. • Location and/or size of renewable wind energy related infrastructure.

7. Alternatives Considered

7.1 Introduction

Article 5.1 of the SEA Directive requires the SEA ER to consider "reasonable alternatives taking into account the objectives and the geographical scope of the Plan or Programme". Annex 1(h) of the SEA Directive, as replicated in paragraph (h) of Schedule 2B of the Planning and Development Regulations 2001, as amended, requires "an outline of the reasons for selecting the alternatives". This suggests that there are three stages to the consideration of alternatives:

- Identify reasonable alternatives; (Refer to Section 7.2)
- Evaluate and compare the alternatives; (Refer to Section 7.3)
- Provide reasons for the choice of preferred alternative(s) (Refer to Section 7.4).

7.2 Identification of Reasonable Alternatives

As described previously, the FESLUP provides a framework for delivery on the ambitions of Coillte's Strategic Vision. Both Coillte's Strategic Vision and the FESLUP are thus intrinsically linked, in that one gives rise to the other. Thus, it is appropriate to outline some of the potential alternatives considered to the ambitions within Coillte's Strategic Vision first, in order to fully understand how the FESLUP was developed, and ultimately how the objectives of the FESLUP were established.

7.2.1 Potential Alternatives to Coillte's Strategic Vision Ambitions

In developing the Strategic Vision, and in consideration of the feedback received in both the public consultation and public attitudes survey (refer to Section 3.5 of the FESLUP for information on Public Feedback) undertaken during 2022 on Coillte's Strategic Vision, the following considerations on some of Coillte's Strategic Vision Ambitions are discussed.

It is worth noting that forests can deliver multiple values or objectives and have the capacity to provide a wide range of economic, environmental, and social benefits. The four forest objectives of Climate, Nature, Wood and People are intrinsically linked, as are many of the potential benefits. It is important however to acknowledge that maximising one objective has the potential to result in trade-offs with others. It may also not be realistic or appropriate to deliver all forest objectives equally in all forest locations. It is therefore critical that the right balance of objectives is achieved across the estate that best deliver on the multiple benefits of forests for climate, nature, wood, and people.

Consideration given to primarily planting native or broadleaf species and increasing the area of the estate managed primarily for nature beyond 50%

The public consultation and public attitudes survey demonstrated an almost universal view that Irish forests are important in helping to address the climate and biodiversity crises, along with strong support for more tree planting and increased forest cover. While there was overwhelming support for broadleaf planting as a long-term store for carbon to mitigate climate change, and strong support for planting conifers expressed in the public attitudes survey, opinions on conifers were more polarised in the public consultation.

One consideration was that any increase in forest cover could be achieved by planting primarily Native or Broadleaf species. Whilst a shift to planting primarily native or broadleaf species would result in overall positive impacts on biodiversity, there are a number of potential negative impacts or direct trade-offs to be considered.

In relation to Coillte's ambitions that 30% of our forests and lands are managed primarily for nature in the near term, increasing to 50% over the longer term, approximately half of all respondents of the public attitude survey felt that Coillte's forests for nature ambitions are just about right while a significant proportion of the public consultation respondents felt the nature ambitions didn't go far enough.

Another consideration, therefore, was to increase the area of the estate managed primarily for nature in both the short and longer terms.

Potential Outcome: Impact on potential carbon removal

Conifers grow very well in Ireland and sink CO_2 at a rate of c. 6.9 t CO_2eq. ha/year. Broadleaves sink CO_2 more slowly at a rate of c. 2.6 t CO_2eq. ha/year. This difference can be attributed to the faster growth conifers, as compared to that of broadleaved trees. Conifers also retain their needles all year round, which allows them to photosynthesize, and thus sequester carbon, for a longer portion of the year compared to deciduous broadleaved trees which lose their leaves during the winter months.

Planting primarily native or broadleaf species only would therefore lead to a reduction in potential carbon sequestration from the estate in the short to medium term.

Potential Outcome: Impacts on wood supply & associated carbon benefits:

The public consultation and public attitudes survey demonstrates the importance of Irish forests in supporting the construction of sustainable homes as well as high levels of support for more timber frame homes being built using certified Irish timber.

Currently about 20% of homes built in Ireland are timber framed, but with appropriate changes in building regulations and the use of innovative Irish timber products, this has the potential to increase to about 80% in the coming decades. Ireland needs to utilise more homegrown wood products in timber frame houses to support the drive to net zero carbon emissions. Ireland is currently amid a grave housing shortage, with the Government's Housing for All Plan estimating that an average of 33,000 new homes are needed from 2021 to 2030 to meet demand. Additionally, The National Retrofit Plan commits Ireland to have 500,000 homes retrofitted to a Building Energy Rating of B2/cost optimal or carbon equivalent by 2030.

Conifer trees are highly productive from a timber generation perspective as a result of their faster growth, and high productivity on poor fertility marginal soils (unsuitable for many broadleaf species). Timber and other wood products also contribute to the mitigation of carbon emissions from non-renewable materials as harvested wood products store carbon for the duration of their use, further extending the carbon storage potential. While broadleaf species can also produce valuable hardwood timber, as outlined above, their slower growth rates, longer rotations (typically 80 years plus) and more intensive forest management to obtain construction grade timber would lead to a significant reduction in timber available for construction in the short to medium term.

A shift to primary broadleaf planting across the estate would not give rise to the levels of timber we need to meet our housing and zero carbon targets. This would also lead to the requirement to import timber from potentially unstainable sources ("carbon leakage") in order to meet the national wood demands until the proposed broadleaf estate matures.

Similarly, a further increase in the area of the estate managed primarily for nature, beyond the level of the stated ambitions, would result in a definitive reduction in timber production, reducing the economic benefits to society, as well as reducing our potential to help decarbonise the building industry through the use of sustainable timber alternatives. It would also result in a reduced carbon sequestration and storage benefits for the reasons outlined previously.

Conclusion:

Planting primarily native or broadleaf species only or increasing the area of our estate managed primarily for nature beyond our ambition of 50% would positively impact on Forests for Nature, however there would be significant trade-offs with the other forest objectives of Climate, Wood and People.

In light of the above considerations, our afforestation ambitions consist of both fast-growing conifers that quickly sequester carbon and provide a source of sustainable wood products to help decarbonise our house building sector, along with broadleaves that provide additional biodiversity benefits as well as a long-term, stable store of carbon.

The scale of our ambitions also need to be balanced across the forest objectives. In recognising this need it is considered that the stated ambitions to manage 30% of our forests and lands in the near term (increasing to 50% over the longer term), primarily for nature, is appropriate.

Consideration given to limiting management and intervention of the forest estate for climate & nature benefits:

The public consultation and public attitudes survey demonstrated an almost universal view that Irish forests are important in helping to address the climate crisis with a strong majority of people agreeing that a key consideration of Irish forest management should be increasing the carbon store of forests. One potential alternative consideration given to improving the carbon sequestration performance of the Coillte estate to help address the climate crises was limiting management and intervention of the forest and allowing the existing estate to mature. This would involve limited or no afforestation and limited or no harvesting over the lifetime of the Plan.

Potential Outcome: Impacts on Forests for Climate and Nature

This approach provides potential benefits over the short term from a climate perspective in that a reduction in harvesting would allow the forests to mature, increasing their carbon sequestration potential. However, it would likely result in direct impact and trade-offs with the other objectives as it ignores the short-term risk associated with potential pests and diseases arising from an unmanaged forest estate and associated risks to the carbon store as an unmanaged estate matures and emits carbon over time.

Limited management and intervention on the forest estate has potential positive impacts on some habitats and forest-dwelling species as it would allow the forest habitats to mature and grow on, and in the process, to develop a more natural structure, albeit over a much longer term. Reduced harvesting would also likely cause less disturbance to forest-dwelling species of animals and plants.

It is worth noting however that some species potentially benefit from the forest structure (e.g. the pattern of open space and young plantation forest) created by active forest management including the clearfell-and-replant system.

Potential Outcome: Impacts on Forests for Wood, People and Climate

Limited or no harvesting over the Plan period would significantly reduce or stop Coillte contributing to any timber production requirements, as well as limiting the opportunity to grow the bioeconomy and help decarbonise the building industry as noted previously.

Similarly, the definitive reduction in production of Irish timber arising from the limited intervention of the estate would increase the risks associated with the importation of timber from potentially unsustainable sources and contribute to carbon “leakage” effects at a global level.

Conclusion

Actively managing our forest estate is considered the preferred approach as it mitigates the potential climate risks associated with pests and disease from an unmanaged forest estate, provides wood products that store carbon and substitute carbon intensive alternative building materials, mitigates against the importation of timber from unsustainable sources, and contributes to a growing bioeconomy that supports employment throughout Ireland.

Similarly, to deliver on the forests for nature objectives, it is considered preferable to focus alternative silvicultural systems on forests of ecological value. This could also include identifying forests with potential biodiversity value and, where appropriate, allowing them to grow old to help improve their natural characteristics.

Consideration given to the scale of our Afforestation Ambitions:

In relation to our ambition to create 100,000 hectares of new forests by 2050, half of which would be native woodlands, while 2 in 5 of respondents to the public attitude survey were in agreement with the ambition, almost half of those in the public consultation believed the creation of 100,000 hectares by 2050 was too little.

One consideration therefore was the appropriateness of the scale of our ambition to create 100,000 hectares of new forests by 2050, half of which will be native woodlands.

Potential Outcome: Impacts on Forests for Climate

It is acknowledged that there is an urgent need for Ireland to meet stretching Climate Action targets and creating new forests is integral to the achievement of these targets. To achieve the 18% forest cover target requires the creation of an additional c.450,000 hectares (ha) of afforestation.

The size of the challenge is such that farmers, private forestry and Coillte all have a role to play to ensure that we collectively can deliver on the national target of 8,000 ha per year. In this regard and given Coillte's experience of delivering afforestation over the last 30 years, and on the basis that we currently manage c.440,000 hectares of state lands (c.50% of Ireland's forests), a "Do Nothing" scenario was not considered as a viable alternative.

Conclusion:

In considering Coillte's potential contribution to the national afforestation target, Coillte's strategic ambition of enabling the creation of 100,000 hectares of new forests, half of which will be native woodlands, represents c.20% of Ireland's national afforestation target. Noting the contribution of farmers and private forestry in delivering our national targets, and the need to balance forests for Climate, Nature, Wood and People, the ambition to plant 100,000 hectares, which includes 50,000 native woodlands, is considered a reasonable and appropriate level of afforestation by Coillte which will sink c.18m tonnes of CO2, by 2050.

7.2.2 The FESLUP Alternatives

Once Coillte's Strategic Vision was developed, a range of further alternatives for how the high level of ambitions of Coillte's Strategic Vision would be delivered via the FESLUP (this Plan) were then considered, as described and assessed below. However, it is noted that not all ambitions are capable of being delivered in alternative ways.

Forests for Climate

Two alternative delivery scenarios were considered to realise the ambition to *"manage the existing Forest Estate to increase the carbon store by 10m tonnes of CO_2 by 2050.":*

- **Scenario A: 10m tonnes of CO2 stored by 2050 delivered through no felling over Plan period.** This Scenario was designed to understand how the ambition of increasing the carbon store in Coillte's estate by 10m tonnes could be delivered through a set of landscape and silvicultural methods that were largely underpinned by no harvesting of the forest estate, i.e., no thinning or clear-felling.
  - While this scenario provided a large short-term increase in carbon storage, it clearly demonstrated that there would be a significant lack of certified, Irish timber available to the Irish market. In addition, the analysis of this scenario demonstrated the high risk of pests and diseases to an ageing, unmanaged forest. As these risks spread across the estate, the emissions resulting from stressed and dying forests would result in large emissions in the medium and long-term. This latter outcome is consistent with what occurred in parts of central Europe and North America due to extensive outbreaks of spruce bark beetle.
- **Scenario B: 10m tonnes of CO2 stored by 2050 delivered through continued felling and replating over Plan period.** This Scenario was designed as a balanced model that would increase the carbon store in Irish forests by 10m tonnes by 2050 and achieved through the implementation of a range of silvicultural and landscape management options across the Coillte estate.
  - This scenario was designed to balance a number of objectives that includes climate, wood, nature and recreation. The principal mechanisms that were identified to achieve this increase in carbon storage, focussed on the active management of the forest estate (both coniferous and broadleaf estate) and a range of peatland redesign options
  - The silvicultural management options that were implemented across the estate, have a particular emphasis on the extension of rotations in conifer crops, thinning and continuous cover forestry. In addition, this scenario sought to provide an even supply of timber to the market over the planned period.

Two alternative delivery scenarios were considered with regards the ambition to *"redesign 30,000 hectares of Peatland Forests for climate and ecological benefits by 2050.":*

- **Scenario A: All 30,000 hectares of peatland is deforested and 're-wet' in full.** This Scenario was designed to analyse the potential outcome of rewetting an area of 30,000 ha of peatland forests in the short-term. This scenario focussed exclusively on the deforestation of the 30,000 ha and then carrying out the appropriate on-site activities to rewet the peatland.
  - Analysis of this scenario demonstrated that in the short-term, there would be a large emission of CO2 due to the deforestation of the stands and which would also coincide with a large emission of CH4 due to the decomposition of woody material.
  - While rewetting can be considered beneficial from a biodiversity perspective, the rewetting process can have a negative impact due to the CO2 emissions from deforestation and methane emissions.
  - In addition, it should be noted that there are also practical limitations associated with large-scale rewetting of peatland forests. This relates to the site suitability (i.e., locations may be limited due to topography and the extent of peatland decomposition).
- **Scenario B: A balanced portion of the 30,000 hectares of peatland is deforested and 're-wet', with the remaining hectares re-established with site appropriate species.** This Scenario was designed as part of the development of a balanced model, which sought to redesign 30,000 hectares of peatland forests through a combination of redesign measures that included rewetting, rewilding/conversion to semi-natural woodland and in some cases retaining of existing areas.
  - This mix was identified as the most appropriate set of measures that would have the optimal climate benefit in the short-term (i.e., to 2050) and which could be implemented across the designated area. In addition, it was considered that there were also significant benefits to biodiversity and nature resulting from these redesign measures.

Forests or Nature

Two alternative delivery scenarios were considered with regards the ambition to *"Enhance and restore biodiversity by increasing the area of our estate managed primarily for nature from 20% to 30% by 2025":*

- **Scenario A: Focus on non-economic lands with lower economic cost to enhance and restore habitats of value for nature.** This Scenario reflects an approach that is based on economic assumptions. There is an assumption that lands that do not currently add significant value for the alternative pillars of Wood, Climate or People, present opportunities for enhancing their biodiversity value for nature. Further, that implementation of the actions or inputs required to enhance the value of these lands for nature would be lower and more cost-effective than elsewhere.
  - Previous experience in habitat restoration projects have borne out the first assumption to some extent. It is certainly the case that some forests of low productivity from a forestry perspective have good current or potential value for nature. For example, this was observed in Coillte's bog restoration LIFE projects of the 2000's. The afforested peatland sites with best restoration potential were often those forest stands where tree growth had been exceptionally poor.
  - On these sites the trees had grown so poorly, as the soil consisted of very deep peats and the water table had remained high, despite the presence of forest drains. As a result, open stands of stunted conifer trees had developed, with ground vegetation that included an abundant peatland flora. These sites responded well to bog restoration measures. Similar outcomes were observed in native forest restoration projects, on challenged sites that flourished when basic restoration measures were implemented.
  - However, when viewed alone and without ecological criteria, forest productivity is not a reliable indicator of the current or potential ecological value of forest habitats. Furthermore, the actions required to convert "non-economic lands" to valuable habitat may be resource-intensive and costly. If the potential ecological value of these lands, once actions have been implemented, remains poor, then the investment may not have been worth it.

- **Scenario B: Focus on land with higher ecological value to enhance and restore habitats increase of value for nature.** This Scenario reflects a more robust approach, from an ecological perspective. In this scenario, efforts are made to locate sites on the highest current or potential ecological value.
  - This scenario is an extension of the approach Coillte has invested in over the past 20 years, having engaged ecologists to assess forests and other habitats of potential biodiversity value. Many of the forests and other habitats on the Coillte estate can be considered "modified", if viewed from the perspective of conventional ecological habitat classification systems or definitions. Yet, they have considerable value for nature.
  - Due to historical factors over thousands of years, the national forest cover in Ireland is low, and any kind of forest habitat can be viewed as uncommon, or even rare in some parts of the country. In this situation, plantation forests provide valuable habitat for forest-dwelling plants and animals. Coillte have developed a classification system, called BioClass, which consists of a set of indicators of forest biodiversity, based on scientific research in Irish plantation forests. The indicators are either natural values of the forest stand or biodiversity features, and the more of these that are present, the higher the biodiversity value.
  - This BioClass system enables Coillte to assess the current biodiversity value of any forest stand. Using this approach for the scenario, Coillte can focus biodiversity enhancement measures on the forests that are assessed to yield the best potential gain for biodiversity. Sometimes, these forests have other values for the other Vision pillars, and the actions required to enhance habitat value will need to be balanced with those other values. For open habitats, a similar set of criteria will be utilised, work is ongoing to refine this, particularly for modified peatlands, uplands and wetlands. Coillte plan to refine the approach by engaging with stakeholders and organisations that have developed expertise in identifying and restoring peatlands of ecological value.

Two alternative delivery scenarios were considered with regards the ambition to *"Transform areas of our forests so that 50% of our estate is managed primarily for Nature in the long term".*

This ambition is focused on the additional 20% primarily for Nature on the forest estate, 30% of the estate having been identified in the previous ambition. Both scenarios are focused on pursuing areas that may not currently add significant value for wood, climate or people. The basic premise is that these lands will present opportunities for increasing the area available for habitats and species. It is recognised that, globally, nationally and locally, there is a need to create significantly more space for nature, providing places where habitats can develop naturally and species can flourish, complete their lifecycle and breed successfully.

- **Scenario A: Minimal intervention.** This Scenario reflects an approach where potential areas are left to develop naturally, and no significant management actions will be implemented.
  - The assumption is that these areas will develop natural characteristics over time that may be highly valued, and in turn improve their habitat value for a range of species. This scenario represents the lowest level of Coillte operational intervention and is expected to be the lowest cost alternative for forest transformation. A primary challenge with this minimal intervention approach, is in relation to the encroachment of invasive species into the areas identified for nature, with the accompanying impact on the potential for habitat and species benefits. There is an associated risk for nature outside these areas as left unchecked there is potential for further detrimental spread of invasive species from these areas into adjoining open of forested areas.
- **Scenario B: Increased biodiversity management practices.** This Scenario reflects an approach in which Coillte proactively assess the current and potential habitat value of these lands, exploring management practices that will enhance their natural value over time.
  - In addition to the recognised peatland habitats, these additional areas for Nature are likely to also contain "modified" habitats. For the latter it is accepted that there may not currently be classification systems available now for describing these habitats or for assessing accurately their nature conservation value.

- Given the scale and diversity of these lands, delivering this scenario will be a challenging exercise. Some areas of restoration for example peatland 'rewetting' will require significant levels of pre and post operational management and resourcing to undertake the successful delivery.
- Utilising increased biodiversity management planning, it is anticipated that these areas will have considerable value for nature, given their extent. Within this scenario Coillte will develop a science-based, evidence-based approach to managing these lands, engaging with regulatory bodies and expert groups to explore the best approaches.

Forests for Wood

Three alternative delivery scenarios were considered with regards the ambition to *"produce 25m cubic meters of certified Irish timber, to support the construction of 300,000 homes by 2030":*

- **Scenario A: Continuation of the current harvesting production systems.** Continue current harvesting production operational processes. The current conifer harvesting production system delivers production of roundwood through accredited clearfelling (c.86.5%) and thinning operations (c.13%) and CCF (c.0.5%). Following clearfell all trees harvested during the rotation are replanted.
  - For timber production, the current thinning and clearfell operations and delivery of roundwood to roadside integrates seamlessly into the existing supply chain. The operations efficiently and cost effectively produce certified roundwood to meet the industrial expectations from Coillte managed forests.
- **Scenario B: Full Continuous Cover Forestry System (CCF) across the forest estate**. Move to full Continuous Cover Forestry (CCF) production system. Continuous cover forestry systems, offer the possibility to harvest a similar timber volume over the same period, in regular instalments and avoid the need to clearfell in the longer term. CCF is operated successfully in many regions of Europe, however the system is not yet widely practised or fully understood within Irish forestry growing conditions.
  - In regions practising CCF, there are recognised benefits including improving biodiversity within the overall forest ecosystem. CCF does require additional resources compared to conventional systems, including extra monitoring of the stand during pre and post harvesting activities, additional capital expenditure to facilitate potentially higher density roading requirements, however these are somewhat offset by reduced forest re-establishment costs.
  - Environmental conditions and site limitations (including wind exposure, soil type and species limitations) can inhibit stand stability and the occurrence of natural regeneration on some sites. These factors can significantly reduce the suitability of successful forest transition to a CCF system in some areas. Under CCF conditions average tree size is expected to increase, which may prove problematic to the sawmill processing sector in the short term and needs consideration, planning and perhaps and investment at an industry level.
  - Accurately forecasting future timber values is limited by the lack of growth and yield values, therefore future estimates are derived from applying scaled estimates from existing Thinning and Clearfell forest stand growth and yield models. Using these estimates and applying a CCF regime where appropriate, this scenario will only achieve c.48% of Coillte's volume ambition for the period.
- **Scenario C: Incorporation of management changes required to deliver on Nature, People and Climate, namely the increase of stands being manged for CCF, stands transitioning from Conifer Forest and increasing length of forest rotations.**
  - This scenario was designed to balance Wood production with the ambitions for Climate, Nature and People to ensure a sufficient supply of certified timber. As outlined in the climate alternatives, changes to how the forest is managed impacts the carbon balance, this scenario meets the ambition to capture the additional 10m tonnes of carbon. Primarily this is achieved by extending the rotation age for stands and decreasing thinning levels, resulting in an increase of 'in forest' standing volume, and the capture of more carbon. However due the age distribution of the forest, a reduction in the number of stands available to harvest in the near term will be evident and the proportion of volume derived from Clearfell will reduce to 82%.

- Within the scenario therefore, the proportion of stands manged for CCF increases, with the associated CCF production volume rising from c.0.5% to c.6%. Additional CCF will predominantly occur in areas that are high value for the Nature and People pillars and will result in multiple benefit forest management. Increasing the overall volume contribution from CCF will broaden Coillte's understanding of these systems and help develop the planning, monitoring systems, skills and experience required to successfully implement CCF and transition existing Clearfell stands.

- The transition of some stands away from conifer to alternative future land use for the Nature and Climate pillars have also been incorporated into the modelling for this scenario. Within the plan period and beyond, this alternative future land use change will not result in any significant impact of available timber volumes from Coillte's managed forests.

Forests for People

Two alternative delivery scenarios were considered with regards the ambition to "Enable the investment of €100 million in world-class Visitor Destinations to support growth in tourism and recreation by 2030":

- **Scenario A: Make land available for external Visitor Destination development.** The approach of making land available for external Visitor Destination development, purely from a commercial perspective is attractive, as it could be delivered with low levels of resource input and provides potential for high financial return.

  - The method of delivery associated with this scenario, however, provides a lack of operational control linked to key attributes of Coillte's Strategic Vision for visitor destination development. As such, there are associated risks. Primarily that the prospective developer may not operate the destination to a high standard or that initial standards would decline over time, leading to a failed visitor destination experience and associated reputational damage. Further within the development itself, there is a risk that the developer would not adhere to equivalent sustainability and accessibility standards found at similar Coillte visitor destinations.

  - There are also opportunity costs associated with this scenario, as Coillte would not only loose the opportunity to enhance internal and partnership expertise in Visitor Destination development but also the related lack of brand association with World Class Forest destinations developed.

- **Scenario B: Carry out site selection and work with strategic partners to develop masterplans and subject sites to Coillte's sustainability/accessibility policy.** Identify through set criteria, highly suitable locations, and the subsequent expert partnership led development of masterplans, ensuring any development aligns to Coillte's sustainability and accessibility policies. This scenario is more time consuming and requires greater resourcing internally for Coillte, however it aligns better with Coillte's Strategic Vision and ambitions and mitigates risks associated with Scenario A.

  - The use of master planning with public consultation, enables community involvement in the prospective sites, allowing public concerns and ideation to be fully considered and acted upon. Utilising strategic partnerships and joint alignment of ambitions for recreation will boost the potential for delivery of world class destinations. It is envisaged that the development and operation of the facilities will be directed by Coillte, ensuring high quality standards from the initial delivery and into the future.

  - This scenario also presents the opportunity for Coillte branding at the developed destinations, which has wider value for the organisation. Coillte's association with these destinations provides great potential to educate the public about the Coillte mission and Coillte's Strategic Vision for the core pillars of Climate, Nature, Wood and People.

7.3 Evaluation and Comparison of Alternatives

This section provides a detailed description and assessment of those alternatives outlined in Section 7.2.

The assessment process categorised environmental impacts using the ratings outlined in Table 7.1 which is based on the impact assessment criteria defined by the EPA for environmental impact assessment.

Table 7.1 Impact Ratings

Significance of Effects	
	Neutral
	Positive
	Negative
	Uncertain (Unknown or both positive and negative effects likely)

The potential environmental impact is assessed under the following headings:

- Population and Human Health (P&HH)
- Biodiversity (including Flora and Fauna) (Bio)
- Land and Soils (L&S)
- Water (Wat)
- Air and Climate (including Noise) (AQ&C)
- Archaeology, Architectural and Cultural Heritage (AA&CH)
- Landscape and Visual (L&V) and
- Material Assets (MA).

Table 7.2 identifies the likely unmitigated impacts associated with each of the alternatives considered.

Table 7.2 Alternatives Assessment

Ambition	Alternative		P&HH	Bio	L&S	Wat	A,Q&C	AA&CH	L&V	MA
Manage the existing Forest Estate to increase the carbon store by 10m tonnes of CO_2 by 2050	A	10m tonnes of CO_2 stored by 2050 delivered through no felling over Plan period.								
	B	10m tonnes of CO_2 stored by 2050 delivered through continued felling over Plan period.								
Redesign 30,000 hectares of Peatland Forests for climate and ecological benefits by 2050	A	All 30,000 hectares of peatland is deforested and 're-wet' in full.								
	B	A balanced portion of the 30,000 hectares of peatland is deforested and 're-wet', with the remaining hectares re-established with site appropriate species.								
Enhance and restore biodiversity by increasing the area of our estate managed primarily for nature from 20% to 30% by 2025	A	Focus on non-economic lands with lower economic cost to enhance and restore habitats of value for nature.								
	B	Focus on land with higher ecological value to enhance and restore habitats increase of value for nature.								
Transform areas of our forests so that 50% of our estate is managed primarily for Nature in the long term	A	Minimal Intervention								
	B	Increased biodiversity management practices								
Produce 25m cubic meters of certified Irish timber, to support the construction of 300,000 homes by 2030	A	Continuation of the current harvesting production systems.								
	B	Full Continuous Cover Forestry System (CCF) across the forest estate.								

	C	Incorporation of management changes required to deliver on Nature, People and Climate, namely the increase of stands being manged for CCF, stands transitioning from Conifer Forest and increasing length of forest rotations.								
Enable the investment of €100 million in world-class Visitor Destinations to support growth in tourism and recreation by 2030	A	Make land available for external Visitor Destination delivery developments.								
	B	Carry out site selection and work with strategic partners to develop masterplans and subject sites to Coillte's sustainability/accessibility policy.								

7.4 Emerging Preferred Scenarios

Forests for Climate:

Having regard to the Ambition to "*Manage the existing Forest Estate to increase the carbon store by 10m tonnes of CO_2 by 2050,*" the emerging preferred scenario is "10m tonnes of CO_2 stored by 2050 delivered through continued felling and replanting over Plan period."

This scenario is likely to have a positive effect on population, material assets and climate though an increased and continued supply of timber. Timber and other wood products contribute to the mitigation of carbon emissions from non-renewable materials as harvested wood products store carbon for the duration of their use, further extending the carbon storage potential.

Currently about 20% of homes built in Ireland are timber framed, but with appropriate changes in building regulations and the use of innovative Irish timber products, this has the potential to increase to about 80% in the coming decades. Ireland needs to utilise more homegrown wood products in timber frame houses to support the drive to net zero carbon emissions. Ireland is currently amid a grave housing shortage, with the Government's Housing for All Plan estimating that an average of 33,000 new homes are needed from 2021 to 2030 to meet demand. Additionally, The National Retrofit Plan commits Ireland to have 500,000 homes retrofitted to a Building Energy Rating of B2/cost optimal or carbon equivalent by 2030.

Limited or no harvesting over the Plan period would significantly reduce or stop Coillte contributing to any timber production requirements.

Having regard to the Ambition to "*Redesign 30,000 hectares of Peatland Forests for climate and ecological benefits by 2050,"* the emerging preferred scenario is *"A balanced portion of the 30,000 hectares of peatland is deforested and 're-wet', with the remaining hectares re-established with site appropriate species."*

While both scenarios are positive from a climate perspective, the emerging preferred scenario involves the re-establishment of some of the existing sites with appropriate species; which would also result in positive effects on biodiversity.

Forests for Nature:

Having regard to the Ambition to "*Enhance and restore biodiversity by increasing the area of our estate managed primarily for nature from 20% to 30% by 2025",* the emerging preferred scenario is to "*Focus on land with higher ecological value to enhance and restore habitats increase of value for nature*."

While focusing on non-economic land for the enhancement and restoration of habitats would be more economically advantageous for Coillte it would not be the most beneficial from a nature perspective. Thus, focusing on higher ecological value sites is likely to result in an overall positive effect on biodiversity, when compared with Scenario A, and is the emerging preferred scenario.

Having regard to the Ambition to "*Transform areas of our forests so that 50% of our estate is managed primarily for Nature in the long term*", the emerging preferred scenario is "*Increased biodiversity management practices*."

Increased biodiversity management practises is preferable from a biodiversity perspective with regards the existing forest estate, rather than minimal intervention.

Forests for Wood:

Having regard to the Ambition to "*Produce 25m cubic meters of certified Irish timber, to support the construction of 300,000 homes by 2030*", the emerging preferred scenario is "*Incorporation of management changes required to deliver on Nature, People and Climate, namely the increase of stands being manged for CCF, stands transitioning from Conifer Forest and increasing length of forest rotations*."

This scenario (Scenario C) represents a hybrid between Scenario A and Scenario B and is thus the emerging preferred scenario.

Forests for People:

Having regard to the Ambition to "*Enable the investment of €100 million in world-class Visitor Destinations to support growth in tourism and recreation by 2030",* the emerging preferred scenario is to "*Carry out site selection and work with strategic partners to develop masterplans and subject sites to Coillte's sustainability/accessibility policy*."

This scenario allows Coillte to maintain input into the development and management of future visitor destination sites and apply existing policy sustainability and accessibility, rather than hand over full control to an external body. It also gives Coillte control on site selection to ensure the most environmentally suitable sites are selected. A positive effect on Population and Human Health and material assets is identified here, when compared with Scenario A.

8. Assessment of Significant Effects

8.1 Assessment of Environmental Effects

The environmental effects of the FESLUP aims and commitments were assessed with respect to the existing environmental baseline as outlined in Section 5 and the environmental objectives listed in Section 6. The assessment process categorises environmental effects using the ratings outlined in Table 8.1 which is based on the impact assessment criteria defined by the EPA for environmental impact assessment.

Table 8.1 Significance Ratings

Significance of Effects	
	Neutral
	Positive
	Negative
	Uncertain (Unknown or both positive and negative effects likely)

The potential environmental impact is assessed under the following headings:

- Population and Human Health (P&HH)
- Biodiversity (including Flora and Fauna) (Bio)
- Land and Soils (L&S)
- Water (Wat)
- Air and Climate (including Noise) (AQ&C)
- Archaeology, Architectural and Cultural Heritage (AA&CH)
- Landscape and Visual (L&V) and

- Material Assets (MA).

8.2 Principal Environmental Effects

The FESLUP represents a comprehensive, ambitious, and long-term Plan to set out the framework for the management of Coillte's existing forest estate and lands managed by Coillte, inclusive to both forested and non-forested areas. The FESLUP will guide the geographical areas of afforestation, reforestation, renewable energy developments, increased biodiversity areas and restoration areas, that are set to be established throughout the Plan period of 2023-2050.

Four pillars have been identified with regards to the FESLUP, which have the potential to give rise to positive effects on the environment, as set out below. Eleven associated ambitions were also established for the pillars.

- **Pillar 1: Forests for Climate** which relates to the role our forest estate plays in the sinking and storing of carbon, and its capacity to produce wood products to substitute for carbon-intensive materials. It also encompasses Coillte's adaptation of the estate to account for future likely climate scenarios
- **Pillar 2: Forest for Nature** which covers the existing biodiversity value of Coillte's forest estate and identifies options to protect, enhance and restore the biodiversity value in areas currently managed primarily for nature, to extend these areas further and to provide protections throughout the estate
- **Pillar 3: Forests for Wood** which addresses the commercial aspects of Coillte Forest's operations which largely relate to the management of forests to ensure the continued sustainable supply of roundwood and
- **Pillar 4: Forests for People** which examines the social, community and recreational aspects of Coillte's operations, and their contribution to employment.

The objectives in the FESLUP were assessed with respect to the existing environmental baseline and the environmental objectives and targets.

As the objectives included in the FESLUP have been designed to promote sustainable forest management, use of renewable energy developments, increased biodiversity areas and restoration areas, increased recreational areas, promotion of timber use across the construction sector and education across the forestry industry, the environmental assessment outcomes are generally positive, or neutral.

Matrices were prepared to identify potential impacts across the Plan area and the likely impact relevant to specific areas of the Plan area.

The FESLUP contains a number of objectives relating to afforestation and reforestation, to increase Coillte's forest cover across the estate. Increasing forest cover in Ireland has been assessed as likely to result in overall long-term positive effects on the environment, particularly air and climate factors. However, inappropriate forest expansion and management have the potential to give rise to negative effects, such as pollution events and/or the spread of invasive species.

A generally positive effect on population and material assets is identified, where increased forest-based and non-forest-based areas for amenity, recreation and learning potential, are likely to be facilitated. However, increased human interaction in forested areas and non-forested areas, as well as any associated development, such as carparks, public toilets etc., has the potential to negatively affect some aspects of the environment, through potential contamination, clearance and/or disturbance.

The FESLUP also contains a range of objectives relating to the promotion of wood-based products for construction and energy purposes. An overall positive impact on the environment is identified here, through the promotion of a sustainable, renewable source of building materials, circular economy principles and energy production. Positive effects are particularly noted here on air and climate factors.

Increased afforestation, reforestation, biodiversity and peatland management and restoration, support for renewable energy developments and increased timber use in the construction sector, are likely to result in overall positive, long-term effects on climate. In this way, the FESLUP has the potential to contribute positively and cumulatively towards a wide range of Irish Government and EU policy, within the context in which it sits.

For example, the FESLUP positively contributes towards the objectives of the National Climate Action Plan through the suite of objectives relating to afforestation, reforestation, biodiversity and peatland management and restoration, the increased use of wood products as a renewable resource, and the promotion and support of renewable energy developments. The FESLUP will work to achieve contributions towards reductions in greenhouse gas and other emissions to air and associated achievement of legally binding targets (in combination with Plans and Programmes from all sectors, including energy, transport and land use planning) as a result of facilitating:

- Greater levels of forest cover
- Increased management of Coillte's forest estate – improvement in carbon store potential
- Increased use of renewable resources through the provision of wood and wood products
- Support and promotion of increased renewable energy developments
- Restoration of peatlands (long-term positive climate impacts) and
- Increased production and use of timber as a construction material.

Any development that is likely to occur as a result of the FESLUP, such as forestry related development, wind energy related developments, increased recreational facilities and or other infrastructure have the potential to give rise to adverse impacts on the environment, particularly biodiversity; with potential impacts relating to disturbance, disruption, fragmentation, and loss of habitats. Further, any new development in forested and non-forested areas has the potential to give rise to negative effects on land, soil and water, in the instance of contamination or pollution events.

Technological based innovation of the forestry sector, educational promotions, and apprenticeships, as detailed in objectives as the FESLUP are likely to result in overall neutral or environmental impacts. Promotion of Forest Certification, organisational changes, improved communication structures, development of guidance and management documentation, and the continued implementation of standards and best practice guidance are likely to see overall neutral to positive impacts on the environment, where certain situations represent baseline conditions that are already positively enforced.

A detailed assessment of each of the objectives within the FESLUP is set out in Table 8.2 below.

Table 8.2 Environmental Assessment of Forestry Programme - Intervention and Measures

Response to Ambition	Objective	P&HH	Bio	L&S	Wat	A,Q&C	AA&CH	L&V	MA
Forests for Climate									
Ambition 1: Enable the creation of 100,000 hectares of new forests, half of which will be native woodlands, which will sink 18m tonnes CO_2 by 2050.	**Objective CO1:** Undertake a review to understand Land Use policy implications for Commercial & Native afforestation and assess land resource availability and the impact of alternative agricultural schemes.								
	SEA Comments: An overall neutral impact has been assessed for this objective as undertaking a review to understand Land Use policy implications for Commercial & Native afforestation, assessing land resource availability and the impact of alternative agricultural schemes is an objective that is likely to be primarily clerical in nature and thus, is unlikely to have significant environmental impacts. Potential positive impacts have been assessed for P&HH as there is potential for increased knowledge and research development to occur from this objective, in the long term this objective is likely to positively impact the environment.								
	Objective CO2: Engage with government and other key regulatory bodies to ensure that the policy and regulatory framework supports Coillte's Climate ambitions.								
	SEA Comments: An overall neutral impact has been assessed for this objective as engaging with government and other key stakeholders to ensure that the policy and regulatory framework can effectively deliver, to expedite the approval and granting of afforestation licenses is an objective that is likely to be primarily clerical in nature and thus, is unlikely to have significant environmental impacts. Potential positive impacts have been assessed for P&HH as there is potential for more effective delivery of the granting of afforestation licences.								
	Objective CO3: Local and National Government to develop afforestation opportunities on suitable publicly owned lands.								
	SEA Comments: As this objective details a means of developing afforestation opportunities in collaboration with Local and National Government, the likely increase forest cover has potential to result in overall long-term positive effects on the environment. However, inappropriate forest expansion and management could also give rise to negative effects. For example, site disturbing operations such as cultivation, road building and harvesting when combined with heavy rainfall pose a higher risk of silt runoff into waterways. Thus, it is important to have regard to the 'environmental requirements' set out in the FESLUP to understand the true impacts of these measures. Having regard to these environmental requirements, it is likely that these measures will give rise to long-term, positive effects on population and human health, biodiversity, air and climate and material assets where the development of afforestation opportunities are sited appropriately and are subject to all relevant environmental assessments. A potential negative effect on land and soil and water is identified in that, forestry operations have the potential to result in erosion, landslides, compaction, contamination, losses of soil organic matter, erosion, soil sealing, leaching, and changes in soil biodiversity. Soil contamination can result in leaching, and potential eutrophication of waters. It is a recommendation of this SEA that this objective incorporates the mitigation measures in Section 9 of SEA relating to best practice forestry management and operation.								

Response to Ambition	Objective	P&HH	Bio	L&S	Wat	A,Q&C	AA&CH	L&V	MA
	An uncertain effect on heritage is identified in that, there may be potential for interference with previously uncovered or unrecorded features of archaeological significance. It is a recommendation of this SEA that this objective incorporates the mitigation measures in Section 9 of SEA relating to archaeological assessment and the discovery of potential features of archaeological significance. An uncertain effect is also identified with regards the landscape and visual environment - in that where forest creation is concerned, depending on location and scale, new or enlarged forests can result in a negative effect on the scenic environment and landscape characteristics of the area in question. It is a recommendation of this SEA that this objective incorporates the mitigation measures in Section 9 of SEA relating to landscape sensitivity assessment. It is a recommendation of this SEA that this objective includes the following text 'subject to environmental assessment, and where suitable the appropriate assessment procedure'.								
	Objective CO4: Collaborate with key stakeholders to explore options for farmer led afforestation								
	SEA Comments: An overall neutral impact has been assessed for this objective as working and collaborating with key stakeholders to explore options for farmer led afforestation is an objective that is likely to be primarily clerical in nature and thus, is unlikely to have significant environmental impacts. Potential positive impacts have been assessed for P&HH as there is potential for increased knowledge and research development to occur from this objective.								
	Objective CO5: Secure the necessary investment to achieve Coillte's Climate ambitions by exploring all sources of available funding.								
	SEA Comments:								
Ambition 2 - Redesign 30,000 hectares of Peatland Forests for climate and ecological benefits by 2050.	**Objective CO6:** Synthesise existing information to identify potential location(s) for the redesign of peatlands at scale.								
	SEA Comments: Overall, neutral impacts have been assessed as likely to occur form this objective, where a synthesis of existing information is likely to occur. Potential positive impacts have been assessed for P&HH where an increase and transfer of knowledge related to peatland redesign is likely to be facilitated through this synthesis. Potential positive impacts have been assessed as likely to occur for BIO, L&S and AQ&C, where the synthesis of existing information is likely to display the most suitable locations for the redesign of peatlands, according to best available and emerging scientific knowledge on peatlands.								
	Objective CO7: Continuously develop guidelines for the redesign of peatlands based on best Irish and international practice.								
	SEA Comments: Overall potential positive impacts have been assessed for this objective, whereby guidelines for the redesign of peatlands developed based on best Irish and international practice, will be based upon best available and emerging scientific evidence, which is likely to benefit the long-term quality of Irish peatlands and has potential to aid the associated environmental challenges that are currently faced with Irish peatlands. Otherwise, neutral environmental impacts have been assessed as likely to occur. It is a recommendation of this SEA that this objective includes the following text 'Develop guidelines for the redesign of peatlands based on best available techniques and best emerging scientific evidence, relevant to Irish and international peatlands'.								

Response to Ambition	Objective	P&HH	Bio	L&S	Wat	A,Q&C	AA&CH	L&V	MA
	Objective CO8: Establish monitoring and management frameworks for redesigned peatlands.								
	SEA Comments: Overall potential positive impacts have been assessed for this objective, whereby establishing monitoring and management frameworks for redesigned peatlands, will be based upon best available and emerging scientific evidence, which is likely to benefit the long-term quality of Irish peatlands and has potential to aid the associated environmental challenges that are currently faced with Irish peatlands. It is a recommendation of this SEA that this objective includes the following text 'subject to best emerging scientific evidence'. Otherwise, neutral environmental impacts have been assessed as likely to occur.								
Ambition 3 – Manage the existing Forest Estate to increase the carbon store by 10m tonnes of CO_2 by 2050.	**Objective CO9:** Utilise land use planning models to deliver balanced carbon mitigation management options to achieve the 10m tonnes of CO_2 storage target.								
	SEA Comments: Overall neutral impacts have been assessed as likely to occur as a result of this objective. Long-term positive impacts are likely for air quality and climate whereby, land use planning models will be leveraged to deliver balanced carbon mitigation management options in order to achieve the 10m tonnes of CO_2 storage target in the future.								
	Objective CO10: Undertake continued refinement and analysis of the impact of forest management and mitigation measures to improve forest productivity, including managing the age profile to achieve our climate ambitions.								
	SEA Comments: Overall positive impacts have been assessed as likely to occur for this objective. The impact of forest management and mitigation measures to improve forest productivity and managing the age profile to improve the estate's carbon efficiency is likely to result in improved and sustainable forest management and mitigation measure. Particularly, positive impacts are likely in relation to AQ&C, where the potential to improve the estate's carbon efficiency is likely to be facilitated. Otherwise, neutral impacts have been assessed as likely to occur.								
	Objective CO11: Identify and quantify the impacts of climate change and develop measures to make Coillte's estate more climate resilient.								
	SEA Comments: Overall positive impacts have been assessed as likely to occur for this objective. Undertaking analysis and collaborative research related to forest management, forest genetics and design, so that Coillte forests are resilient to climate change is likely to result in overall positive environmental impacts. Improved and sustainable forest management and mitigation is likely to facilitated as a result of this objective. Particularly, positive impacts are likely in relation to air and climate, where the potential to improve the estates carbon efficiency is likely to be facilitated, along with resilience and adaptative capacities towards the inevitable changing climate. Otherwise, neutral impacts have been assessed as likely to occur.								
	Objective CO12: Develop evidence and understanding of carbon management within the forest and across the forestry supply chain, and pilot new decision-making tools.								

Response to Ambition	Objective	P&HH	Bio	L&S	Wat	A,Q&C	AA&CH	L&V	MA
	SEA Comments: Potential positive impacts have been assessed as likely to occur for P&HH and AQ&C, as this objective is likely to result in increased knowledge, skills transfer and understanding of carbon management within the forest estate and the forest supply chain. Otherwise, neutral environmental impacts have been assessed for this objective.								
	Objective CO13: Deepen our understanding of the potential of product substitution from harvested wood and undertake additional analysis related to fossil fuel displacement and value chain emissions.								
	SEA Comments: Overall, neutral environmental impacts have been assessed for this objective as it is primarily knowledge based. Potential positive impacts have been assessed as likely to occur as a result of this objective whereby, increased knowledge and understanding of product substitution from harvested wood and undertaking additional analysis related to fossil fuel displacement and value chain emissions, is likely to result in increased knowledge and understanding of the carbon efficiency of Coillte's estate, particularly in relation to fossil fuel displacement and value chain emissions as well as sustainable forest management, which is likely to result in long term positive impacts to AQ&C.								
Ambition 4 - Generate an additional 1 Gigawatt of renewable wind energy to power 500,000 homes by 2030.	**Objective CO14:** Support FuturEnergy Ireland and 3rd party renewable energy developers in their current and future renewable energy endeavours.								
	SEA Comments: In supporting FuturEnergy Ireland in its current and future renewable energy endeavours, positive impacts are likely for air quality and climate where likely GHG reductions and increased renewable energy development and usage across Ireland are likely to be facilitated. However, as some of these renewable energy endeavours have potential to give rise to development, there is potential for negative environmental impacts. Thus BIO, L&S, WAT and L&V have been assessed as likely to result in negative impacts. Refer to mitigation measures outlined in Section 9 of this report. Uncertain impacts have also been assessed for archaeological and cultural heritage and material assets as the type, scale and location of the potential development is currently unknown. Potential positive impacts have been assessed for P&HH where improvements to air quality and climate are likely to facilitated through this objective, in the long-term. It is a recommendation of this SEA that this objective incorporates the mitigation measures in Section 9 of SEA.								
	Objective CO15: Engage with Government and other key stakeholders to ensure that the policy and regulatory framework can effectively deliver the approval and granting of permissions for renewable energy projects including a correctly structured, timely and well-resourced planning appeals process.								
	SEA Comments: This objective relates to engagement with Government and other key stakeholders to effectively deliver the approval and granting of permissions for renewable energy projects. As no specific development is described by this objective, neutral impacts are likely to arise.								
	Objective CO16: Develop a clear policy and explore opportunities for both onshore and offshore grid infrastructure, rollout and services to support ongoing development.								

Response to Ambition	Objective	P&HH	Bio	L&S	Wat	A,Q&C	AA&CH	L&V	MA
	SEA Comments: In supporting Ireland's current and future renewable energy endeavours, positive impacts are likely for air quality and climate where likely GHG reductions and increased renewable energy development and usage across Ireland are likely to be facilitated. However, as some of these renewable energy endeavours have potential to give rise to development, there is potential for negative environmental impacts. Thus BIO, L&S, WAT and L&V have been assessed as likely to result in negative impacts. Refer to mitigation measures outlined in Section 9 of this report. Uncertain impacts have also been assessed for archaeological and cultural heritage and material assets as the type, scale and location of the potential development is currently unknown. Potential positive impacts have been assessed for P&HH where improvements to air quality and climate are likely to facilitated through this objective, in the long-term. It is a recommendation of this SEA that this objective incorporates the mitigation measures in Section 9 of SEA.								
Forests for Nature									
Ambition 5 - Enhance and restore biodiversity by increasing the area of our estate managed primarily for nature from 20% to 30% by 2025	**Objective NO1:** Classify additional biodiversity areas on the estate, focusing on habitats of the best ecological quality, and/or which have the best habitat restoration potential								
	SEA Comments: Environmental components such as BIO, L&S, WAT and also P&HH are likely to be positively impacted by this objective as mapping new biodiversity areas on the estate, focusing on habitats of the best ecological quality, and/or have the best habitat restoration potential, that are not already mapped as biodiversity areas, is likely to provide increased knowledge and spatial data on species diversity across a larger area of Coillte's estate. Otherwise, neutral impacts have been assessed for this objective.								
	Objective NO2: Continue the process of producing and implementing management plans for biodiversity areas, combining both ecological and forestry perspective and expertise.								
	SEA Comments: This objective represents a continuation of the existing environment and is thus likely to result in an overall neutral environmental effect. In continuing with this baseline, positive environmental impacts are likely to be sustained. It is a recommendation of this SEA to include the following text in this objective 'Continue the process of producing management plans for biodiversity area, where suitable, combining both ecological and forestry perspective and expertise.'.								
	Objective NO3: Create a framework for the selection, appropriate restoration and conservation of ancient and long-established woodland, and engage with key regulatory bodies to promote the approach.								
	SEA Comments: Potential positive impacts have been assessed for P&HH, BIO and AA&AH as this objective is likely to result in increased knowledge and engagement with key regulatory bodies in order to promote the approach and also, restoration and conservation of ancient and long-established woodland, and the associated cultural heritage. Otherwise, neutral impacts have been assessed for this objective.								
	Objective NO4:								

Response to Ambition	Objective	P&HH	Bio	L&S	Wat	A,Q&C	AA&CH	L&V	MA
Ambition 6 - Transform areas of our forests so that 50% of our estate is managed primarily for Nature in the long-term	Continue to increase the implementation of alternative silvicultural systems including continuous cover forestry (CCF) in forests of ecological value.								
	SEA Comments: This objective represents a continuation of the existing environment and is thus likely to result in an overall neutral environmental effect.								
	Objective NO5: Develop metrics, set targets and develop an effective regime to monitor and report on key environmental parameters on the Coillte estate; including valuable habitats / species and the ecological benefits of biodiversity management actions.								
	SEA Comments: Overall potential positive environmental impacts have been assessed as likely to occur as a result of this objective, increased knowledge is likely to be facilitated as a result of developing metrics in order to develop an effective regime to monitor and report on the ecological benefits of biodiversity management actions. Otherwise, neutral impacts have been assessed.								
	Objective NO6: Continue to identify portions of the estate with potential to make greater contribution to biodiversity and explore opportunities to transform them to improve their nature conservation value.								
	SEA Comments: Continuing to identify portions of the estate that are not contributing significantly to the values climate, nature, wood or people and assessing their potential value as Forests for Nature is likely to result in overall positive environmental impacts in the long-term. Otherwise neutral impacts are likely to occur.								
	Objective NO7: Engage with key regulatory and other bodies to develop a common vision for how these sites (ref NO6) should be managed.								
	SEA Comments: Potential positive impacts have been assessed for P&HH as this objective is likely to result in increased knowledge and engagement with key regulatory bodies in order to promote the approach. Potential positive impacts have also been assessed for MA through likely improved forest management and operations. Otherwise, neutral impacts have been assessed for this objective.								
	Objective NO8: Develop protocols for managing these sites (ref NO6), appropriate to their scale, habitat connectivity and site type, that will improve their nature conservation value.								
	SEA Comments: Overall potential positive environmental impacts have been assessed as likely to occur as a result of this objective, whereby developing protocols for managing sites, appropriate to their scale, habitat connectivity and site type, to improve their nature conservation value while also being cognisant of their environmental sensitivities and associated carbon implications, is likely to result in overall positive environmental impacts. Potential positive impacts have also been assessed for P&HH as this objective is likely to result in increased knowledge and management of operations. Neutral impacts have been assessed for AA&CH.								

Response to Ambition	Objective	P&HH	Bio	L&S	Wat	A,Q&C	AA&CH	L&V	MA
Additional Nature Objectives	**Objective NO9:** Review and update, as appropriate, Environmental Risk Assessment (ERA) standards and procedures to inform planning and operations, in line with ongoing and emerging best practice.								
	SEA Comments: Overall positive environmental impacts have been assessed as likely to occur as a result of this objective. Otherwise, neutral impacts are likely to occur.								
	Objective NO10: Identify and implement ways of improving the advance planning of biodiversity management actions and integration into business planning, where appropriate and feasible.								
	SEA Comments: Potential positive impacts have been assessed for P&HH as this objective is likely to result in increased knowledge and management of business planning. Furthermore overall potential positive environmental impacts have been assessed whereby, the identification and implementation of ways to improve the advance planning of biodiversity management actions is likely to positively impact biodiversity and thus, surrounding ecosystems. Otherwise, neutral impacts have been assessed.								
	Objective NO11: Identify and implement methods to improve inventory processes and data-gathering, to expand our knowledge of nature on the estate and our reporting capacity.								
	SEA Comments: Potential positive impacts have also been assessed for P&HH as this objective is likely to result in increased knowledge, data gathering and efficiency of reporting. Otherwise, neutral impacts have been assessed.								
	Objective NO12: Review and improve methods for how biodiversity features and other important environmental features are recorded across the estate.								
	SEA Comments: Potential positive impacts have also been assessed for P&HH as this objective is likely to result in improved data gathering and efficiency of reporting. Overall potential positive environmental impacts have also been assessed for BIO and all other environmental components as this objective is likely to result in more efficient protection and conservation of biodiversity features and other important environmental features. Otherwise, neutral impacts have been assessed.								
	Objective NO13: Enhance guidance for the management of Habitats and species relevant to Coillte's estate and activities.								
	SEA Comments: Overall potential positive environmental impacts have been assessed as likely to occur as a result of this objective, whereby enhancing guidance for the management of Habitats and species relevant to Coillte's estate and activities, is likely to result in overall positive environmental impacts, where increased environmental protection is likely to be facilitated. Potential positive impacts have also been assessed for P&HH as this objective is likely to result in increased knowledge and skills transfer. Otherwise, neutral impacts have been assessed.								

Response to Ambition	Objective	P&HH	Bio	L&S	Wat	A,Q&C	AA&CH	L&V	MA
	Objective NO14: Proactively engage with the relevant regulatory agencies on the measures required to move statutory designated sites to favourable conservation status.								
	SEA Comments: Overall potential positive environmental impacts have been assessed as likely to occur as a result of this objective, proactively engaging with the relevant regulatory agencies on the measures required to move to favourable conservation status, is likely to result in overall positive environmental impacts. Potential positive impacts have also been assessed for P&HH as this objective is likely to result in increased knowledge and skills transfer. Otherwise, neutral impacts have been assessed.								
	Objective NO15: Proactively engage with relevant agencies to develop a science-based understanding of the interaction between forests and water.								
	SEA Comments: Potential positive impacts have been assessed for P&HH, BIO and WAT as this objective is likely to result in increased knowledge and skills transfer from proactive engagement with relevant agencies to develop a science-based understanding of the interaction between forests and water. Otherwise, neutral impacts have been assessed for this objective.								
	Objective NO16: Engage with relevant agencies and stakeholders to explore how Coillte can play a role in delivering programmes and measures aimed at enhancing water quality in catchments.								
	SEA Comments: Potential positive impacts have been assessed for P&HH, BIO and WAT as this objective is likely to result in increased knowledge and skills transfer from proactive engagement with relevant agencies and stakeholders in delivering programmes and measures aimed at enhancing water quality in catchments. Otherwise, neutral impacts have been assessed for this objective.								
	Objective NO17: Collaborate with relevant stakeholders to develop national strategies towards the management of invasive species.								
	SEA Comments: Potential positive impacts have been assessed for P&HH, BIO, L&V and MA as this objective is likely to result in increased knowledge and skills transfer from collaborating with relevant stakeholders to develop national strategies towards the management of invasive species. Otherwise, neutral impacts have been assessed for this objective.								
	Objective NO18: Provide a leadership role while collaborating and engaging as a key partner with the ongoing preparation of the Deer Management Strategy and seek to implement once published, in so far as possible and appropriate.								
	SEA Comments:								

Response to Ambition	Objective	P&HH	Bio	L&S	Wat	A,Q&C	AA&CH	L&V	MA
	Overall, potential positive impacts have been assessed as likely to occur as a result of this objective, whereby providing a leadership role and collaborating and engaging as a key partner with the ongoing preparation of the Deer Management Strategy and seeking to implement once published, in so far as possible and appropriate, is likely to minimise environmental degradation, damage to forest areas and disturbance likely to occur as a result of deer browsing across the estate. Increased knowledge and skills transfer is also likely as a result of this objective. Otherwise, potential neutral impacts have been assessed for this objective.								
	Objective N19: Identify and target appropriate funding mechanisms that will enable the implementation of conservation and protection measures at scale.								
	SEA Comments: This objective primarily relates to the identification and target of funds and so, neutral impacts have been assessed as likely to occur for P&HH, AA&CH and MA. Otherwise, positive environmental impacts have been assessed as likely to occur through targeting the appropriate funding mechanisms that will enable the implementation of conservation and protection measures at scale across Coillte's estate.								
Forests for Wood									
Ambition 7 - Produce 25m cubic metres of certified Irish timber, to support the construction of 300,000 homes by 2030.	**Objective WO1:** Maintain production capacity to harvest and supply certified roundwood to support the timber industry.								
	SEA Comments: This objective, in maintaining production capacity to harvest and supply certified roundwood to support the timber industry, represents a continuation of the existing environment and is thus likely to result in an overall neutral environmental effect. It is a recommendation of this SEA that the following text be included in this objective 'Maintain production capacity to harvest where appropriate and supply certified roundwood to support timber production.'.								
	Objective WO2: Maintain independent environmental certification of Coillte-managed forests.								
	SEA Comments: This objective represents a continuation of the existing environment and is thus likely to result in an overall neutral environmental effect.								
	Objective WO3: Work with other contributors to produce a medium-term all-Ireland roundwood forecast on a regular basis								
	SEA Comments: Overall, working with DAFM and other suppliers to produce a twenty-year all-Ireland roundwood forecast every five years is likely to result in neutral environmental impacts as the work is likely to be report based and or clerical in nature. Potential positive impacts have however, been assessed where increased knowledge and skills transfer is likely to be facilitated throughout this time period, in relation to all-Ireland roundwood forecasting.								
	Objective WO4: Introduce a three-year rolling plan for roundwood supply that addresses all the short-term and medium planning requirements to make roundwood available in each planned year of operations.								

Response to Ambition	Objective	P&HH	Bio	L&S	Wat	A,Q&C	AA&CH	L&V	MA
	SEA Comments: Overall, introducing a three-year rolling plan for roundwood supply that addresses all the short-term and medium planning requirements to make roundwood available in each planned year of operations is likely to result in neutral environmental impacts as the work is likely to be report based and or clerical in nature. Potential for uncertain impacts have been assessed for AQ&C in that, positive impacts are identified in relation to using timber as a renewable source and construction material, however, negative impacts are identified where the felling of trees must be undertaken to supply timber of a renewable source and construction material. Potential positive impacts have been assessed where increased knowledge and skills transfer is likely to be facilitated throughout this time period in relation to planning requirements to make roundwood available in each planned year of operations. Potential positive impacts have also been assessed for material assets as this objective is likely to reduce planning related obstacles, to roundwood availability.								
	Objective WO5: Report annually to the wood processing sector on the available supply of roundwood for the year ahead and the actual supply that materialised in the previous year.								
	SEA Comments: Overall, reporting annually on the available supply of roundwood for the year ahead and the actual supply that materialised in the previous year is likely to result in neutral environmental impacts as the work is likely to be report based and or clerical in nature. Potential positive impacts have however, been assessed for P&HH and MA, where increased knowledge and sustainability of roundwood supply may be facilitated into the future.								
	Objective WO6: Ensure that access to the Forest Estate for the purpose of Roundwood removals is maintained through Forest Industry Transport Group collaboration with the partners and stakeholders								
	SEA Comments: For the purposes of this assessment, it is assumed that this objective relates to maintaining existing access to the forest estate and that no development is likely to occur as a result of this objective. Thus, this objective is considered to represent a continuation of the existing environment and so has been assessed as likely to result in an overall neutral environmental effect.								
	Objective WO7: Monitor forest health and condition to detect and mitigate against the potential impact of pests and diseases and guide management interventions to ensure that the estate can continue to deliver under the pillars of Climate, Nature, Wood and People.								
	SEA Comments: This objective will ultimately result in overall positive environmental effects, monitoring forest health and conditions to detect and mitigate against the potential impact of pests and diseases as well as guide management interventions is likely to reduce threats of both disruption and damage to forest habitats, as a result of invasive species. Otherwise, potential neutral impacts have been assessed for AQ&C and AA&CH.								
	Objective WO8: Maintain timber security measures including the geofencing of all forests and tracking of roundwood removals from the Coillte Estate.								

Response to Ambition	Objective	P&HH	Bio	L&S	Wat	A,Q&C	AA&CH	L&V	MA
	SEA Comments: This objective represents a continuation of the existing environment and is thus likely to result in an overall neutral environmental effect.								
	Objective WO9: Support innovation and the adoption of new technologies and practices to enhance the efficiency of the roundwood supply chain, including mechanisms for monitoring roundwood stocks in the forest.								
	SEA Comments: For the purposes of this assessment, it is assumed that this objective will primarily relate to technological advances and that no major development is likely to result from this objective. This objective has been assessed as likely to result in an overall neutral environmental effect, with positive effects identified for population and material assets, through enhanced technology provision.								
	Objective WO10: Support government and other stakeholders to expedite the approval and granting of forestry licences to ensure that sufficient and consistent volumes of roundwood supply are available.								
	SEA Comments: This objective details supporting the government and other stakeholders, thus an overall neutral environmental impact has been assessed as likely to occur.								
	Objective WO11: Promote initiatives aimed at increasing public awareness regarding the importance of forests in delivering the wood supply needed to meet Irish housing demand.								
	SEA Comments: This objective aims to promote initiatives to increase public awareness, thus potential positive effect on population and human health is therefore identified where increased knowledge and skills transfer is likely. Potential for uncertain impacts have been assessed for AQ&C in that, positive impacts are identified in relation in promoting timber as a renewable source and construction material, however, negative impacts are identified where the felling of trees must be undertaken to supply timber of a renewable source and construction material. An otherwise neutral environmental effect has been identified.								
Ambition 8 - Promote the use and benefits of wood products to increase the level of timber homes from 20% to 80% by 2050	**Objective WO12:** Develop comprehensive evidence on the benefits delivered by the forestry sector, (to the circular and bioeconomy) and on the benefits of using home grown sawnwood in construction.								
	SEA Comments: This objective aims to deliver comprehensive evidence on the benefits delivered by the forestry sector, (to the circular and bioeconomy) and on the benefits of using home grown sawnwood in construction. This objective predominantly relates to knowledge development and likely skills transfer, thus is likely to have an overall neutral effect on the environment, with the exception of a positive effect on the P&HH. However, potential for uncertain impacts have been assessed for AQ&C in that, positive impacts are identified in relation in promoting timber as a renewable source and construction material, however, negative impacts are identified where the felling of trees must be undertaken to supply timber of a renewable source and construction material.								

Response to Ambition	Objective	P&HH	Bio	L&S	Wat	A,Q&C	AA&CH	L&V	MA
	Objective WO13: Engage with government and relevant bodies to revise regulations concerning the use of wood in construction.								
	SEA Comments: Engaging with government and relevant bodies to revise regulations concerning the use of wood in construction in Ireland is likely to result in positive impacts to P&HH, as this objective has potential to promote the use of timber across the construction sector, reduce the use of carbon intensive materials across the construction sector, consequently reducing Ireland's GHG emissions into the future, and allows for the promotion of a circular economy. Potential for uncertain impacts have been assessed for AQ&C in that, positive impacts are identified in relation in promoting timber as a renewable source and construction material, however, negative impacts are identified where the felling of trees must be undertaken to supply timber of a renewable source and construction material. Otherwise, neutral impacts have been assessed.								
	Objective WO14: Engage with government and relevant bodies to introduce green procurement guidelines for new public buildings and to introduce sustainability mechanisms in construction to reduce the carbon footprint of new builds.								
	SEA Comments: Engaging with government and relevant bodies to introduce sustainability mechanisms in construction to reduce the carbon footprint of new builds, such as the introduction of embodied carbon thresholds, is likely to result in positive impacts to P&HH and AQ&C. This objective has potential to promote the use of timber across the construction sector, reduce the use of carbon intensive materials across the construction sector and associated carbon footprints, consequently reducing Ireland's GHG emissions. The objective also allows for the promotion of a circular economy, all of which is likely to positively impact AQ&C and P&HH in the future. Otherwise, neutral impacts have been assessed.								
	Objective WO15: Support the demonstration of new forms of timber-based construction in Ireland.								
	SEA Comments: Engaging with government to fund supports which enable the incentivisation of early adoption and demonstrate new forms of timber-based construction, is likely to result in positive impacts to P&HH and AQ&C. This objective has potential to promote the use of timber across the construction sector, reduce the use of carbon intensive materials across the construction sector and associated carbon footprints, subsequently reducing Ireland's GHG emissions. The objective also allows for the promotion of a circular economy, all of which is likely to positively impact AQ&C and P&HH in the future. Otherwise, neutral impacts have been assessed.								
	Objective WO16: Assist in the development of design guidance for practitioners and educational courses in timber building systems including the use of mass timber and timber frame construction in Ireland.								
	SEA Comments:								

Response to Ambition	Objective	P&HH	Bio	L&S	Wat	A,Q&C	AA&CH	L&V	MA
	This objective relates to knowledge development and communication, through educational courses and design guidance in timber building systems. Thus, potential positive impacts have been assessed for P&HH and AQ&C and otherwise, neutral environmental effects in and of themselves are identified.								
Forests for People									
Ambition 9 - Enable the investment of €100 million in world-class Visitor Destinations to support growth in tourism and recreation by 2030	**Objective PO1:** Identify priority site locations and develop masterplans for future Visitor Destinations.								
	SEA Comments: The identification of priority sites will enable the development of world class visitor destinations in the most suitable locations and the development of site masterplans will ensure these visitor destinations are suited to their setting and community and developed in line with best practise planning and sustainability practises. An overall uncertain environmental effect is identified however for the purposes of this assessment as the locations and baseline environmental setting of the priority sites is not yet known.								
	Objective PO2: Strengthen our strategic partnership for the delivery of Visitor Destinations with Failte Ireland to support shared objectives.								
	SEA Comments: This objective relates to strengthening Coillte's strategic partnership and supporting the development of guidelines for the delivery of Visitor Destinations with Failte Ireland and so, predominantly relates to increased partnership and engagement, knowledge development and likely skills transfer, thus is likely to have an overall neutral effect on the environment, with the exception of a positive effect on the P&HH.								
	Objective PO3: Engage with Local Authorities to identify opportunities to create recreational projects of scale, in line with local and national development plans.								
	SEA Comments: This objective represents a continuation of the existing environment and is thus likely to result in an overall neutral environmental effect. Any development will be in accordance with local and national development plans which will be subject to SEA.								
	Objective PO4: Monitorvisitor numbers and measure impact, to protect the environment and enhance customer experience.								
	SEA Comments: This objective relates to the tracking of visitor numbers to forests so as to improve site management and the customer experience. No specific development is likely to arise from this objective resulting in overall neutral impacts. Potential positive impacts are considered for P&HH as this objective is likely to result improvement of the customer experience.								
	Objective PO5: Develop commercial partnerships that support investment to deliver Outstanding Visitor Destinations.								

Response to Ambition	Objective	P&HH	Bio	L&S	Wat	A,Q&C	AA&CH	L&V	MA
	SEA Comments: This objective relates to the development of commercial partnerships, for the purposes of this assessment it is assumed that no development is likely to occur as a result of the objective and so, overall neutral impacts have been assessed for this objective. Potential positive impacts have been assessed for P&HH as this objective is likely to result in increased engagement and or partnership with relevant agencies.								
Ambition 10 - Double the number of Recreation Areas to 500, to benefit local communities and people's wellbeing	**Objective PO6:** Create a system of classification for Recreation Areas, setting out the offer and facilities to be provided for each category..								
	SEA Comments: This objective relates to desktop-based activities and so overall neutral environmental impacts have been assessed as likely to occur. Potential positive impacts have been assessed for P&HH as this objective is likely to result in increased knowledge of recreation areas, their offer and facilities across Coillte's estate.								
	Objective PO7: Develop assessment criteria to identify locations for future Recreational Areas.								
	SEA Comments: This objective relates to developing assessment criterion which is likely to be clerical in nature and so, has been assessed as likely to result in overall neutral environmental impacts. Potential positive impacts have been assessed for P&HH as this objective is likely to result in increased knowledge and assessment criterions for recreation areas in the future.								
	Objective PO8: Develop a community model to enable public and local authority involvement in the development of Recreation Areas..								
	SEA Comments: This objective relates to developing a community model to support public engagement, identify the emerging social and recreational needs and provide meaningful opportunities for local communities to support the development of Recreation Areas and thus, is likely to positively impact P&HH through increased communication with the public and promotion of community engagement.								
	Objective PO9: Develop methods to measure and quantify the social and wellbeing benefits of outdoor recreation.								
	SEA Comments: This objective relates to methods of measure and quantifying of the social and wellbeing benefits of outdoor recreation, as this objective is likely to entail survey and or desktop related activities, a positive effect on P&HH has been identified, with overall neutral environmental impacts have been assessed as likely to occur.								
Ambition 11 - Create 1,200 new jobs in rural communities to support the just	**Objective PO10:** Support businesses of different types and scales to develop and grow markets for value-added wood products, forest tourism and recreation opportunities.								
	SEA Comments:								

Response to Ambition	Objective	P&HH	Bio	L&S	Wat	A,Q&C	AA&CH	L&V	MA
transition to a low carbon economy	For the purposes of this assessment, it is assumed that no development is likely to take place. A positive effect is identified with regards P&HH, through increased tourism and recreation potential, as well as economic growth and job prospects that are likely to be facilitated as a result. However, increased human interaction in forested and non-forested areas has the potential to negatively affect biodiversity and land and soil through potential trampling and or disturbance. It is a recommendation of this SEA that the mitigation measures set out in Section 9 of this SEA are implemented.								
	Objective PO11: Support the operational contractor base to grow and diversify so that it has the capacity to deliver Coillte's afforestation, peatland redesign and nature ambitions								
	SEA Comments: Supporting the contractor base to ensure it has capacity to deliver on Coillte's ambitions is likely to result in an overall positive effect.								
	Objective PO12: Enhance operational guidance for staff and contractors regarding biodiversity management and peatland redesign.								
	SEA Comments: Overall potential positive environmental impacts have been assessed as likely to occur as a result of this objective, where consistency in biodiversity management actions is likely to be facilitated. This objective relates to enhancing operational guidance for staff and contractors on biodiversity management on-site, which is likely to result in consistent and increased skill transfer and knowledge development across the workforce, thus, positive impacts have also been assessed as likely to occur for P&HH. Otherwise, neutral impacts have been assessed. It is a recommendation of this SEA to include the following text in this objective 'Develop consistent and appropriate approaches and guidance for staff and contractors on biodiversity management actions.'.								
	Objective PO13: Support the provision of appropriate education and skills training to underpin greater employment in the forestry sector.								
	SEA Comments: This objective relates to education, skills, and overall knowledge development, particularly with relation to training, apprenticeships and courses for the forestry sector and thus a positive effect on the P&HH has been identified. It is a recommendation of this SEA that reference is made to the recommendations in the Philip Lee Review (Section 2.13 Facilitate training and education for DAFM Inspectors and other decision makers). Otherwise overall neutral impacts have been assessed as likely to occur.								
	Objective PO14: Support the enhancement of the curriculum in tertiary education to attract new forestry and related professionals to the industry.								
	SEA Comments: This objective relates to education, skills, and overall knowledge development, particularly with relation to an enhancement of the curriculum in tertiary education to attract new forestry and related professionals into the industry and thus a positive effect on the P&HH has been identified. Otherwise overall neutral impacts have been assessed as likely to occur.								
	Objective PO15: Support and continue to engage with government and other stakeholders towards the inclusion of forestry skills on the Critical Skills List.								

Response to Ambition	Objective	P&HH	Bio	L&S	Wat	A,Q&C	AA&CH	L&V	MA
	SEA Comments: Overall, supporting and continuing to engage with government and other stakeholders towards the inclusion of forestry skills on the Critical Skills List is likely to result in neutral environmental. Potential positive impacts have been assessed for P&HH, where increased knowledge and skills transfer is likely to be facilitated as a result of this objective.								
Additional People Objectives	**Objective PO16:** Maintain occupational health and safety across the Coillte estate to ensure that the forestry workforce is protected.								
	SEA Comments: Overall neutral impacts have been assessed as likely for this objective, apart from P&HH. Maintaining occupational health and safety across the Coillte estate to ensure that the forestry workforce is protected is likely to result in positive impacts to P&HH.								
	Objective PO17: Expand the Woodlands for Health programme.								
	SEA Comments: This objective relates to expanding the Woodlands for Health programme and identifying other locations for the programme to be conducted. This objective is likely to result in overall positive impacts to human health and well-being whereby, increased recreational areas and mental health related supports are likely to be facilitated. Potential for uncertain impacts have been assessed for BIO and L&S, as increased human interaction in forested and non-forested areas has the potential to negatively affect biodiversity and land and soil through potential trampling and or disturbance, however uncertain impacts have been assessed and the scale and location of this expansion is currently unknown. It is a recommendation of this SEA that the mitigation measures set out in Section 9 of this SEA are implemented. It is also a recommendation of this SEA that the wording of this objective be updated to include 'Expand the Woodlands for Health programme. Identify other appropriate locations for the programme to be conducted.' Otherwise, neutral environmental impacts have been assessed as likely to occur.								

8.3 Cumulative Effects

Cumulative effects are those that arise when the effects of the implementation of a Plan or Project occur in combination with those of other Plans or Projects. Cumulative effects can be described as the addition of many small impacts to create one larger, more significant, impact.

Within the FESLUP, a range of objectives are proposed under four pillars: Forests for Climate, Forests for Wood, Forests for Nature and Forests for People, and their associated ambitions. Some of which may include projects and or developments, each of these should be subject to cumulative assessment at project level, as necessary, to determine whether the subject project is likely to give rise to cumulative effects with other proposed or existing projects. However, it is thought that the mitigation measures outlined in Section 9 of this report will assist in the reduction or avoidance of cumulative environmental effects.

The two types of potential cumulative effects that have been considered throughout this assessment are:

- Potential Intra-Plan cumulative effects, which arise from the interactions between different types of potential environmental effects resulting from a Plan, Programme, Legislation or Policy where there are elevated levels of environmental sensitivities. Environmental sensitivities have been identified in Section 5 of this SEA ER to inform such, in the future development could result in environmental conflicts and lead to the deterioration of environmental quality. The interrelationships between environmental components that help determine these potential effects are identified on Table 8.3 below

- Potential Inter-Plan cumulative effects arise when the effects of the implementation of one Plan occur in combination with those of other Plans, Programmes, developments, etc. Other Policies, Plans and Programmes, as outlined in Section 3 have therefore been considered for their potential to give rise to potential cumulative effects with the FESLUP.

8.3.1 Intra-Plan Cumulative Effects

Potential negative intra-plan cumulative effects are identified between BIO, WAT and L&S in that forestry operations, including fertilisation and use of machinery have the potential to result in contamination of surface waters or soils, in the absence of mitigation. Potential negative intra-plan cumulative effects are identified between BIO, WAT, and L&S in that, increased development across the Coillte estate is likely to be facilitated through the FESLUP, particularly related to forestry, renewable energy and recreational facilities and or development. Potential positive intra-plan effects are identified between BIO and AQ&C in that the FESLUP incorporates a range of positive objectives aimed at enhancing forest cover in Ireland, particularly native species, and also enhancing and managing biodiversity areas across the Coillte estate, particularly where rewilding and rewetting of peatlands (long term positive cumulative impacts) are likely to be facilitated. It must be noted the rewetting of drained organic forested peatland soils does not have any short-term climate change mitigation benefit; however, it has been found to provide benefit in the longer term. As outlined in the suite of relevant other Plans and Policy documents in Ireland, an increase in forest cover is key to Irelands climate change mitigation agenda. Furthermore, long-term positive intra-plan cumulative effects for climate are also likely to be facilitated with the management of biodiversity areas, including the rewetting and restoration of peatland soils and also the increase in renewable wind energy development. Uncertain intra-plan cumulative effects are identified between BIO and L&V in that, depending on scale and location, forestry, can have either positive or negative effects on the L&V amenity of an area. Particularly, negative intra-plan cumulative effects on landscape and visuals have potential to occur where increased wind farm developments may be facilitated.

Potential negative intra-plan cumulative effects are identified between P&HH, L&S and WAT, as any potential contamination of the same could find its way into drinking or bathing waters and become potentially harmful to health. Potential positive intra-plan cumulative effects between P&HH, MA and L&V are identified in that, as outlined in Section 5.2, the presence of forests and general recreational area has been proven to have positive effects on the health and wellbeing of populations who utilise the same for recreational and amenity purposes.

Potential negative intra-plan cumulative effects between L&S and WAT are identified, for reasons outlined previously, pertaining to potential contamination incidences resulting from forest operations. Further negative intra-plan cumulative effects are identified between L&S and AQ&C factors, particularly if planting on peatland soil is facilitated, it has been found that the emissions from planting trees on this type of soil are far higher than previously envisaged, further research on this topic is still forthcoming.

Potential negative intra-plan cumulative effects are identified between BIO, AQ&C and MA through the competition of land between the objectives relating to forestry and renewable energy developments i.e., increased forest land cover may result in a reduced area for wind energy developments and vice versa.

Finally, potential positive intra-plan cumulative effects are identified between AQ&C and MA through the promotion of the use of timber and forest products for building and energy purposes and also the promotion and support for increased renewable energy developments.

The intra-plan cumulative effects identified are set out in Table 8.3 below.

Table 8.3 Intra-Plan Cumulative Effects

Environmental Aspect	P& HHH	BIO	L & S	Wat	A, Q & C	AA&CH	L & V	MA
P & HH								
BIO	No							
L & S	Yes	Yes						
Wat	Yes	Yes	Yes					
A, Q & C	Yes	No	Yes	No				
AA & CH	No	No	No	No	No			
L & V	Yes	Yes	No	No	No	No		
MA	No	Yes	No	No	Yes	No	No	

8.3.2 Inter-Plan Cumulative Effects

With regards Inter-Plan effects, the FESLUP has the potential to contribute positively and cumulatively towards a wide range of Irish Government policies, within the context in which it sits. For example, the FESLUP positively contributes towards the objectives of the National Climate Action Plan 2023 through the extensive suite of objectives relating to afforestation and reforestation and the increased use of wood products as a renewable resource, also through the potential for increased renewable wind energy developments.

The FESLUP will work to achieve contributions towards reductions in greenhouse gas and other emissions to air and associated achievement of legally binding targets (in combination with Plans and Programmes from all sectors, including energy, transport, and land use planning) as a result of facilitating:

- Greater levels of forest cover
- Increased management of Coillte's estate – improvement in carbon store potential
- Increased use of renewable resources through the provision of wood and wood products
- Support and promotion of increased renewable energy developments
- Restoration of peatlands (long-term positive impacts) and
- Increased production and use of timber as a construction material.

The FESLUP also contributes positively and cumulatively to the national biodiversity agenda, by setting out a range of objectives for the restoration of ecosystems and habitats and provision of ecosystem services. A positive cumulative effect with Ireland's 4th National Biodiversity Action Plan is identified here, for example. The FESLUP will work to achieve contributions towards biodiversity protection and enhancement as a result of facilitating:

- Increased planting of native forest species
- Increased conservation, enhancement and management of the Coillte estate and areas identified specifically for biodiversity, e.g., rewilding, restoration and
- Increased provision of ecosystem services.

Cumulative effects of the FESLUP have been detailed in Table 8.4 with reference to the schematic included in Section 3 (Figure 3.1), which includes key Plans and Programmes and their interlinkage with the FESLUP.

Table 8.4 Cumulative Impacts of the FESLUP with key Plans and Programmes

Environmental Component	Potential Cumulative effects that could generally occur across environmental components:
P&HH	• There is potential for cumulative negative impacts on P&HH and future land-use change, as a result of increased forest cover and the future expansion of the Coillte estate, in combination with Ireland's projected population increase, the land-use change and associated development emanating from County Development Plans, Local Area Plans and other Land Use Plans. However, all such Plans will be subject to SEA in line with the SEA Directive (2001/42/EC), AA as necessary in line with Article 6 of the Council Directive 92/43/EEC. It is anticipated that any negative impacts related to P&HH resulting from Development Plans will be minimised insofar as possible, through the relevant mitigation and monitoring outlined in SEA and AA processes. Thus, there is no potential for likely significant cumulative effects to occur on P&HH as a result of the implementation of Development Plans and the FESLUP. • There is also potential for cumulative positive impacts on P&HH, whereby increased recreational areas and facilities, are likely to be facilitated throughout the lifetime of the FESLUP, in combination with land zonings for recreation, conservation and amenity use emanating from County Development Plans, Local Area Plans and other Land Use Plans. All such Plans will be subject to SEA in line with the SEA Directive (2001/42/EC), AA as necessary in line with Article 6 of the Council Directive 92/43/EEC. It is anticipated that any negative impacts related to P&HH resulting from Development Plans will be minimised insofar as possible, through the relevant mitigation and monitoring outlined in SEA and AA processes. Thus, no likely cumulative effects on P&HH are anticipated in combination with the FESLUP, where all relevant mitigation and monitoring are undertaken from SEA and or AA processes. • There is potential for cumulative positive impacts on surrounding populations, and the wider forestry sector where increased and sustainable economic activity is likely to occur as a result of the FESLUP, particularly in combination with the EU Common Agricultural Policy and Ireland's draft CAP Strategic Plan. The FESLUP, the EU CAP and Ireland's draft CAP Strategic Plan have undergone SEA in line with the SEA Directive (2001/42/EC), AA as necessary in line with Article 6 of the Council Directive 92/43/EEC, and relevant mitigation and monitoring. Thus, no likely cumulative effects on P&HH are anticipated in combination with the FESLUP, where all relevant mitigation and monitoring are undertaken from SEA and or AA processes.
BIO (including Flora and Fauna)	• There is potential for cumulative, positive impacts on BIO as a result of the implementation of the FESLUP, in combination with but not limited to, all Management Plans for Natura 2000 sites (of particular importance to the FESLUP - the Draft Plan for Forests and Freshwater Pearl Mussel in Ireland), Threat Response Plans (of particular importance to the FESLUP – the Hen Harrier Threat Response Plan and Curlew Conservation Programme), the EU Biodiversity Strategy, the EU Forest Strategy and the 4th National Biodiversity Action Plan. All of the aforementioned Plans, Strategies and/or Programmes promote the restoration and protection of biodiversity at national and EU level, to promote well-functioning ecosystems in order to boost resilience, protect endangered species and habitats, and prevent the emergence and spread of future diseases. Threat Response Plans and Management Plans for Natura 2000 sites will specifically focus on protected habitats and species across Ireland, some of which are of particular importance to the forestry related activities that have potential to occur as a result of the FESLUP; including Fresh water Pearl Mussel, Hen Harrier, and Curlew, which are largely impacted by forestry practices. Hen Harrier, Curlew and a number of other bird species, particularly those listed in Birdwatch Ireland's 'Birds of Conservation Concern in Ireland' (BoCCI) assessment are also largely impacted by wind energy developments. These Plans are subject to SEA in line with the SEA Directive (2001/42/EC) and AA as necessary in line with Article 6 of the Council Directive 92/43/EEC. The purpose of the EU Biodiversity Strategy and the EU Forest Strategy are to adapt and mitigate climate change, whilst prioritising biodiversity enhancement and sustainable forest management. Overall, it is not anticipated that negative cumulative effects are likely to occur as a result of the aforementioned Plans and or Strategies in combination with the FESLUP, where all relevant mitigation and monitoring are undertaken. • There is potential for cumulative negative impacts on birds where forestry plantations are located in close proximity to developments, including that of wind farm development. Where appropriate, forestry can create suitable habitats for certain bird species, and planted forests consisting of natural woodland trees can provide habitats for several native birds. Upland areas can be suitable sites for windfarm development, due to potential energy yields, however, these sites may also be inhabited by endangered bird species. Potential cumulative negative effects of afforestation and or reforestation and development, including wind farm development, on endangered bird species includes the loss of foraging or nesting habitats, disturbance displacement, barriers to movement, amongst collective loss of habitat and food source by land use change. • Thus, there is potential for negative cumulative effects to occur as a result of the implementation of the FESLUP, in combination with the National Planning Framework 2040, National Development Plan 2021-2023, Regional Economic and Spatial Strategy Plans, and particularly County Development Plans and Local Authority Plans. All of the aforementioned Plans have potential to set a framework for the development of windfarms and so, in combination with the FESLUP have potential to negatively impact birds. However, all such Plans will be subject to SEA in line with the SEA Directive (2001/42/EC), AA as necessary in line with Article 6 of the Council Directive 92/43/EEC.

Environmental Component	Potential Cumulative effects that could generally occur across environmental components:
	It is anticipated that any negative impacts related to birds, resulting from Development Plans will be minimised insofar as possible, through the relevant mitigation and monitoring outlined in SEA and AA processes. Thus, there is no potential for likely significant cumulative effects to occur on birds as a result of the implementation of Developments Plans and the FESLUP.
L&S	• There is potential for cumulative negative effects to occur on L&S, as a result of inappropriate and or general new development, such as new forest roads and or wind farm development, likely to emanate from the FESLUP, in combination with new development and or land use changes in line with Land Use Plans, and from agricultural practices in line with the provisions of the EU Common Agricultural Policy and Ireland's draft CAP Strategic Plan. However, all such Plans will be subject to SEA in line with the SEA Directive (2001/42/EC), AA as necessary in line with Article 6 of the Council Directive 92/43/EEC, and relevant mitigation and monitoring. Thus, it is anticipated that any cumulative negative impacts on L&S will be minimised insofar as possible through SEA and AA mitigation measures. • There is a potential for cumulative negative effects to occur on L&S, where a competition for land between the implementation of the objectives in the FESLUP regarding forestry and renewable energy developments and the national targets for the upcoming Renewable Electricity Spatial Policy Framework may result in a shortcoming of the objectives or targets of either Plan or Framework. • There is potential for cumulative positive effects to occur on L&S in the long-term, as a result of the restoration of peat soils which is likely to be facilitated through the FESLUP, in combination with the EU Biodiversity Strategy and the 4th National Biodiversity Action Plan. It must be noted that the rewetting of drained organic forested peatland soils does not have any short-term climate change mitigation benefit, however, it has been found to provide benefit in the longer term. The aforementioned Plan and Strategy promotes the restoration and protection of biodiversity at national and EU level, to promote well-functioning ecosystems in order to boost resilience, protect endangered species and habitats, and prevent the emergence and spread of future diseases. Overall, it is not anticipated that negative cumulative effects are likely to occur as a result of the aforementioned Plan and or Strategy in combination with the FESLUP, where all relevant mitigation and monitoring are undertaken.
WAT	• There is potential for cumulative negative effects to occur on water quality as a result of increased forestry activity, including increased sedimentation, excessive nutrients, particularly, phosphorus and turbidity arising during afforestation, reforestation and standard felling, potentially related to the FESLUP, in combination with Plans such as the EU CAP and Ireland's draft CAP Strategic Plan, as well as development arising from Land-Use Plans. However, the FESLUP, the EU CAP and Ireland's draft CAP Strategic Plan have undergone SEA in line with the SEA Directive (2001/42/EC), AA as necessary in line with Article 6 of the Council Directive 92/43/EEC, and relevant mitigation and monitoring. Thus, no likely cumulative effects on water resources are anticipated in combination with the FESLUP, where all relevant mitigation and monitoring are undertaken. • There is also potential for cumulative positive effects to occur on water quality as a result of the creation of appropriate riparian/alluvial setbacks in reforestation/afforestation sites, to form natural flood risk management and natural water retention potentially related to the FESLUP, in combination with, the EU Biodiversity Strategy, the EU Forest Strategy and the 4th National Biodiversity Action Plan. The aforementioned Plan and Strategies promote the restoration and protection of biodiversity at national and EU level, to promote well-functioning ecosystems in order to boost resilience, protect endangered species and habitats, and prevent the emergence and spread of future diseases. Overall, it is not anticipated that negative cumulative effects are likely to occur as a result of the aforementioned Plan and or Strategy in combination with the FESLUP, where all relevant mitigation and monitoring are undertaken.
AQ&C (including Noise)	• There is potential for cumulative positive effects to occur on AQ&C, as a result of the implementation of the FESLUP, particularly in combination with Plans such as the Climate Action Plan, the European Green Deal, the Climate Action Low Carbon Development (Amendment) Act, and Local Authority Climate Adaptation Plans. Implementation of the FESLUP is likely to give rise to increased afforestation, reforestation, restoration, rewilding, increased renewable energy generation, increased and use of sustainable forest-based products and the subsequent climate change mitigation of all. Increased sequestration of GHGs, renewable energy consumption and forest-based product uptake in Ireland is likely to reduced Irelands overall GHG emissions. • It is not anticipated that negative cumulative effects will result from the aforementioned Plans and the FESLUP, as the purpose of each Plan and or Policy is to adapt and mitigate against climate change. Thus, a potential for positive cumulative effect is anticipated for AQ&C, in relation to these Plans and the FESLUP. • There is potential for cumulative negative effects to occur on AQ&C, if planting on peatlands is facilitated through the FESLUP, as published in the Climate Action Plan 2023. The emissions related to planting on peat soils is higher than previously envisioned and so, in combination with increased emissions from new development and or land use

Environmental Component	Potential Cumulative effects that could generally occur across environmental components:
	changes in line with Land Use Plans, from agricultural practises in line with the provisions of the EU Common Agricultural Policy and Ireland's draft CAP Strategic Plan, there is potential for cumulative negative impacts to AQ&C as a result. However, all such Plans will be subject to SEA in line with the SEA Directive (2001/42/EC), AA as necessary in line with Article 6 of the Council Directive 92/43/EEC, and relevant mitigation and monitoring. Thus, it is anticipated that any cumulative negative impacts to air and climate will be minimised insofar as possible through SEA and AA mitigation measures and through ongoing research into this area.
AA&CH	• There is potential for cumulative negative impacts to occur on AA&CH where increased forestry activity, including afforestation, reforestation, development (forestry related development including forest roads etc., and non-forestry related development including wind farm development and or recreational facilities etc.) or changes in land-use occur as a result of implementing the FESLUP, in combination with development and changes in land-use occurring as a result of the implementation of County Development Plans, Local Area Plans and Land Use Plans. However, all such Plans will be subject to SEA in line with the SEA Directive (2001/42/EC), AA as necessary in line with Article 6 of the Council Directive 92/43/EEC, and relevant mitigation and monitoring. Thus, it is anticipated that any negative impacts to AA&CH will be minimised insofar as possible through the relevant mitigation and monitoring outlined within the SEA and AA of these Plans.
L&V	• Potential positive impacts to L&S whereby, enhanced landscape appearance may be facilitated through the FESLUP and appropriate spatial distribution and species structure of forests, in combination with the EU Forest Strategy. It is not anticipated that negative cumulative effects will occur, where the relevant mitigation and monitoring outlined in this ER are undertaken.
MA	• There is potential for positive cumulative effects to occur on economic growth in Ireland through maintained or enhanced export of forest products as a result of the FESLUP, particularly in combination with the EU Common Agricultural Policy and Ireland's draft CAP Strategic Plan. The FESLUP, the EU CAP and Ireland's draft CAP Strategic Plan have undergone full SEA and thus, no negative cumulative effects are anticipated in combination with the FESLUP, where all relevant mitigation and monitoring are undertaken. • There is also potential for cumulative positive effects to occur on MA, where forest products can be used as a source of renewable raw material and an increase in support for renewable wind energy developments can aid the development and replacement of materials and energy that is currently produced from fossil fuels, all of which is likely to enable a subsequent contribution to GHG reductions. The FESLUP, in combination with the European Green Deal, Climate Action and Low Carbon Development (Amendment) Act (2021), the Climate Action Plan and Local Authority Climate and Adaptation Plans are likely to result in positive effects in terms of renewable energy resources and GHG reductions across the forestry sector, amongst other sectors. • There is a potential for cumulative negative effects to occur on MA, where a competition for land between the implementation of the objectives in the FESLUP regarding forestry and renewable energy developments and the national targets for the upcoming Renewable Electricity Spatial Policy Framework may result in a shortcoming of the objectives or targets of either Plan or Framework.

9. Mitigation Measures and Monitoring

9.1 Mitigation

Mitigation measures are measures envisaged and designed to prevent, reduce and as fully as possible offset any significant adverse impacts on the environment of implementing the FESLUP. All mitigation measures have been developed and agreed with Coillte as part of the SEA iterative process. The primary mitigation measure is the development of the Plan which ensures the sustainable and appropriate development of the Plan area without compromising the integrity of the natural and built environment.

However, potential impacts will be more adequately identified and mitigated at project and possible EIA level. In general terms, all proposals for development arising from the FESLUP will be required to have due regard to environmental considerations outlined in this SEA ER and the associated AA.

As outlined in Table 8.2, the majority of objectives are predicted have a positive environmental impact. However, a number of objectives are proposed that may have a negative environmental impact, particularly those relating to wind energy development where BIO, L&S, WAT and L&V impacts may arise. In addition, the development of recreational areas may result in negative environmental impacts particularly relating to BIO, L&S and WAT, and where increased afforestation is facilitated negative impacts may particularly be likely for L&S, BIO and WAT.

The approach to the development of mitigation is two pronged:

- Reliance of published guidance and policy related to the forestry and wind energy sectors and
- Description of specific mitigation measures that may be implemented depending on the scale, location and nature of the development arising from the FESLUP.

It should be noted that a suite of guidance and policy documents have been developed and published by the DAFM and Coillte over a period of time to minimise the environmental impact of forestry operations. Coillte has an Environmental Management System in place which contains a suite of policies and standard operating procedures which guides the environmental management of its operations, e.g., policies relating to Species Diversification, Old Woodland and the disturbance to birds during forestry operations.

In addition, Coillte implements its operational activities in accordance with its Environmental Risk Assessment standard operating procedure. This procedure applies to the assessment of the risk of environmental impact of operational activities. Coillte categorises the environmental risk assessment and management in terms of potential environmental impacts on five receptors, i.e:

1. People & Material Assets
2. Biodiversity
3. Water & Soils
4. Landscape and
5. Archaeology & Cultural Heritage.

The list of current mandatory DAFM documents which shall continue to be complied with are listed below. It should be noted that any future variations or amendments to these documents (or other new guidance/policies of relevance that may be adopted), will be reviewed and complied with, as appropriate, prior to the implementation of any of the measures or actions set out in the FESLUP:

Department of Agriculture, Food and the Marine - Guidance Documents

- Aerial Fertilisation Requirements. Forest Service (2015) Department of Agriculture, Food and the Marine

- Environmental Requirements for Afforestation. Forest Service (2016). Department of Agriculture, Food and the Marine
- Forest Protection Guidelines. Forest Service (2000) Department of the Marine and Natural Resources
- Forest Recreation in Ireland A Guide for Forest Owners and Managers (2006) Forest Service, Department of Agriculture and Food
- Forestry & Freshwater Pearl Mussel Requirements: Site Assessment and Mitigation Measures Forest Service (2000) Department of the Marine and Natural Resources
- Forestry & Kerry Slug Guidelines. Forest Service (2000) Department of the Marine and Natural Resources
- Forestry & Otter Guidelines Forest Service (2000) Department of the Marine and Natural Resources
- Forestry and Landscape Guidelines Forest Service (2000) Department of the Marine and Natural Resources
- Forestry and Water Quality Guidelines. Forest Service (2000) Department of the Marine and Natural Resources
- Forestry Biodiversity Guidelines. Forest Service (2000) Department of the Marine and Natural Resources
- Forestry & Archaeology Guidelines. Forest Service (2000) Department of the Marine and Natural Resources
- Forest Harvesting & the Environment Guidelines. Forest Service (20000 Department of the Marine and Natural Resources
- Forestry Standards Manual. Department of Agriculture, Food and the Marine Forest Service (2015)
- Forest Road Manual: Guidelines for the Design, Construction & Management of Forest Roads (Ryan, T., Phillips, H., Ramsay, J. and Dempsey, J. 2004. Forest Road Manual)
- Guidelines for the design, construction and management of forest roads. COFORD, Dublin
- Forests & Water – Achieving Objectives under Ireland's River Basin Management Plan 2018-2021 Department of Agriculture, Food and the Marine (2018)
- Land Types for Afforestation. Forest Service (2015) Department of Agriculture, Food and the Marine
- Native Woodland Establishment GPC9 & GPC10 Silvicultural Standards Forest Service (2015) Department of Agriculture, Food and the Marine
- Standards for Felling and Reforestation, (2019), Department of Agriculture, Food and the Marine and
- Woodland for Water: Creating new native woodlands to protect and enhance Ireland's waters. Forest Service (2018) Department of Agriculture, Food and the Marine.
- Strict Protection of Animal Species – Guidance for Public Authorities on the Application of Articles 12 and 16 of the EU Habitats Directive to development/works undertaken by or on behalf of a Public Authority. National Parks and Wildlife Service - Guidance Series 2, 2021.

In addition, the following wind energy guidance will be employed as mitigation, where relevant.

- Wind Energy Development Guidelines (2006), Department of Housing, Local Government and Heritage (DHLGH)
- Best Practice Guidelines for the Irish Wind Energy Industry (2012), Wind Energy Ireland (WEI);
- WEI Health and Safety Series - Best Practice Guidelines for Operation of Wind Farm High Voltage Electrical Installations (2021), WEI

- Irish Wind Energy Association (IWEA) Community Engagement Strategy (2018), IWEA and
- Good Neighbour IWEA Best Practice Principles in Community Engagement & Community Commitment (2013), IWEA.

Under each environmental aspect in Table 9.1, those guidance/policy documents from the list above that are particularly relevant, are identified. In addition, specific mitigation measures are also identified where relevant with additional focus on those aspects where potential significant adverse impacts are identified, as outlined earlier.

Further, as outlined in Section 4.1 and 5.3, an AA Screening and NIS Report have also been prepared in respect of the FESLUP. The Mitigation Measures set out in the accompanying NIS are included in Appendix A.4 and should be read in conjunction with those set out in Table 9.1. The SEA and NIS mitigation measures will be appended to form part of the final Plan.

Table 9.1 Proposed Mitigation Measures

Aspect	Mitigation	Relevant Objectives to which the mitigation applies:
General	Adherence to all of the mandatory requirements set out in the full suite of DAFM documents, the relevant policies/guidance contained in the Coillte Environmental Management Plan and other relevant guidance/policy. Any new Projects or Plans arising from the implementation of the FESLUP shall be subject to appropriate feasibility, options and environmental assessments (e.g., Environmental Impact Assessment, AA where required). Where projects screen out, potential impacts to biodiversity will be informed by appropriate scientific/ecological advice.	All Objectives.
P&HH	Any new Projects or Plans arising from the implementation of the FESLUP shall adhere to recreation-specific mitigation such as Coillte's recreation and cycling policies, National Outdoor Recreation Strategy and the EU Forest Strategy for 2030. **FESLUP-Specific Mitigation Measures** The following are examples of specific mitigation measures that shall be implemented depending on the scale, nature and location of development arising from the FESLUP: • Where redesign or development is planned within the Coillte forest estate it should be ensured that it does not impede recreational activity and public access to the forest estate; • Minimise disturbance to people and avoid blocking access to properties during works; • New public access routes shall be provided where existing access routes are removed during felling and/or afforestation; • Appropriate communications plans will be implemented as necessary. The communications plans will provide a mechanism for members of the public to communicate with Coillte and for Coillte to communicate important information to the public, for example, timely communication to local communities on the planned works activities, timings and traffic management. Other specific population and human health mitigation may be identified during the development and assessment of Plans and Projects arising from the implementation of the FESLUP. All such mitigation identified will be implemented in full.	N/A as only positive or neutral impacts have been identified in relation to Population & Human Health.
BIO (including Flora and Fauna)	**General Forestry-related Mitigation Measures** Any new Projects or Plans arising from the implementation of FESLUP shall adhere to the following guidance/policies and to best available scientific advice that are of specific relevance to BIO: • Draft Plan for Forests & Freshwater Pearl Mussel in Ireland Requirements (2021) • Schedule 2 of the European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009 (S.I. No. 296) • Forestry & Freshwater Pearl Mussel Requirements: Site Assessment and Mitigation Measures Forest Service (2000) Department of the Marine and Natural Resource • Forestry & Kerry Slug Guidelines. Forest Service (2000) Department of the Marine and Natural Resources • Forestry & Otter Guidelines Forest Service (2000) Department of the Marine and Natural Resources	CO1, C04, CO5, CO7, CO14, CO16, NO2, NO8 , N20, P04, PO14

Aspect	Mitigation	Relevant Objectives to which the mitigation applies:
	• Forestry Biodiversity Guidelines. Forest Service (2000) Department of the Marine and Natural Resources • Forest Harvesting & the Environment Guidelines. Forest Service (20000 Department of the Marine and Natural Resources • Woodland for Water: Creating new native woodlands to protect and enhance Ireland's waters. Forest Service (2018) DAFM • The Forest Service Circular 04/2013 banning Ash tree planting • Environmental Requirements for Afforestation (DAFM, 2016) • Land Types for Afforestation (DAFM, 2015) • Forestry Standards Manual (DAFM, 2015) • Standards for Felling and Reforestation (DAFM, 2019) • Wind Energy Development Guidelines (2006), Department of Housing, Local Government and Heritage (DHLGH). **FESLUP-Specific Mitigation Measures** The following are examples of specific mitigation measures that shall be implemented depending on the scale, nature and location of development arising from the FESLUP: • Planning applications for development arising from the implementation of the FESLUP must balance or outweigh any potential impacts on biodiversity • Development arising from the implementation of the FESLUP should seek to ensure that there is no likely increase in nitrogen deposition at ecological sites sensitive to nitrogen. • AA shall be carried out in relation to Works, Plans and Projects arising from the implementation of the FESLUP, likely to impact on European sites (SACs and SPAs), whether directly or indirectly or in combination with any other Plan(s) or Project(s) • Works, Plans and Projects arising from the implementation of the FESLUP shall seek to recognise and afford appropriate protection to any existing, new, or modified SPAs or SACs within the Plan area. • Works, Plans and Projects arising from the implementation of the FESLUP shall seek to actively promote the conservation and protection of areas designated as an NHA (including proposed sites) and to only consider proposals for development within or affecting an NHA where it can be clearly demonstrated that the proposed development will not have a significant adverse effect on the NHA or pNHA • Adherence to best practice guidance in relation to the control of non-native invasive species, including adherence of all relevant DAFM and Coillte policies and documents. Adherence to best practice guidance with regard to the control and management measures for avoiding, preventing, or reducing any significant adverse impacts on the surface water environment during the construction of such works and projects. Other specific biodiversity mitigation may be identified during the development and assessment of Plans and Projects arising from the implementation of the FESLUP.	

Aspect	Mitigation	Relevant Objectives to which the mitigation applies:
L&S	**General Forestry-related Mitigation Measures** Any new Projects or Plans arising from the implementation of FESLUP shall adhere to the following guidance/policies that are of specific relevance to L&S (including peatlands): • Aerial Fertilisation Requirements. Forest Service (2015) Department of Agriculture, Food and the Marine; • Environmental Requirements for Afforestation. \ (2016). Department of Agriculture, Food and the Marine; • Forest Protection Guidelines. Forest Service (2000) Department of the Marine and Natural Resources; • Forestry and Water Quality Guidelines. Forest Service (2000) Department of the Marine and Natural Resources; • Forest Harvesting & the Environment Guidelines. Forest Service (20000 Department of the Marine and Natural Resources; • Forestry Standards Manual. Department of Agriculture, Food and the Marine Forest Service (2015); • Forest Road Manual: Guidelines for the Design, Construction & Management of Forest Roads (Ryan, T., Phillips, H., Ramsay, J. and Dempsey, J. 2004. Forest Road Manual); • Guidelines for the design, construction and management of forest roads. COFORD, Dublin; • Forests & Water – Achieving Objectives under Ireland's River Basin Management Plan 2018-2021 Department of Agriculture, Food and the Marine (2018); and • Land Types for Afforestation. Forest Service (2015) Department of Agriculture, Food and the Marine. **FESLUP-Specific Mitigation Measures** The following are examples of specific mitigation measures that shall be implemented depending on the scale, nature and location of development arising from the FESLUP: • For any new tree planting projects a soils assessment should be undertaken where necessary and relevant to ensure the correct tree species is planted for the soil characteristics; • The importance of Geological Heritage Sites will be recognised and appropriate measures implemented to protect the character and integrity of these sites, where relevant; • Sediment control and management measures will be implemented, where required; • Procedures of Environmental Risk Assessment shall be complied with in the event of an environmental emergency. It will address containment measures, emergency discharge routes, a list of appropriate equipment and clean-up materials and notification procedures to inform the relevant environmental protection authority; • Other specific land and soils mitigation measures may be identified during the development and assessment of Plans and Projects arising from the implementation of the FESLUP.	CO1, C04, CO5, CO7, CO14, CO16, NO2, NO8 , N20, P04, PO14, WO1
WAT	**General Forestry-related Mitigation Measures** Any new Projects or Plans arising from the implementation of FESLUP shall adhere to the following guidance/policies that are of specific relevance to WAT: • Aerial Fertilisation Requirements. Forest Service (2015) Department of Agriculture, Food and the Marine;	CO1, C04, CO5, CO7, CO14, CO16, NO2, NO8 , N20, P04, PO14, WO1

Aspect	Mitigation	Relevant Objectives to which the mitigation applies:
	• Environmental Requirements for Afforestation. Forest Service (2016). Department of Agriculture, Food and the Marine; • Forest Protection Guidelines. Forest Service (2000) Department of the Marine and Natural Resources; • Forestry & Freshwater Pearl Mussel Requirements: Site Assessment and Mitigation Measures Forest Service (2000) Department of the Marine and Natural Resources; • Forestry & Otter Guidelines Forest Service (2000) Department of the Marine and Natural Resources; • Forestry and Water Quality Guidelines. Forest Service (2000) Department of the Marine and Natural Resources; • Forestry Biodiversity Guidelines. Forest Service (2000) Department of the Marine and Natural Resources; • Forests & Water – Achieving Objectives under Ireland's River Basin Management Plan 2018-2021 Department of Agriculture, Food and the Marine (2018); and • Woodland for Water: Creating new native woodlands to protect and enhance Ireland's waters. Forest Service (2018) Department of Agriculture, Food and the Marine. **FESLUP-Specific Mitigation Measures** The following are examples of specific mitigation measures that shall be implemented depending on the scale, nature and location of development arising from the FESLUP: • All forest operations within areas of high-water sensitivity (such as Freshwater Pearl Mussel catchments and high-status objective waterbodies) be planned and managed with a particular regard to the protection of water quality, aquatic ecosystems and species; • Implementation of best practice sediment and spill control and management measures, where required; • Setback distances from sensitive watercourses will be applied where relevant and will vary depending on soil type, slope and the presence of site conditions such as complex hydrology and uniformly wet ground conditions and the particular sensitivity of the watercourse. Other specific water protection mitigation may be identified during the development and assessment of Plans and Projects arising from the implementation of the FESLUP.	
AQ&C (including Noise)	**General Forestry-related Mitigation Measures** Any new Projects or Plans arising from the implementation of the FESLUP shall adhere to the following guidance/policies that are of specific relevance to AQ&C: • Aerial Fertilisation Requirements. Forest Service (2015) Department of Agriculture, Food and the Marine; • Environmental Requirements for Afforestation. Forest Service (2016). Department of Agriculture, Food and the Marine; • Forestry Biodiversity Guidelines. Forest Service (2000) Department of the Marine and Natural Resources; • Forest Harvesting & the Environment Guidelines. Forest Service (20000 Department of the Marine and Natural Resources; • Forestry Standards Manual. Department of Agriculture, Food and the Marine Forest Service (2015);	CO1, C04, CO5, CO7, CO14, CO16, NO2, NO8 , N20, P04, PO14

Aspect	Mitigation	Relevant Objectives to which the mitigation applies:
	• Forest Road Manual: Guidelines for the Design, Construction & Management of Forest Roads (Ryan, T., Phillips, H., Ramsay, J. and Dempsey, J. 2004. Forest Road Manual); • Guidelines for the design, construction and management of forest roads. COFORD, Dublin; • Wind Energy Development Guidelines (2006), Department of Housing, Local Government and Heritage (DHLGH). **FESLUP-Specific Mitigation Measures** The following are examples of specific mitigation measures that shall be implemented depending on the scale, nature and location of development arising from the FESLUP: • Where practicable, the transport of timber by rail and water rather than road; • Nitrogen deposition at ecological areas that are sensitive to nitrogen is not increased. Where there is a potential for an increase in nitrogen deposition to occur at an ecological site due to Coillte activities, an assessment shall be carried out to ensure that nitrogen deposition is not increased at these sites; • Ensure that machinery used in forest operations is managed so as to minimise the potential for any offsite air, noise or vibration impacts. • Minimise dust and noise nuisance off site. Other specific air quality and climate mitigation may be identified during the development and assessment of Plans and Projects arising from the implementation of the FESLUP.	
AA&CH	**General Forestry-related Mitigation Measures** Any new Projects or Plans arising from the implementation of the FESLUP shall adhere to the following guidance/policies that are of specific relevance to AA&CH: • Environmental Requirements for Afforestation. Forest Service (2016). Department of Agriculture, Food and the Marine; and • Forestry & Archaeology Guidelines. Forest Service (2000) Department of the Marine and Natural Resources. **FESLUP-Specific Mitigation Measures** The following are examples of specific mitigation measures that shall be implemented depending on the scale, nature and location of development arising from the FESLUP: • Ensure protection, where practicable of structures, which are of special architectural, historical, archaeological, artistic, cultural, scientific, social, or technical interest and to safeguard sites, features and objects of archaeological interest generally; • Secure the preservation (i.e., preservation in situ or in exceptional cases preservation by record) of all archaeological monuments included in the Record of Monuments and Places as established under Section 12 of the National Monuments (Amendment) Act, 1994, and of sites, features and objects of archaeological and historical interest generally;	CO1, C04, CO5, CO7, CO14, CO16, NO2, NO8 , N20, P04, PO14

Aspect	Mitigation	Relevant Objectives to which the mitigation applies:
	• Trees within archaeological exclusion zones should only be felled following the preparation by an archaeologist or other suitably qualified environmental professional, in conjunction with a forester or arborist, of a plan outlining the most appropriate means to fell and remove trees from on or around the monument. Other specific archaeology, architectural and cultural heritage mitigation may be identified during the development and assessment of Plans and Projects arising from the implementation of the FESLUP. All such mitigation identified will be implemented in full.	
L&V	**General Forestry-related Mitigation Measures** Any new Projects or Plans arising from the implementation of FESLUP shall adhere to the following guidance/policies that are of specific relevance to L&V: • Environmental Requirements for Afforestation. Forest Service (2016). Department of Agriculture, Food and the Marine; • Forestry and Landscape Guidelines Forest Service (2000) Department of the Marine and Natural Resources; • Forestry Biodiversity Guidelines. Forest Service (2000) Department of the Marine and Natural Resources; • Native Woodland Establishment GPC9 & GPC10 Silvicultural Standards Forest Service (2015) Department of Agriculture, Food and the Marine; • Standards for Felling and Reforestation, (2019), Department of Agriculture, Food and the Marine; • Wind Energy Development Guidelines (2006), Department of Housing, Local Government and Heritage (DHLGH). **FESLUP-Specific Mitigation Measures** The following are examples of specific mitigation measures that shall be implemented depending on the scale, nature and location of development arising from the FESLUP: • Any new Projects or Plans arising from the implementation of the FESLUP shall seek to protect sensitive areas from inappropriate development while providing for development and change that will benefit the rural community. • Any new Projects or Plans arising from the implementation of the FESLUP shall be cognisant of the character of the landscape by reviewing the local landscape character assessment prior to the acquisition of new land/ development of land for afforestation. • Any new Projects or Plans arising from the implementation of the FESLUP shall carry out appropriate monitoring to ensure the successful establishment of forest edge planting and environmental setback planting (where undertaken) and maintain trees as appropriate (e.g., vegetation management, replacement of mortalities, adjustment and eventual removal of tree shelters) until the trees are established and free of vegetation competition or browsing pressure. Other specific landscape and visual mitigation may be identified during the development and assessment of Plans and Projects arising from the implementation of the FESLUP. All such mitigation identified will be implemented in full.	CO1, C04, CO5, CO7, CO14, CO16, NO2, NO8 , N20, P04, PO14, WO1

Aspect	Mitigation	Relevant Objectives to which the mitigation applies:
MA	**General Forestry-related Mitigation Measures** Any new Projects or Plans arising from the implementation of the FESLUP shall adhere to the following guidance/policies that are of specific relevance to MA: • Environmental Requirements for Afforestation. Forest Service (2016). Department of Agriculture, Food and the Marine; • Forest Recreation in Ireland A Guide for Forest Owners and Managers (2006) Forest Service, Department of Agriculture and Food; • Forestry Standards Manual. Department of Agriculture, Food and the Marine Forest Service (2015); and • Forest Road Manual: Guidelines for the Design, Construction & Management of Forest Roads (Ryan, T., Phillips, H., Ramsay, J. and Dempsey, J. 2004. Forest Road Manual). **FESLUP-Specific Mitigation Measures** The following are examples of specific mitigation measures that shall be implemented depending on the scale, nature and location of development arising from the FESLUP: • Any Onshore and Offshore wind development and associated infrastructure such as landing sites, cable routes, substations, etc., shall be subject to appropriate feasibility, options and environmental assessments (e.g., Environmental Impact Assessment, AA where required). • Other specific material assets mitigation may be identified during the development and assessment of Plans and Projects arising from the implementation of the FESLUP.	CO1, C04, CO5, CO7, CO14, CO16, NO2, NO8 , N20, P04, PO14

9.2 Monitoring

Article 10 of the SEA Directive requires that monitoring should be carried out in order to identify at an early stage any unforeseen adverse impacts associated with the implementation of the Plan or Programme.

A monitoring programme is developed based on the indicators selected to track progress towards achieving strategic environmental objectives and reaching targets, enabling positive and negative impacts on the environment to be measured. As previously described, the environmental indicators have been developed to show changes that would be attributable to implementation of the FESLUP.

As outlined in the EPA guidance document '*Guidance on SEA Statements and Monitoring'* (EPA, 2020), SEA monitoring should reflect the nature and level of detail of the Plan/Programme (EPA, 2020)[182]. Many national-level Plans/Programmes lack geographic specificity, contain only high-level strategic objectives and do not lend themselves to cause–effect models in terms of direct measuring of environmental effects. As such, SEA monitoring for these Plans should focus on national indicators to examine environmental trends.

Refer to Table 9.2 for the proposed monitoring measures. The monitoring measures included are based on national indicators and informed by the content of the FESLUP.

The SEA carried out has ensured that any potential significant environmental impacts have been identified and given due consideration.

Coillte is responsible for collating existing relevant monitored data, the preparation of preliminary and final monitoring evaluation reports, the publication of these reports and, if necessary, the carrying out of corrective action.

[182] EPA (2020) Guidance on SEA Statements and Monitoring. Available at: Strategic Environmental Assessment | Environmental Protection Agency (epa.ie)

Table 9.2 Proposed monitoring measures for the FESLUP

Environmental Component	Likely Significant Environmental Effects Identified	Draft SEA Indicators	Monitoring Source	Frequency/ Responsibility
P&HH	• No definitive likely negative effects on population and human health have been identified, predominantly neutral and positive impacts were identified as likely to occur for population and human health for the purposes of this assessment.	• Number of health and safety incidents among forest workers. • Number of people utilising Coillte's estate for amenity and recreational purposes. • Economic growth statistics for individuals working across Coillte's estate. • Achievement of Coillte's Forests for People pillar outlined in Coillte's Strategic Vision. • Number of individuals employed directly and indirectly as a result of activity on or arising from the Coillte estate. • Number of forests planted for drinking water source protection.	1. HSA - Farmers' Health and Wellbeing Report and Review of Work-Related Fatalities in Agriculture in Ireland. 2. Research and Monitoring carried out for the Irish Forestry and Recreation Report and Forest Statistics 2021 Report. 3. Monitoring related to the FESLUP such as: Developing a set of metrics to develop targets and an approach to monitoring and reporting progress towards achieving these across the estate, integrate into planning and operations procedures for protecting, monitoring, and reporting relevant environmental parameters across the estate and expanding digital services to support the mapping and analysis of Recreational Areas and improve efficiencies in monitoring and management. 4. Monitoring of the effects of forestry and wind energy related project developments required under separate processes (EIA, AA) 5. Monitoring related to relevant Local Area Plans and County/City Development Plans or RSES's, particularly LAP Quarterly Reviews. 6. Coillte Annual Report. 7. Irish Water and National Federation of Group Water Schemes water quality monitoring and Source Protection Plans, EPA drinking water quality monitoring.	1. Health Safety Authority (HSA), continuously. 2. DAFM, COFORD, NPWS and Coillte, varies. 3. Coillte, continually. 4. In accordance with the monitoring provisions of EIA/ AA. 5. In accordance with the monitoring provisions of the lower-level Plans. Quarterly review basis. 6. Coillte, annually. 7. EPA annual reports.
BIO (including Flora and Fauna)	• Objectives in the FESLUP have been identified as having potential to result in negative effects on biodiversity during	• Number and condition of Natura 2000 network, European sites in proximity to or on Coillte's estate, as per Article	1. Coillte's BioClass Mapping and Coillte's Annual Report.	1. Coillte, annually. 2. DHLGH, every 6 years.

Environmental Component	Likely Significant Environmental Effects Identified	Draft SEA Indicators	Monitoring Source	Frequency/ Responsibility
	the construction of and or any development that has potential to occur across Coillte's estate, e.g., support of renewable energy developments, increased recreational facilities etc. • Objectives in the FESLUP have been identified as having potential to result in negative effects on biodiversity whereby, they relate to the provision of forest amenities and facilities in forests and non-forested areas. Increased human interaction in forested areas, and any development - such as carparks, public toilets etc. within forests have the potential to negatively affect biodiversity through potential contamination, clearance and/or disturbance. • Objectives in the FESLUP have been identified as having potential to result in negative effects on biodiversity whereby, if afforestation on peatlands is facilitated, it is likely to disrupt the natural characteristics, biodiversity of peat soil and the surrounding water bodies. • A range of objectives have also been identified, for the purposes of this assessment, as having the potential to result in 'uncertain' effects on biodiversity. • This means that in the worst-case scenario there is potential for further negative environmental effects to occur. The SEA monitoring measures outlined have been developed to also take these potential negative effects into account.	17 Reports, and the maintenance of conservation objectives. • Status of Annex 1 forest habitats and species as per Article 17 Reports. • Achievement of favourable conservation status of designated sites. • Area of new forest creation across Coillte's estate. • Area of new infrastructure development across Coillte's estate. • Achievement of the Objectives of the National Biodiversity Action Plan. • Achievement of Coillte's Forest for Nature pillar outlined in Coillte's Strategic Vision. • Status of protected Freshwater Species on or related to the Coillte estate. • Status of protected Bird Species – BOCCI on or related to the Coillte estate. • Area damaged by forest fires. • Number of incident responses e.g., following flooding, fire, invasive species occurrence, deer incidents etc.	2. The Status of EU Protected Habitats and Species in Ireland Article 17 Report (Department of Housing, Local Government and Heritage). 3. Monitoring of the effects of forestry and wind energy related project development required under separate processes (EIA, AA). 4. Updates to National Red List Check List. 5. Monitoring related to the FESLUP such as: Exploring effective, targeted approaches to monitoring at scale the ecological benefits of biodiversity management actions and developing partnerships with relevant agencies to enable monitoring of valuable habitats and species and, developing a set of metrics to develop targets and an approach to monitoring and reporting progress towards achieving these across the estate. 6. Inland Fisheries Ireland – Protected Freshwater Species – Atlantic Salmon etc – trends in protected freshwater species, population, distribution, health etc. 7. Birds of Conservation Concern Ireland – Monitoring by Birdwatch Ireland on status, distribution, population etc. 8. Monitoring related to the FESLUP such as: Developing an appropriate set of monitoring standards for environmental parameters relevant to Coillte's estate and activities. Exploring effective, targeted approaches to monitoring at scale the ecological benefits of biodiversity management actions and developing partnerships with relevant agencies to	3. In accordance with the monitoring provisions of EIA/AA. 4. NPWS, varies. 5. Coillte, continually. 6. Inland Fisheries Ireland, varies. 7. Birdwatch Ireland, every 6 years. 8. Coillte, continually. 9. Local Authorities, continuously. 10. EPA / DAERA, every 4 years and DAERA annual reports. 11. EPA, continuously. 12. EPA, continuously. 13. Coillte, continually. 14. Coillte, continually. 15. DAFM, NPWS and Coillte, varies.

Environmental Component	Likely Significant Environmental Effects Identified	Draft SEA Indicators	Monitoring Source	Frequency/ Responsibility
			enable monitoring of valuable habitats and species and also developing a set of metrics to develop targets and an approach to monitoring and reporting progress towards achieving these across the estate. 9. Monitoring related to relevant Local Area Plans and County/City Development Plans. 10. EPA State of the Environment Report 2020, DAERA Northern Ireland State of the Environment Report 2013, and DAERA annual Northern Ireland Environmental Statistics Report 11. Ireland's National Water Framework Directive Monitoring Programme, 2019-2021. 12. EPA Water Quality of Ireland Report 2016-2021. 13. Records of Forest Fires, where relevant. 14. Monitoring related to the FESLUP such as: Developing an appropriate set of monitoring standards for environmental parameters relevant to Coillte's estate and activities and monitoring forest health and condition to detect and mitigate against the potential impact of pests and diseases and guide management interventions. 15. Monitoring related to the Deer Management Strategy Group.	
L&S	• Objectives in the FESLUP have been identified as having potential to result in negative effects on land and soil during the construction of and or any development that has potential to occur across Coillte's estate.	• Number and condition of designated geological features. • Incidences of pollution events related to activities on Coillte's estate.	1. Monitoring for Geological Survey Ireland (GSI) Database. 2. EPA State of the Environment Report 2020, DAERA Northern Ireland State of the Environment Report 2013, and DAERA annual Northern Ireland Environmental Statistics Report.	1. GSI, varies. 2. EPA / DAERA, every 4 years and DAERA annual reports. 3. Coillte, continually. 4. In accordance with the monitoring provisions of EIA/ AA. 5. Coillte, continually.

Environmental Component	Likely Significant Environmental Effects Identified	Draft SEA Indicators	Monitoring Source	Frequency/ Responsibility
	• Objectives in the FESLUP have been identified as having potential to result in negative effects on land and soil whereby, if afforestation on peatlands is facilitated, it is likely to disrupt the natural characteristics of peat soil and the surrounding water bodies. If considered appropriate, sub-standard forestry operations also have the potential to result in erosion, landslides, compaction, contamination, losses of soil organic matter, erosion, soil sealing, leaching, and changes in soil biodiversity. • Objectives in the FESLUP have been identified as having potential to result in negative effects on land and soil whereby, they relate to the provision of forest amenities and recreational facilities across the Coillte estate. • Increased human interaction in forested areas, and any development - such as carparks, public toilets etc. within forests have the potential to negatively affect land and soil through potential contamination, clearance and/or disturbance.	• Concentrations of nitrogen dioxide, sulphur dioxide and ammonia in proximity to Coillte's estate that may give rise to nitrogen deposition and acidification of soils. • Number of hectares forested annually by Coillte and number of tree-felling licences granted to Coillte. • Area of Coillte estate subject to illegal deforestation. • Rates of forestry creation, forestry related developments and or wind energy developments e.g., forest roads, wind turbines and construction, where permitted and appropriate across Coillte's estate. • Area of peatland restored across Coillte's estate.	3. Monitoring related to the FESLUP such as: Developing an appropriate set of monitoring standards for environmental parameters relevant to Coillte's estate and activities. Exploring effective, targeted approaches to monitoring at scale the ecological benefits of biodiversity management actions and developing partnerships with relevant agencies to enable monitoring of valuable habitats and species and also developing a set of metrics to develop targets and an approach to monitoring and reporting progress towards achieving these across the estate. 4. Monitoring of the effects of project developments required under separate processes (EIA, AA). 5. Monitoring related to the FESLUP such as: Establishing monitoring and management frameworks for redesigned peatlands and developing an appropriate set of monitoring standards for environmental parameters relevant to Coillte's estate and activities.	
WAT	• Objectives in the FESLUP have been identified as having potential to result in negative effects on water during the construction of any development that has potential to occur across Coillte's estate. • Objectives in the FESLUP have been identified as having potential to result in negative effects on water whereby, if afforestation on peatlands is facilitated, it is likely to disrupt the natural characteristics of peat soil and the surrounding water bodies.	• Proportion of water bodies in forestry catchments meeting their WFD Ecological Status objectives, as reported by the EPA Water Monitoring Programme for the WFD. • Status of aquatic habitats and species on the Coillte estate. • Number of significant pollution events recorded arising from Coillte activity. • The area of land assigned to permanent water setback across Coillte's estate.	1. Ireland's National Water Framework Directive Monitoring Programme, 2019-2021. River Basin Management Plan for Ireland 2018 -2021 (2022 – 2027). 2. The Status of EU Protected Habitats and Species in Ireland Report (Department of Housing, Local Government and Heritage). 3. EPA Water Quality of Ireland Report 2016-2021. 4. EPA State of the Environment Report 2020, DAERA Northern Ireland State	1. EPA, continuously. 2. DHLGH, every 6 years. 3. EPA, continuously. 4. EPA / DAERA, every 4 years and DAERA annual reports. 5. Coillte, continuously. 6. EPA Catchment Unit, DHLGH and relevant local authorities, varies. 7. DAFM, twice annually, spring and autumn. 8. Coillte, varies.

Environmental Component	Likely Significant Environmental Effects Identified	Draft SEA Indicators	Monitoring Source	Frequency/ Responsibility
	Soil contamination can result in leeching, and potential eutrophication of waters. • A range of objectives have also been identified, for the purposes of this assessment, as having the potential to result in 'uncertain' effects on water. This means that in the worst-case scenario there is potential for further negative environmental effects to occur. The SEA monitoring measures outlined have been developed to also take these potential negative effects into account.		of the Environment Report 2013, and DAERA annual Northern Ireland Environmental Statistics Report. 5. Monitoring related to the FESLUP such as: Developing an appropriate set of monitoring standards for environmental parameters relevant to Coillte's estate and activities and developing a set of metrics to develop targets and an approach to monitoring and reporting progress towards achieving these across the estate. 6. Monitoring for the EPA Catchments Unit and Local Authority Waters Programme. 7. DAFM water monitoring of eight heavily forested waterbodies. 8. Monitoring related to the FESLUP such as: Developing an appropriate set of monitoring standards for environmental parameters relevant to Coillte's estate and activities and developing a set of metrics to develop targets.	
AQ&C (including Noise)	• While no definitive likely negative effects on air and climate have been identified in the assessment, a number of 'uncertain' effects have been identified. This means that in the worst-case scenario there is potential for negative environmental effects to occur with respect to air, noise and climate. The SEA monitoring measures outlined have been developed to take these potential negative effects into account.	• Coillte's forestry related traffic, transport and vehicular survey data. • Area of forest cover across Coillte's estate. • Annual afforestation, reforestation, restoration, and rewilding targets for Coillte's forest estate and achievement of Coillte's Forests for Climate pillar outlined in Coillte's Strategic Vision. • GHG emission reductions over the Plan period on or related to Coillte's estate and achievement of Coillte's Forests for Climate pillar outlined in Coillte's Strategic Vision. • Noise monitoring data from licensed forestry operations.	1. Monitoring related to the FESLUP such as: 2. Developing an appropriate set of monitoring standards for environmental parameters relevant to Coillte's estate and activities. Exploring effective, targeted approaches to monitoring at scale the ecological benefits of biodiversity management actions and developing partnerships with relevant agencies to enable monitoring of valuable habitats and species and developing a set of metrics to develop targets and an approach to monitoring and reporting progress towards achieving these across the estate.	1. Coillte, continually. 2. Coillte, continuously. 3. SEAI, varies. 4. In accordance with the monitoring provisions of EIA/ AA. 5. EPA reports on an annual and sectoral basis. 6. EPA, varies. 7. EPA, varies. 8. Coillte, continuously. 9. In accordance with the monitoring provisions of the lower-level Plans.

Environmental Component	Likely Significant Environmental Effects Identified	Draft SEA Indicators	Monitoring Source	Frequency/ Responsibility
		• Onsite dust monitoring of forestry operations.	3. Monitoring related to the FESLUP such as: Developing an appropriate set of monitoring standards for environmental parameters relevant to Coillte's estate and activities, and integrating into planning and operations procedures for protecting, monitoring and reporting relevant environmental parameters across the estate. 4. Sustainable Energy Authority of Ireland (SEAI) – Energy in Ireland Report/ Monitoring for Sustainable Biomass Fuels in Ireland. 5. Monitoring of the effects of forestry and wind energy related project development required under separate processes (EIA, AA). 6. EPA Greenhouse Gas Emissions Report. 7. EPA Climate Change Projections. 8. Monitoring of the FESLUP, its objectives and performance against any ambitions set out. Particularly, in developing an appropriate set of monitoring standards for environmental parameters relevant to Coillte's estate and activities. 9. Monitoring related to relevant Local Area Plans and County/City Development Plans or RSESs. 10. Monitoring of the effects of forestry and wind energy related projects and or development required under separate processes (EIA, AA).	10. In accordance with the monitoring provisions if stipulated as a result of an EIA/ AA.
AA&CH	• While no definitive likely negative effects on archaeological architectural and cultural heritage have been identified in the assessment, a number	• Number of entries to the Record of Monuments and Places, and the immediate setting of these entries including their relationships with	1. Registers of nationally protected sites and structures.	1. NPWS (National Parks and Wildlife Services), NMS (National Monuments Service), UNESCO, continually.

Environmental Component	Likely Significant Environmental Effects Identified	Draft SEA Indicators	Monitoring Source	Frequency/ Responsibility
	of 'uncertain' effects have been identified. This means that in the worst-case scenario there is potential for negative environmental effects to occur with respect to archaeological architectural and cultural heritage. The SEA monitoring measures outlined have been developed to take these potential negative effects into account.	forestry projects, forest areas and the surrounding landscape. • Full or partial loss to entries to the RPSs/NIAHs across Coillte's estate. • Results of Archaeological Impact Assessments and or archaeological investigations undertaken, related to forest creation and or development. • Number of uninhabited and derelict structures across Coillte's estate.	2. The National Inventory of Architectural Heritage. 3. Monitoring of the effects of forestry projects and or development required under separate processes (EIA, SEAA) 4. Monitoring related to relevant Local Area Plans and County/City Development Plans or RSES's. 5. An Bord Pleanala Planning Records for Ireland. 6. Coillte's Annual Report. 7. Monitoring of any previously unrecorded features of archaeological significance identified within the Coillte estate. 8. Registers of nationally protected sites and structures. 9. Monitoring of the effects of forestry and or wind energy related projects and or development required under separate processes (EIA, AA)	2. The Department of Housing, Local Government and Heritage are responsible for monitoring the conditions of, recording the presence of, and conserving Ireland's protected sites on a routine basis. 3. In accordance with the monitoring provisions of EIA/ SEA/ AA. 4. In accordance with the monitoring provisions of the lower-level Plans. 5. Planning records from An Bord Pleanala or relevant County Council Authority should be reviewed and recorded at least at the Plan min-term review stage (3 years). Assessment and recording of trends are conducted on an annual basis where possible. 6. Coillte, annually. 7. Coillte, continuously. 8. NPWS (National Parks and Wildlife Services), NMS (National Monuments Service), UNESCO, continually. 9. In accordance with the monitoring provisions of EIA/ AA.
L&V	• Objectives in the FESLUP have been identified as having potential to result in negative effects on landscape and visuals where, any development has potential to occur across Coillte's estate e.g., support of renewable energy developments. • A range of objectives have also been identified, for the purposes of this assessment, as having the potential to result in 'uncertain' effects on landscape and visuals, particularly related to likely increases in forest cover.	• Rates of forestry development within designated landscapes. • Rates of forest developments and planting.. • Number and scale of wind developments across Coillte's estate.	1. Monitoring of the effects of forestry projects and or development required under separate processes (EIA, AA). 2. Monitoring related to relevant Local Area Plans and County/City Development Plans or RSES's e.g., Landscape Character Assessments as part of County Development Plans. 3. Monitoring of FESLUP, its objectives and performance against any ambitions set out, particularly relating to forest creation (afforestation and	1. In accordance with the monitoring provisions of EIA/ AA. 2. In accordance with the monitoring provisions of the lower-level Plans – Relevant Local Authorities, continuously. 3. Coillte, continuously. 4. Coillte, varies. 5. DAFM, Coillte and the EPA, varies. 6. Coillte, continuously.

Environmental Component	Likely Significant Environmental Effects Identified	Draft SEA Indicators	Monitoring Source	Frequency/ Responsibility
	This means that in the worst-case scenario there is potential for further negative environmental effects to occur. The SEA monitoring measures outlined have been developed to also take these potential negative effects into account.		reforestation), development, and or redesign projects. 4. Coillte mapping resurveys. 5. CORINE mapping resurveys. 6. Monitoring of the FESLUP, its objectives and performance against any ambitions set out, particularly relating to support of wind energy developments.	
MA	• While no definitive likely negative effects on material assets have been identified in the assessment, a number of 'uncertain' effects have been identified. This means that in the worst-case scenario there is potential for negative environmental effects to occur with respect to material assets. The SEA monitoring measures outlined have been developed to take these potential negative effects into account.	• Statistics on the quantity of forest products produced (and exported) and achievement of Coillte's Forests for Wood pillar outlined in Coillte's Strategic Vision. • Achievement of Ireland's renewable energy targets and increased use of forest based products as a renewable energy source amongst, the achievement of Coillte's Forests for Climate pillar outlined in Coillte's Strategic Vision. • Employment Statistics for the activities on or related to Coillte's estate. • Amount of forest products available and the value of and or revenue of products. • Amount of woody biomass used for renewable energy generation in Ireland annually. • Location and/or level of forestry related infrastructure including forest roads across Coillte's estate. • Location and/or size of renewable wind energy related infrastructure.	1. Research and Monitoring carried out for the Irish Forestry and the Economy Report and Forest Statistics 2021 Report. 2. Sustainable Energy Authority of Ireland (SEAI) – Energy in Ireland Report/ Monitoring for Sustainable Biomass Fuels in Ireland. 3. Coillte Annual Report. 4. Coillte Annual Report. 5. Monitoring of the FESLUP, its objectives and performance against any ambitions set out, particularly relating to forest-based products, support of renewable energy sources and forestry related GHG emissions. 6. Research and Monitoring carried out for the Irish Forests and Renewable Energy Report and Forest Statistics 2021 Report. 7. Monitoring for Energy in Ireland Report 2021 (SEAI). 8. Monitoring of the effects of forestry creation and or related developments required under separate processes (EIA, AA). 9. Monitoring related to relevant Local Area Plans and County/City Development Plans or RSES's	1. DAFM, COFORD, NPWS and Coillte, varies. 2. SEAI, varies. 3. Coillte, annually. 4. Coillte, annually. 5. Coillte, continuously. 6. DAFM, COFORD, NPWS and Coillte, varies. 7. SEAI, annually. 8. In accordance with the monitoring provisions of EIA/ AA. 9. In accordance with the monitoring provisions of the lower-level Plans. 10. Planning records from An Bord Pleanala or relevant County Council Authority should be reviewed and recorded at least at the Plan min-term review stage (3 years). Assessment and recording of trends are conducted on an annual basis where possible. 11. Coillte, continuous. 12. EPA / DAERA, every 4 years and DAERA annual reports. 13. Coillte, continuously.

Environmental Component	Likely Significant Environmental Effects Identified	Draft SEA Indicators	Monitoring Source	Frequency/ Responsibility
			10. An Bord Pleanala/Relevant County Council Planning Records. 11. Monitoring of the FESLUP, its objectives and performance against any ambitions set out, particularly relating to forestry related technological and innovative developments and or upgrades. 12. EPA State of the Environment Report 2020, DAERA Northern Ireland State of the Environment Report 2013, and DAERA annual Northern Ireland Environmental Statistics Report 13. Monitoring of the FESLUP, its objectives and performance against any ambitions set out, particularly relating to support of wind energy development.	

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Appendix A

A.1 Combined Figures

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Client

COILLTE

Issue	Date	By	Chkd	Appd
P01	7/11/2023	SW	AD	SW

Project Title
COILLTE: DEVELOPMENT OF FOREST ESTATE STRATEGIC LAND USE PLAN

Scale
1:1,750,000

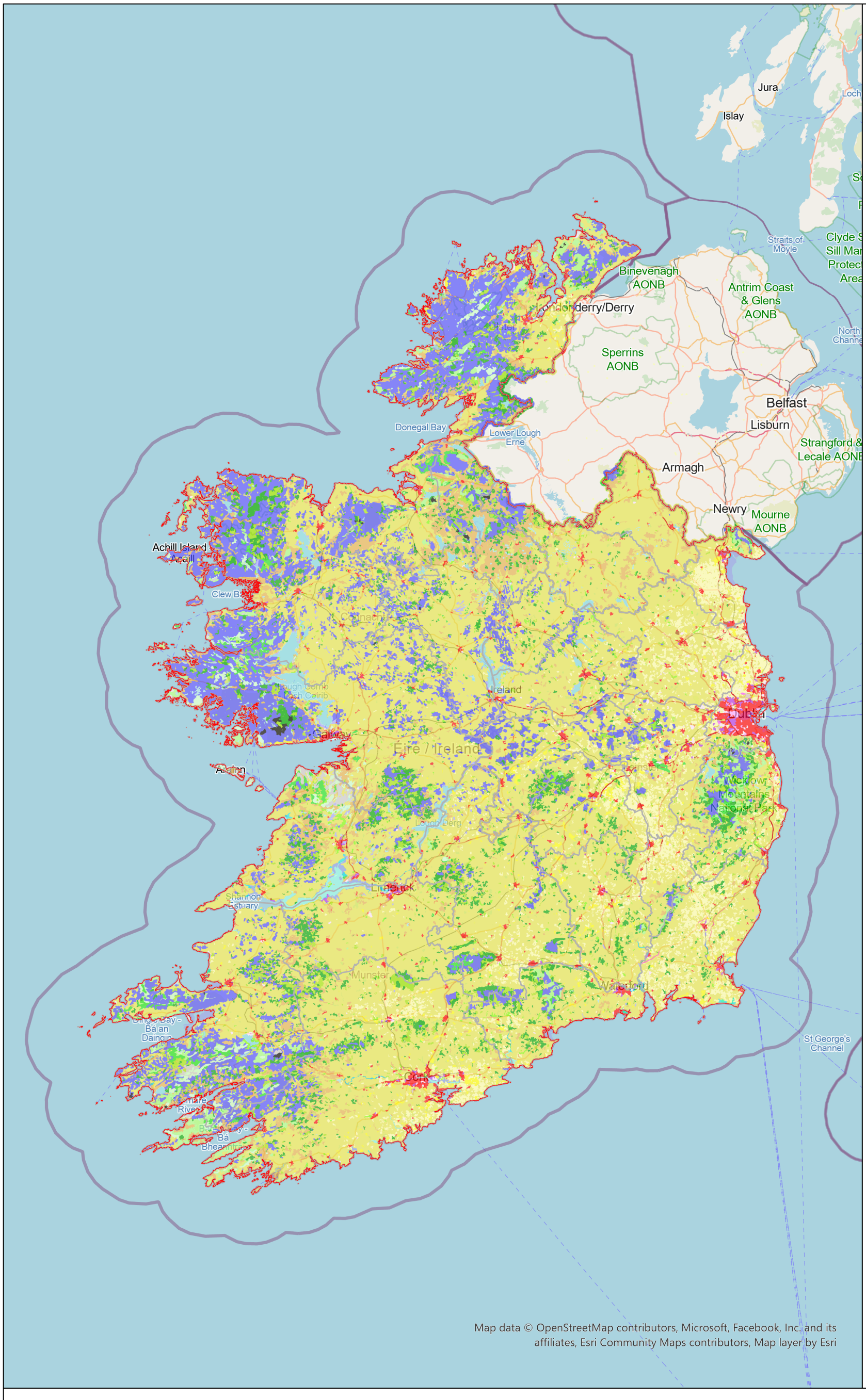
Date
July 2023

Drawing Title
Study Area / Programme Boundary

Drawing Status

Figure No.
Fig A1

Project Number
294083-00



Legend

- Plan Extent
- County Boundaries
- Territorial Limits

Corine Landcover (2018)

Corine Landcover Type

- 111 Continuous urban fabric
- 112 Discontinuous urban fabric
- 121 Industrial or commercial units
- 122 Road and rail networks
- 123 Sea ports
- 124 Airports
- 131 Mineral extraction sites
- 132 Dump
- 133 Construction sites
- 141 Green urban sites
- 142 Sport and leisure facilities
- 211 Non-irrigated land
- 231 Pastures
- 242 Complex cultivation patterns
- 243 Land principally occupied by agriculture with areas of natural vegetation
- 311 Broad-leaved forest
- 312 Coniferous forest
- 313 Mixed forest
- 321 Natural grassland
- 322 Moors and heaths
- 324 Transitional woodland scrub
- 331 Beaches dunes sand
- 332 Bare rocks
- 333 Sparsely vegetated areas
- 334 Burnt areas
- 411 Inland marshes
- 412 Peat bogs
- 421 Salt Marshes
- 423 Intertidal flats
- 511 Stream courses
- 512 Water bodies
- 521 Coastal lagoons
- 522 Estuaries

Kilometers
0 12.5 25 50

Irish Transverse Mercator
EPSG: 2157

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Issue	Date	By	Chkd	Appd
P01	7/11/2023	SW	AD	SW

Project Title
COILLTE: DEVELOPMENT OF FOREST ESTATE STRATEGIC LAND USE PLAN

Scale
1:1,750,000

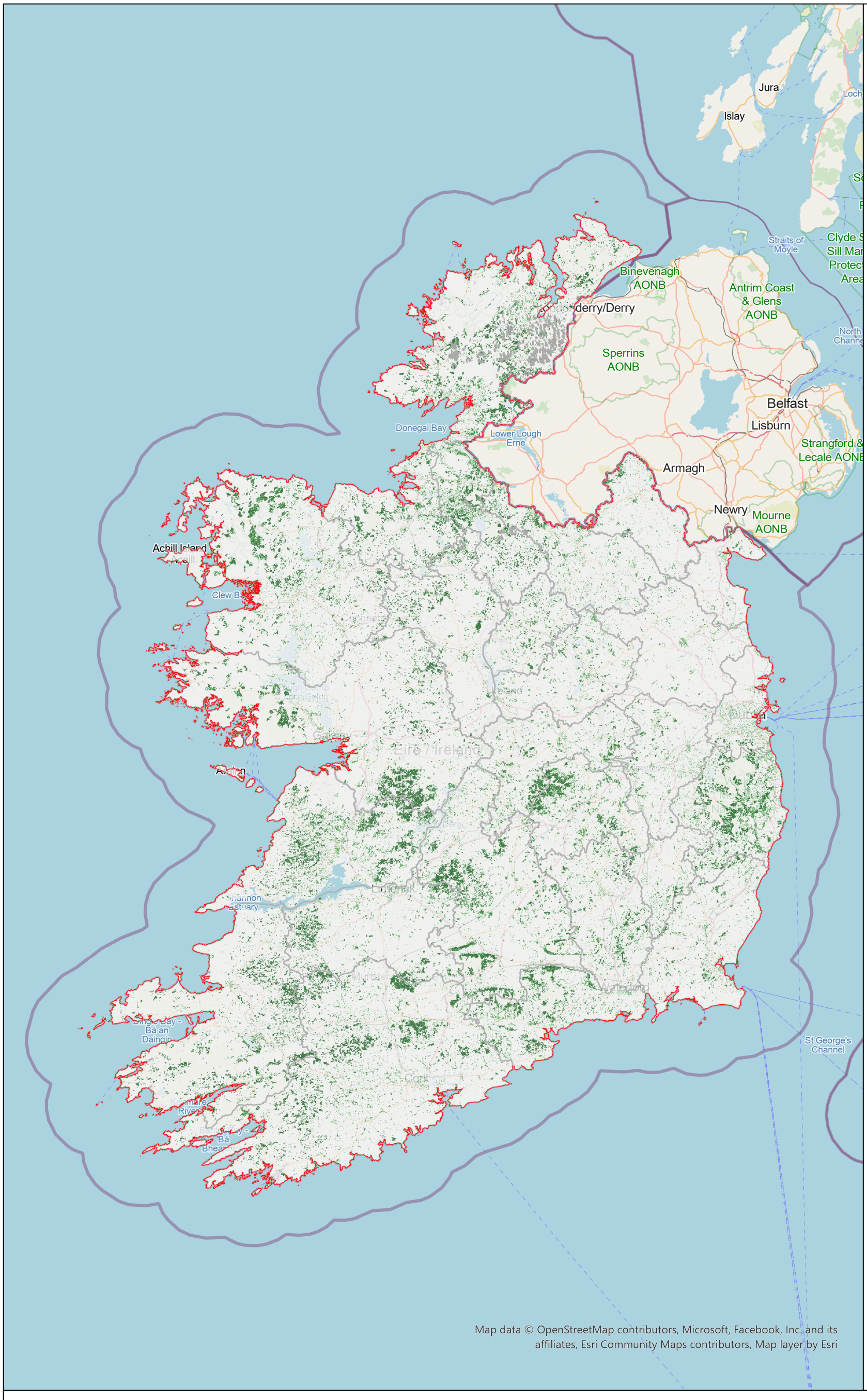
Date
July 2023

Drawing Title
CORINE Landcover

Drawing Status

Figure No.
Fig A2

Project Number
294083-00



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P01	7/11/2023	SW	AD	SW

Project Title
COILLTE: DEVELOPMENT OF FOREST ESTATE STRATEGIC LAND USE PLAN

Scale
1:1,750,000

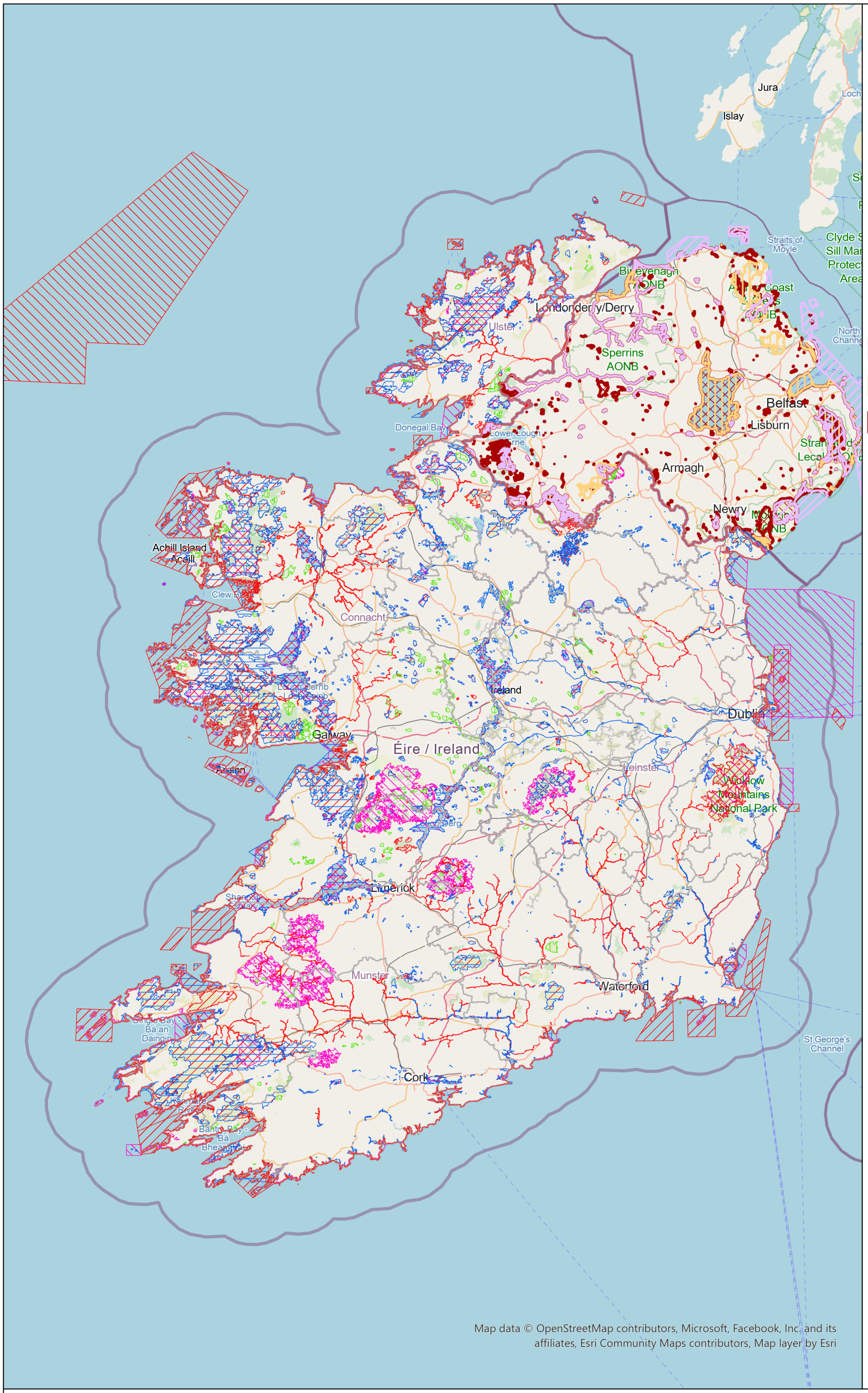
Date
July 2023

Drawing Title
Forest Cover

Drawing Status

Figure No.
Fig A3

Project Number
294083-00



Legend

- Plan Extent
- County Boundaries
- Territorial Limits

Republic of Ireland (National Parks and Wildlife Service)

- Natural Heritage Area (NHA)
- Proposed National Heritage Areas (pNHA)
- Special Area of Conservation (SAC)
- Offshore Special Area of Conservation (SAC)

Northern Ireland (Northern Ireland Environment Agency)

- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Area of Special Scientific Interest (ASSI)
- Special Protection Area (SPA)

Kilometers
0 12.5 25 50

Irish Transverse Mercator
EPSG: 2157

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P01	7/11/2023	SW	AD	SW

Project Title
COILLTE: DEVELOPMENT OF FOREST ESTATE STRATEGIC LAND USE PLAN

Scale
1:1,750,000

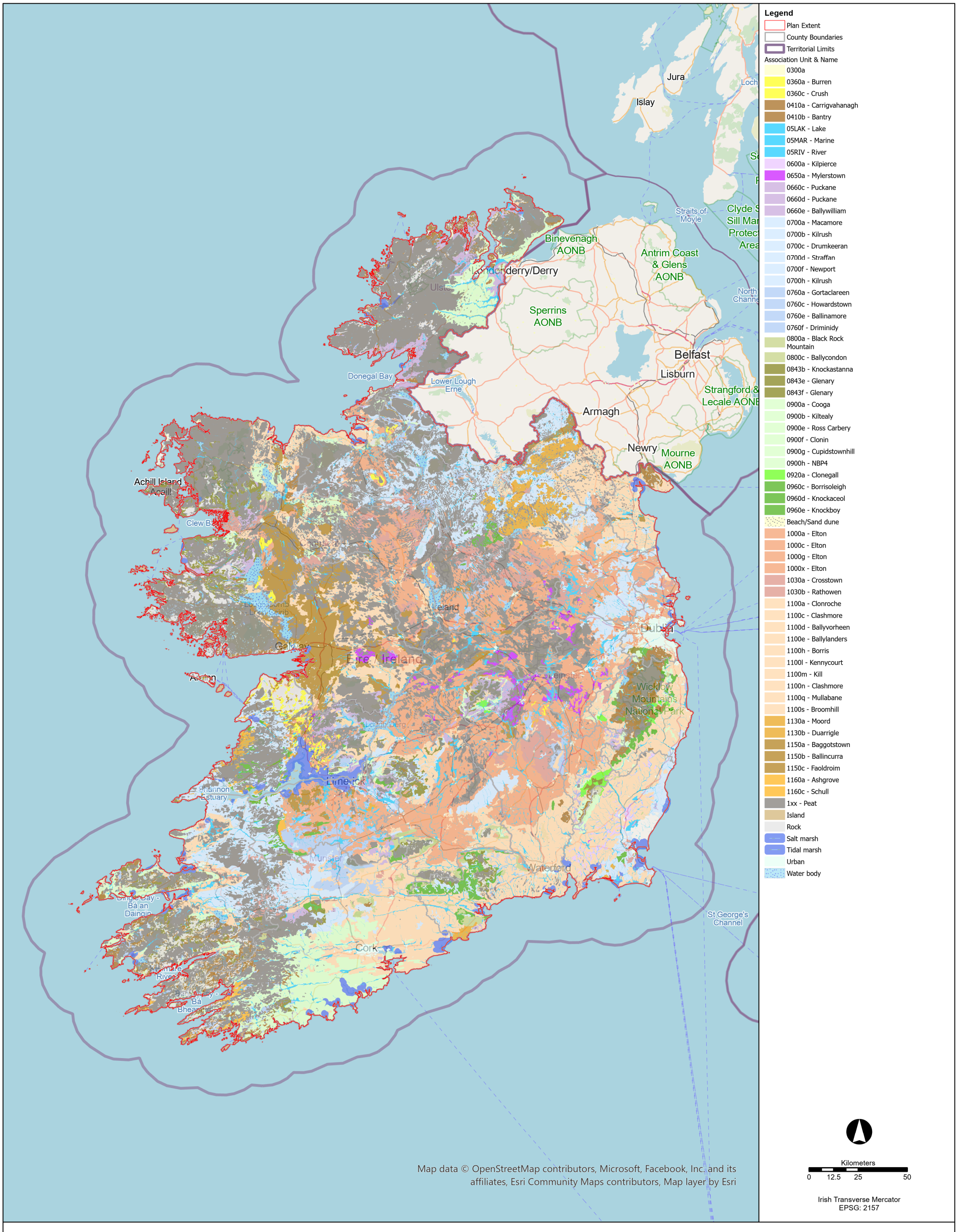
Date
July 2023

Drawing Title
Designated Sites in the Republic of Ireland and Northern Ireland

Drawing Status

Figure No.
Fig A4

Project Number
294083-00



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Issue	Date	By	Chkd	Appd
P01	7/11/2023	SW	AD	SW

Project Title
COILLTE: DEVELOPMENT OF FOREST ESTATE STRATEGIC LAND USE PLAN

Scale
1:1,750,000

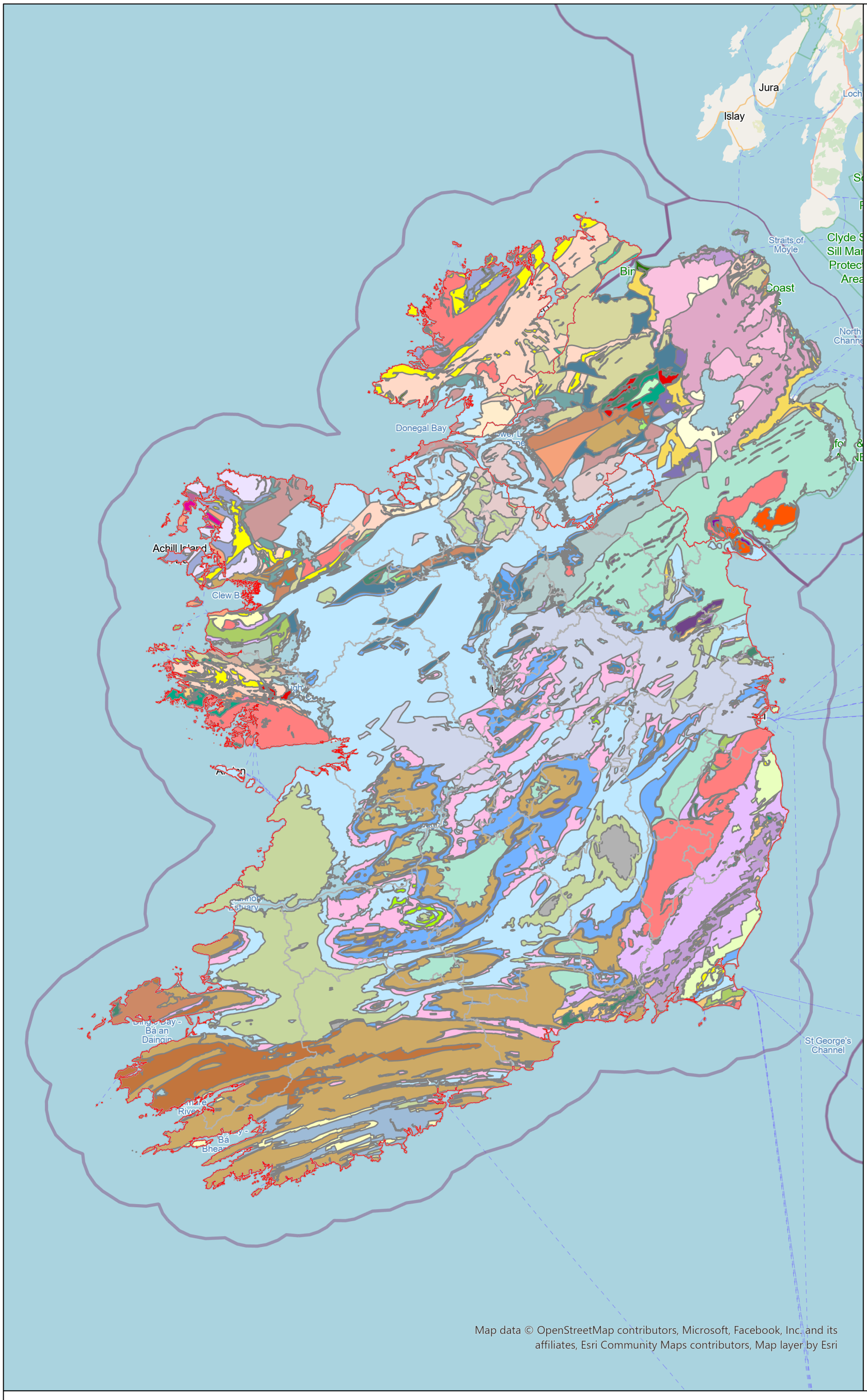
Date
July 2023

Drawing Title
Teagasc Soils

Drawing Status

Figure No.
Fig A5

Project Number
294083-00



Legend

- Plan Extent
- County Boundaries
- Territorial Limits

Bedrock Geology (Geological Survey of Ireland: 500k)

UNITNAME

- 1, Meta-dolerite, meta-gabbro
- 2, Serpentinite, Neoproterozoic (NE Ox Mts) & Lower Ordovician (Clew Bay, Carnew)
- 3, Orthogneiss suite, mainly quartz diorite (Connemara)
- 4, Granodiorite, tonalite, dacite, granite
- 5, Gabbro, dolerite & diorite
- 6, Microgranite & porphyry
- 7, Appinite Suite
- 8, Granite, granodiorite
- 9, Granite, granophyre
- 10, Rhyolite
- 11, Dolerite & gabbro
- 12, Rhinns Complex (Inishtrahull); Syenitic orthogneiss, minor metagabbro
- 13, Mullet Gneiss; Granitic orthogneiss
- 14, Cross Point Gneiss; Granitic orthogneiss
- 15, Doolough Gneiss & Granite; Granitic orthogneiss & granite
- 16, Kilmore Quay Group; Paragneiss, schist
- 17, Greenore Point Group; Schistose amphibolite
- 18, Tyrone Central Inlier; Quartzo-feldspathic paragneiss & schist
- 19, Slishwood Division; Quartzo-feldspathic paragneiss
- 20, Inishkea Division (possibly Dalradian); Psammitic & pelitic schist
- 21, Grampian Group; Psammitic & pelitic schist
- 22, Appin Group; Quartzite
- 23, Appin Group; Psammitic & pelitic schist & marble
- 24, Argyll Group; Paragneiss & migmatite
- 25, Argyll Group; Amphibolite & amphibolitic schist
- 26, Argyll Group; Quartzite
- 27, Argyll Group; Psammitic & pelitic schist, marble, amphibolite, diamictite
- 28, Southern Highland Group; (Epidote-)amphibolitic schist & tuff
- 29, Southern Highland Group; Pelitic & psammitic schist, phyllite & marble
- 30, Marine; Quartzite & minor slate
- 31, Marine; Slate
- 32, Marine; Greywacke & shale
- 33, Basalt - andesite, tuff & shale
- 34, Rhyolite and rhyolitic tuff
- 35, Deep marine; Slate, schist & minor greywacke
- 36, Deep marine; Greywacke, shale, sandstone & conglomerate
- 37, Basalt - andesite, tuff, slate & mudstone
- 38, Rhyolite, rhyolitic tuff & slate
- 39, Deep marine; Slate, shale, minor sandstone & siltstone
- 40, Marine to fluvial; Greywacke, shale, sandstone & conglomerate
- 41, Melange (Ordovician or Silurian); Greywacke, sandstone & conglomerate
- 42, "Moffat shale" facies (Ordovician - Silurian); Shale & greywacke
- 43, Shallow marine (Dunquin Group, Dingle); Siltstone, sandstone, tuff, limestone
- 44, Rhyolitic tuff, basalt & andesite (in Dunquin Group)
- 45, Shallow marine (Croagh Patrick Succession); Sandstone, siltstone, conglomerate
- 46, Quartzite (in Croagh Patrick Succession)
- 47, Alluvial - playa (Louisburgh - Clare Island Succession); Sandstone, siltstone, conglomerate
- 48, Transgression - regression sequence (Killary Hbr - Joyces Country Succ.); Sandstone, conglomerate, greywacke, mudstone, tuff
- 49, Deep marine turbidite sequence; Mudstone, greywacke & conglomerate
- 50, Basalt, andesite, basaltic & andesitic tuff
- 51, Rhyolite & rhyolitic tuff
- 52, Continental redbed facies; Sandstone, siltstone & mudstone (base of Dingle Group is in the Upper Silurian)
- 53, Continental redbed facies; Sandstone, siltstone & mudstone
- 54, Continental redbed facies; Sandstone, conglomerate & siltstone (in places extends into the Carboniferous)
- 55, Shallow marine, (Cork Group, Old Head Sandstone Fm); Sandstone & mudstone
- 56, Basalt, trachyte, syenite & tuff
- 57, Marine (Cork Group) (extends into the Visean); Mudstone, sandstone & thin limestone
- 58, Shallow marine ("Lower Limestone Shale"); Shale, sandstone & thin limestone
- 59, Shallow marine & coastal plain (basal clastics); Sandstone, mudstone & conglomerate
- 60, Shallow & marginal marine (Navan Group); Dark-grey limestone, mudstone, sandstone, minor evaporite
- 61, Marine shelf & ramp facies; Argillaceous dark-grey bioclastic limestone, subsidiary shale
- 62, Waulsortian mudbank; Pale-grey massive limestone
- 63, Shallow marine & coastal plain (Basal Clastics); Sandstone, mudstone & conglomerate
- 64, Marine shelf facies; Limestone & calcareous shale
- 65, Marine basinal facies (Tobercolleen & Lucan Fms - "Calp"); Dark-grey argillaceous & cherty limestone & shale
- 66, Marginal marine (Mullaghmore, Downpatrick & Clogher Valley Fms); Sandstone, mudstone & evaporite
- 67, Shallow water marine (Armagh Group); Limestone, limestone conglomerate, palaeokarst with red palaeosols
- 68, Marginal marine (Meenymore Formation); Mudstone, sandstone & evaporite
- 69, Fluvio-deltaic & minor marine (late Visean to Namurian: Ballycastle); Sandstone, mudstone, thin limestone & coal
- 70, Continental redbed facies (late Visean to early Westphalian); Sandstone, conglomerate & mudstone
- 71, Fluvio-deltaic & basinal marine (Turbiditic); Shale, sandstone, siltstone & coal
- 72, Fluvio-deltaic & shallow marine; Shale, sandstone & siltstone with coal
- 73, Continental redbed facies & shallow marine; Sandstone, conglomerate, magnesian limestone, marl, evaporite
- 74, Continental redbed facies (Permo-Triassic, Wexford); Sandstone, conglomerate & siltstone
- 75, Continental redbed facies, lagoonal & shallow marine; Sandstone & mudstone with evaporite
- 76, Shallow marine (Lias); Mudstone & limestone
- 77, Shallow marine (Upper Cretaceous); Chalk, flint, glauconitic sandstone& chalk breccia
- 78, Undifferentiated minor volcanic rocks
- 79, Lower Basalt Formation; Olivine basalt lava
- 80, Interbasaltic Formation; Laterite, bauxite & lithomarge
- 81, Causeway Tholeiite Member; Columnar tholeiitic basalt lava
- 82, Upper Basalt Formation; Olivine basalt lava
- 83, Lacustrine; Clay, sand & lignite

Kilometers

0 12.5 25 50

Irish Transverse Mercator
EPSG: 2157

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COILLTE

Issue	Date	By	Chkd	Appd
P01	7/11/2023	SW	AD	SW

Project Title
COILLTE: DEVELOPMENT OF FOREST ESTATE STRATEGIC LAND USE PLAN

Scale
1:1,750,000

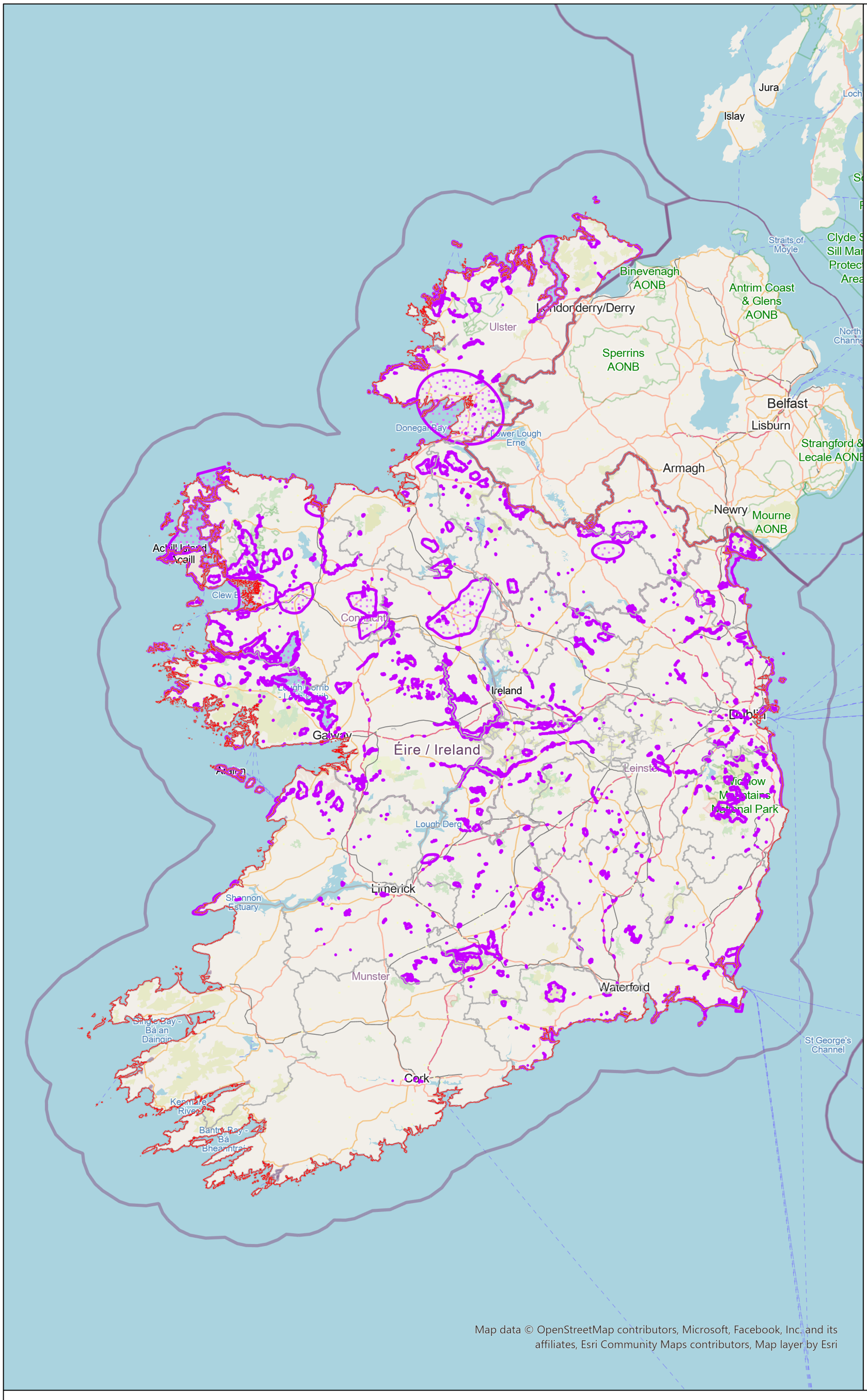
Date
July 2023

Drawing Title
Bedrock Geology

Drawing Status

Figure No.
Fig A6

Project Number
294083-00



Legend

- Plan Extent
- County Boundaries
- Territorial Limits
- Geological Heritage Sites (Geological Survey Ireland)

Kilometers
0 12.5 25 50

Irish Transverse Mercator
EPSG: 2157

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Project Title
COILLTE: DEVELOPMENT OF FOREST ESTATE STRATEGIC LAND USE PLAN

Scale
1:1,750,000

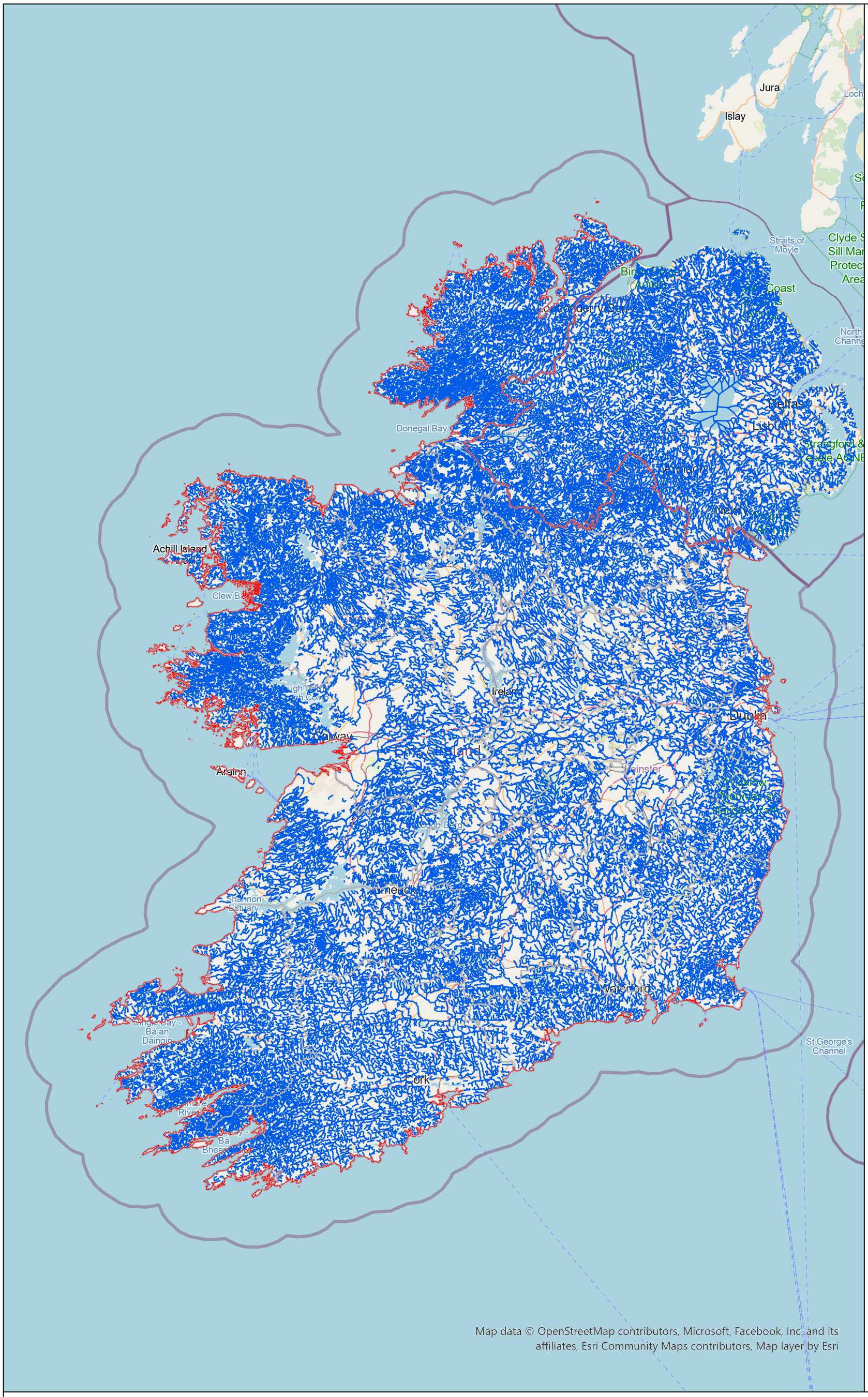
Date
July 2023

Drawing Title
Geological Heritage Sites

Drawing Status

Figure No.
Fig A7

Project Number
294083-00



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P01	7/11/2023	SW	AD	SW

Project Title
COILLTE: DEVELOPMENT OF FOREST ESTATE STRATEGIC LAND USE PLAN

Scale
1:1,750,000

Date
July 2023

Drawing Title
River Network

Drawing Status

Figure No.
Fig A8

Project Number
294083-00

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Issue	Date	By	Chkd	Appd
P01	7/11/2023	SW	AD	SW

Project Title
COILLTE: DEVELOPMENT OF FOREST ESTATE STRATEGIC LAND USE PLAN

Scale
1:1,750,000

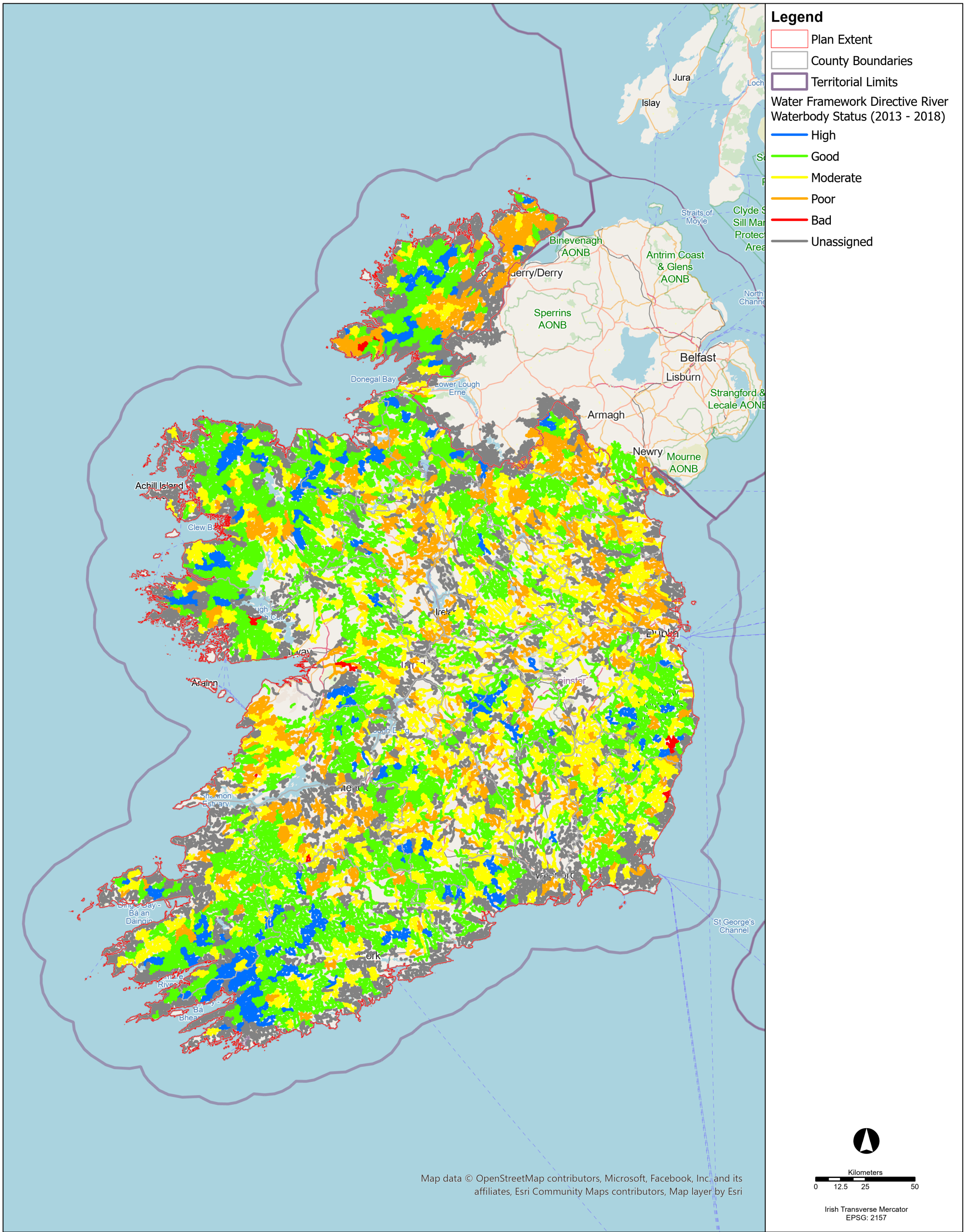
Date
July 2023

Drawing Title
Lake Network

Drawing Status

Figure No.
Fig A9

Project Number
294083-00



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Issue	Date	By	Chkd	Appd
P01	7/11/2023	SW	AD	SW

Project Title
COILLTE: DEVELOPMENT OF FOREST ESTATE STRATEGIC LAND USE PLAN

Scale
1:1,750,000

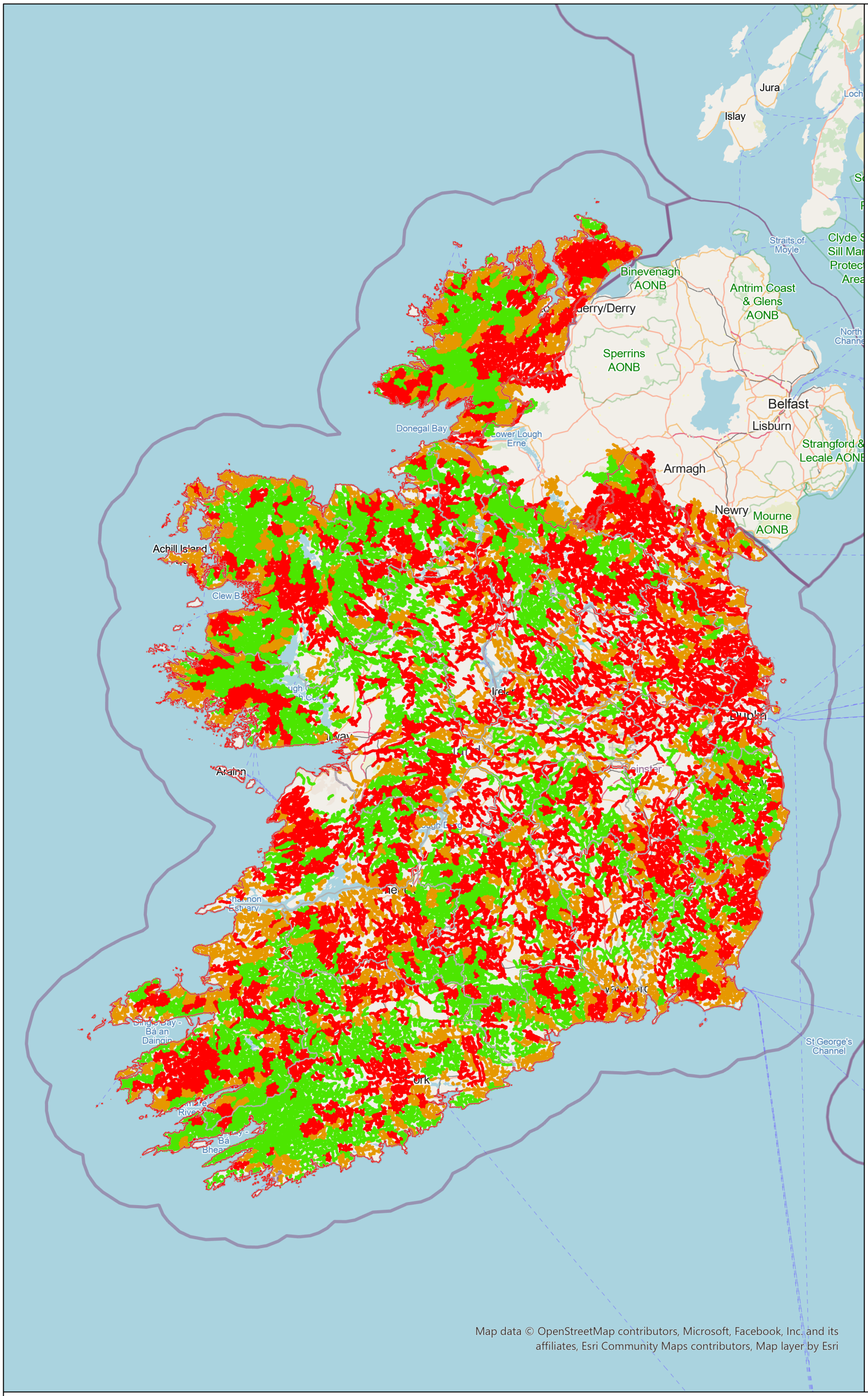
Date
July 2023

Drawing Title
WFD River Quality Status

Drawing Status

Figure No.
Fig A10

Project Number
294083-00



Legend

- Plan Extent
- County Boundaries
- Territorial Limits

Water Framework Directive River Waterbody Risk (2013 - 2018)

Projection

- At risk
- Not at risk
- Review

Kilometers

0 12.5 25 50

Irish Transverse Mercator
EPSG: 2157

Consultant

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E dublin@arup.com

Client

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Issue	Date	By	Chkd	Appd
P01	7/11/2023	SW	AD	SW

Project Title
COILLTE: DEVELOPMENT OF FOREST ESTATE STRATEGIC LAND USE PLAN

Scale
1:1,750,000

Date
July 2023

Drawing Title
WFD River Risk Status

Drawing Status

Figure No.
Fig A11

Project Number
294083-00

Legend

- Plan Extent
- County Boundaries
- Territorial Limits

Water Framework Directive Lake Waterbody Status (2013 - 2018)

- High
- Good
- Moderate
- Poor
- Bad
- Unassigned

Kilometers
0 12.5 25 50

Irish Transverse Mercator
EPSG: 2157

Consultant

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Client

COILLTE

Issue	Date	By	Chkd	Appd
P01	7/11/2023	SW	AD	SW

Project Title
COILLTE: DEVELOPMENT OF FOREST ESTATE STRATEGIC LAND USE PLAN

Scale
1:1,750,000

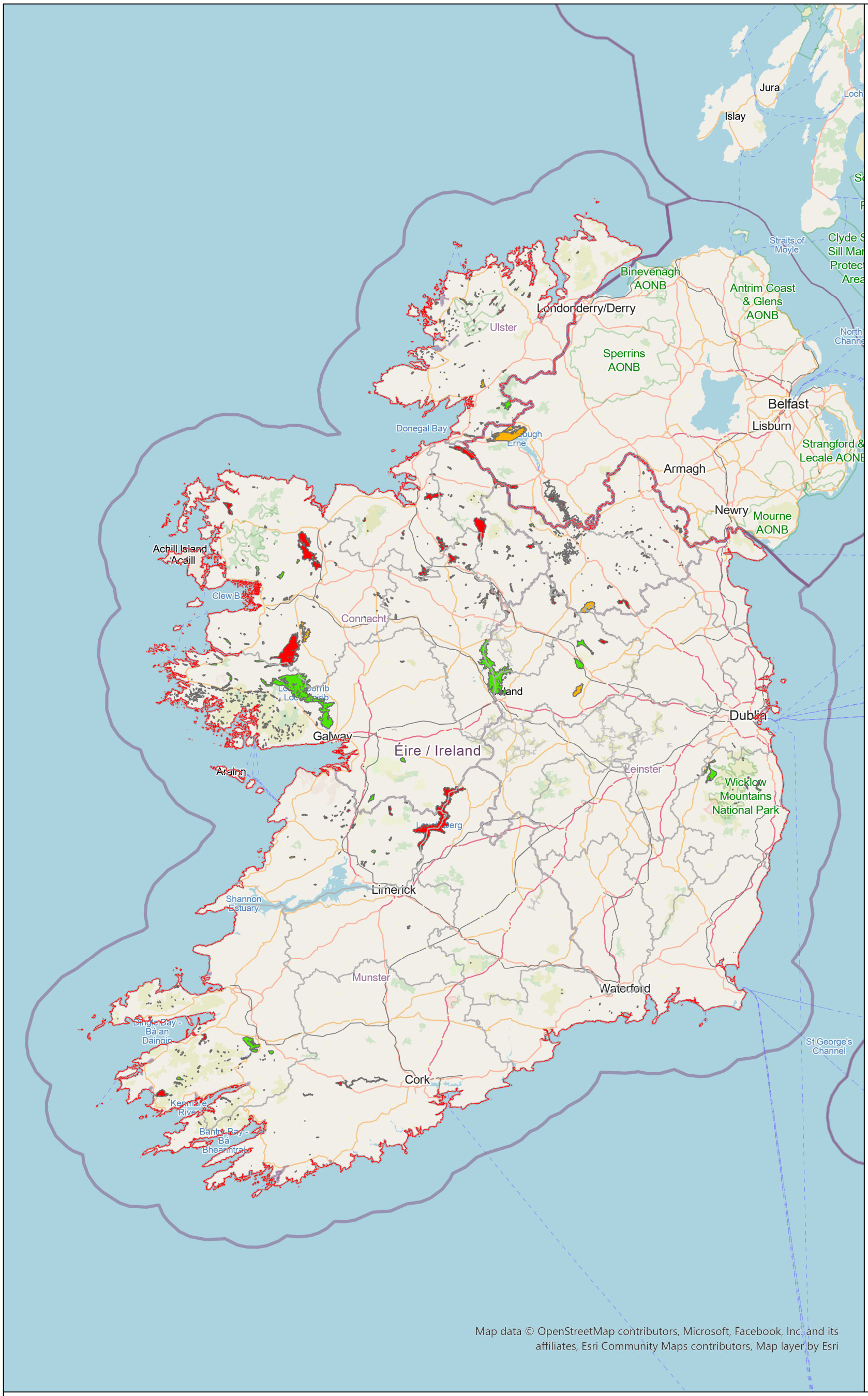
Date
July 2023

Drawing Title
WFD Lake Quality Status

Drawing Status

Figure No.
Fig A12

Project Number
294083-00



Legend

- Plan Extent
- County Boundaries
- Territorial Limits

Water Framework Directive Lake Waterbody Risk (2013 - 2018)

Projection

- At risk
- Not at risk
- Review

Kilometers

0 12.5 25 50

Irish Transverse Mercator
EPSG: 2157

Consultant

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Project Title
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Scale
1:1,750,000

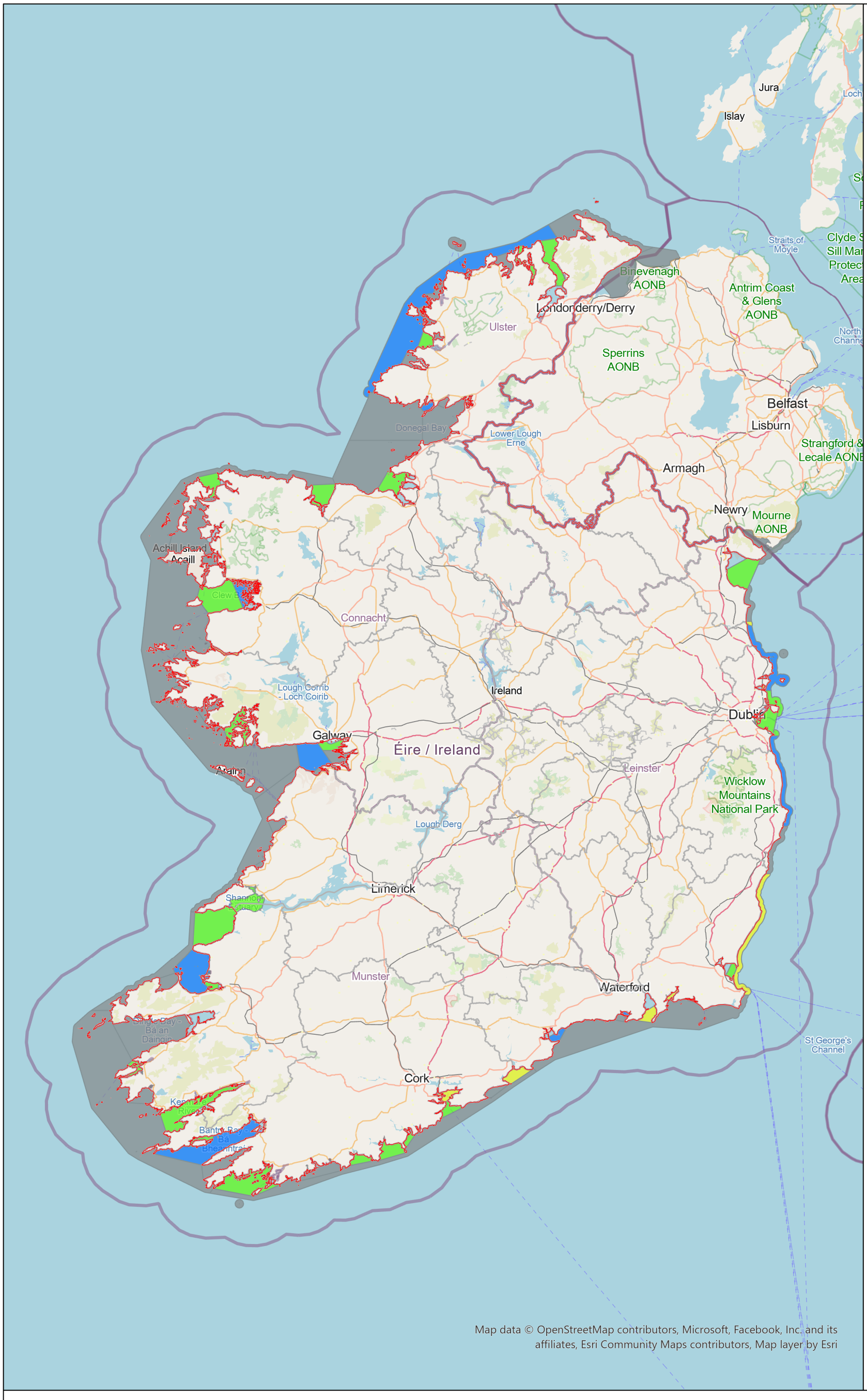
Date
July 2023

Drawing Title
WFD Lake Risk Status

Drawing Status

Figure No.
Fig A13

Project Number
294083-00



Legend

- Plan Extent
- County Boundaries
- Territorial Limits

Water Framework Directive Coastal Waterbody Status (2013 - 2018)

- High
- Good
- Moderate
- Bad
- Unassigned

Kilometers
0 12.5 25 50

Irish Transverse Mercator
EPSG: 2157

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Scale
1:1,750,000

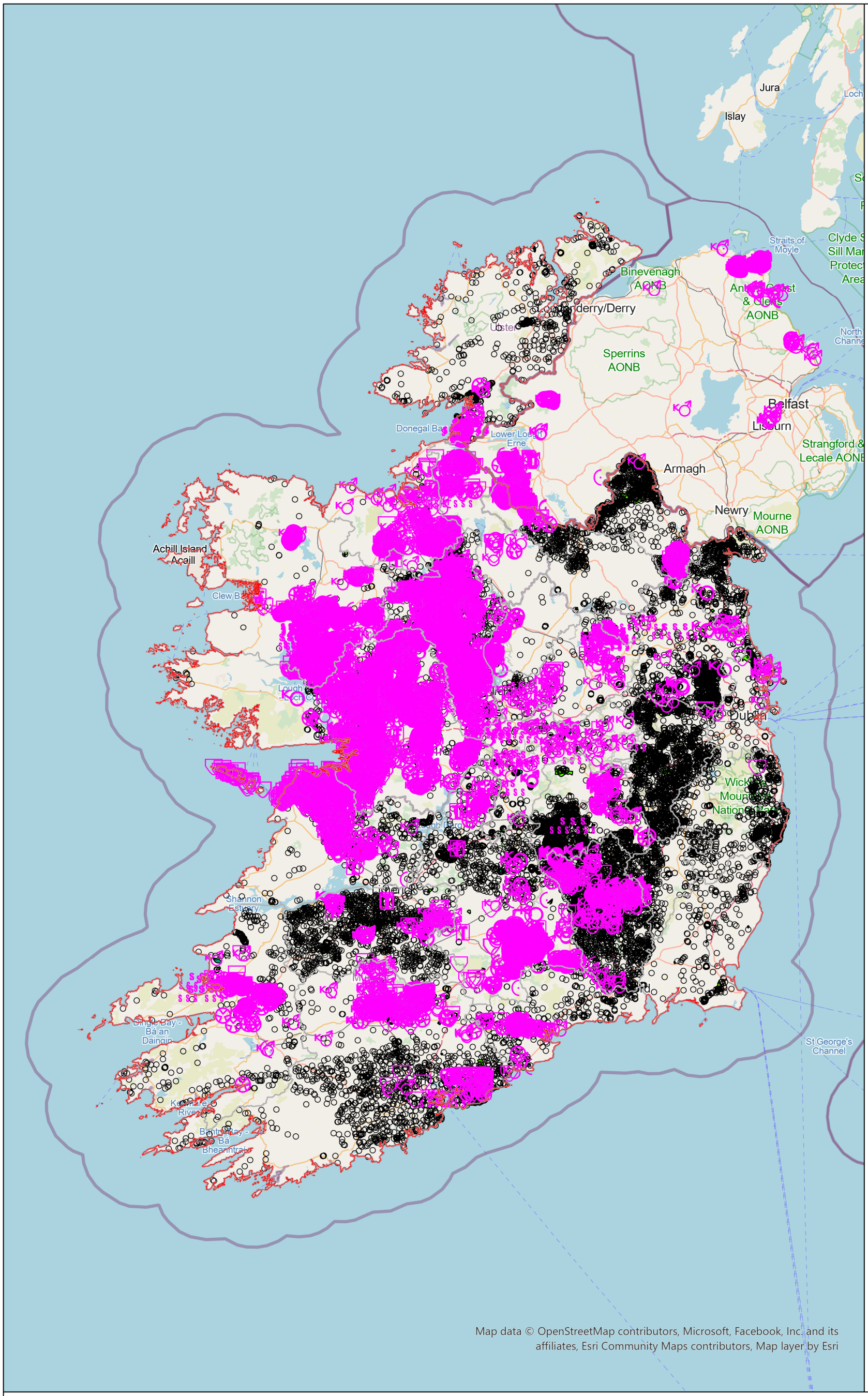
Date
July 2023

Drawing Title
WFD Coastal Water Body Status

Drawing Status

Figure No.
Fig A14

Project Number
294083-00



Legend

- Plan Extent
- County Boundaries
- Territorial Limits
- Groundwater Wells and Springs (Geological Survey Ireland)

Karst Landforms (Geological Survey Ireland)

- Estavelle
- Borehole
- Cave
- Dry Valley
- Enclosed Depression
- Spring
- Superficial Solution Feature
- Swallow Hole
- Turlough

Groundwater Source Protection Areas (Geological Survey Ireland)

- Free Representation
- SI-Inner Protection Area
- SO-Outer Protection Area

Kilometers
0 12.5 25 50

Irish Transverse Mercator
EPSG: 2157

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Project Title
COILLTE: DEVELOPMENT OF FOREST ESTATE STRATEGIC LAND USE PLAN

Scale
1:1,750,000

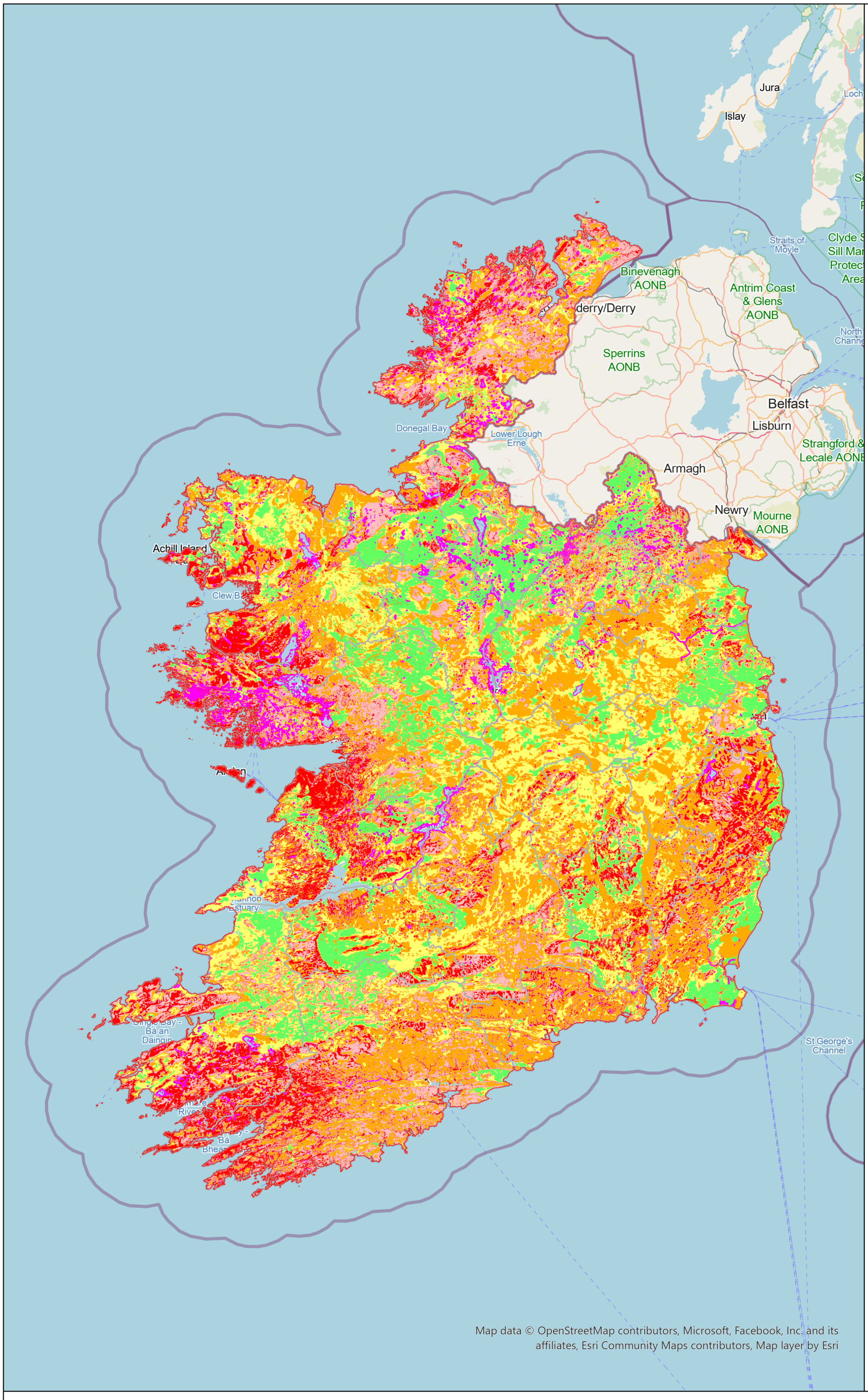
Date
July 2023

Drawing Title
Groundwater Features and Public Supply Source Protection Zones

Drawing Status

Figure No.
Fig A15

Project Number
294083-00



Legend

- Plan Extent
- County Boundaries
- Territorial Limits

Groundwater Vulnerability (Geological Survey Ireland)

- Rock at or near Surface or Karst
- Extreme
- High
- Moderate
- Low
- Water

Kilometers
0 12.5 25 50

Irish Transverse Mercator
EPSG: 2157

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Project Title
COILLTE: DEVELOPMENT OF FOREST ESTATE STRATEGIC LAND USE PLAN

Scale
1:1,750,000

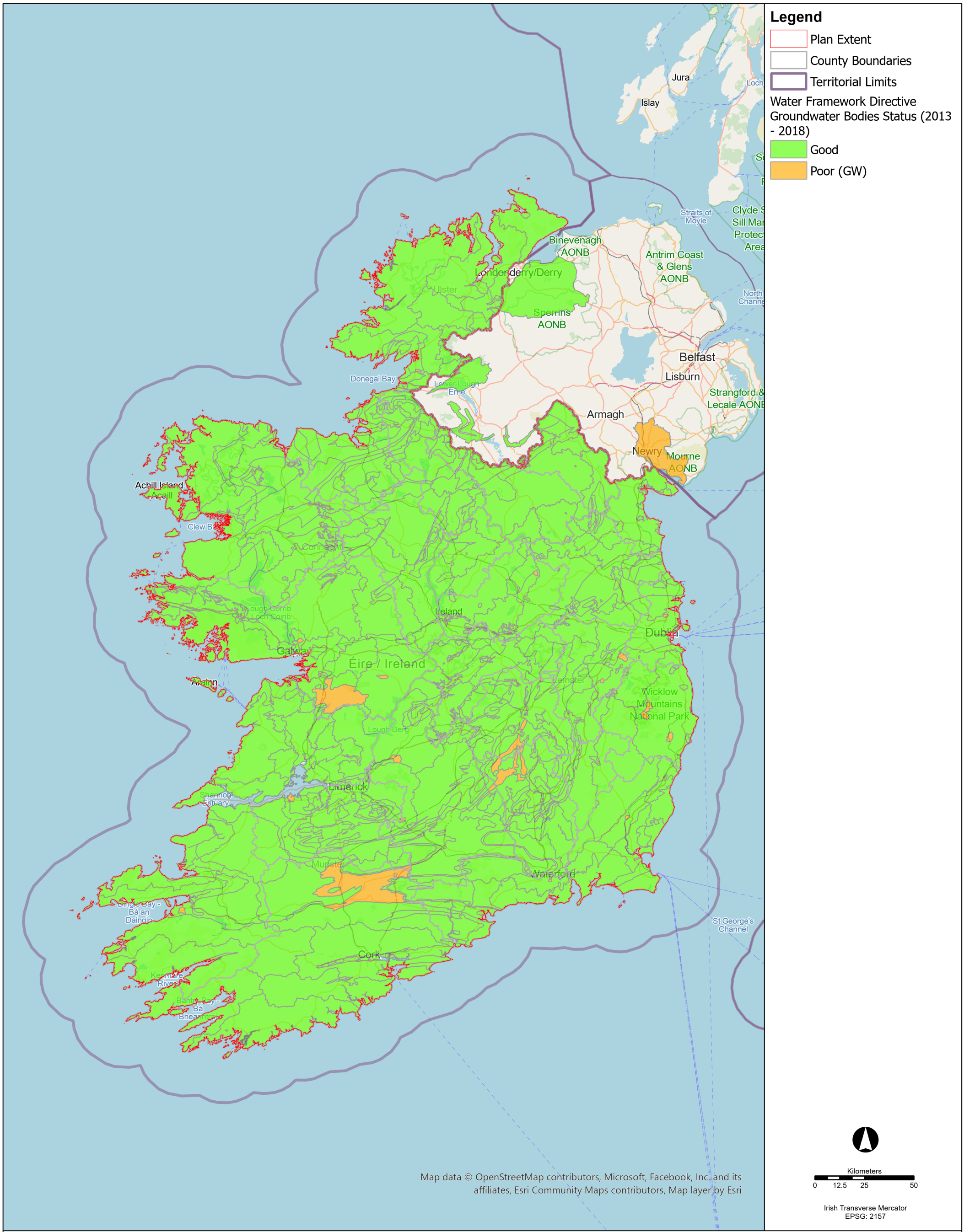
Date
July 2023

Drawing Title
Groundwater Vulnerability

Drawing Status

Figure No.
Fig A16

Project Number
294083-00



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COILLTE: DEVELOPMENT OF FOREST ESTATE STRATEGIC LAND USE PLAN

Scale
1:1,750,000

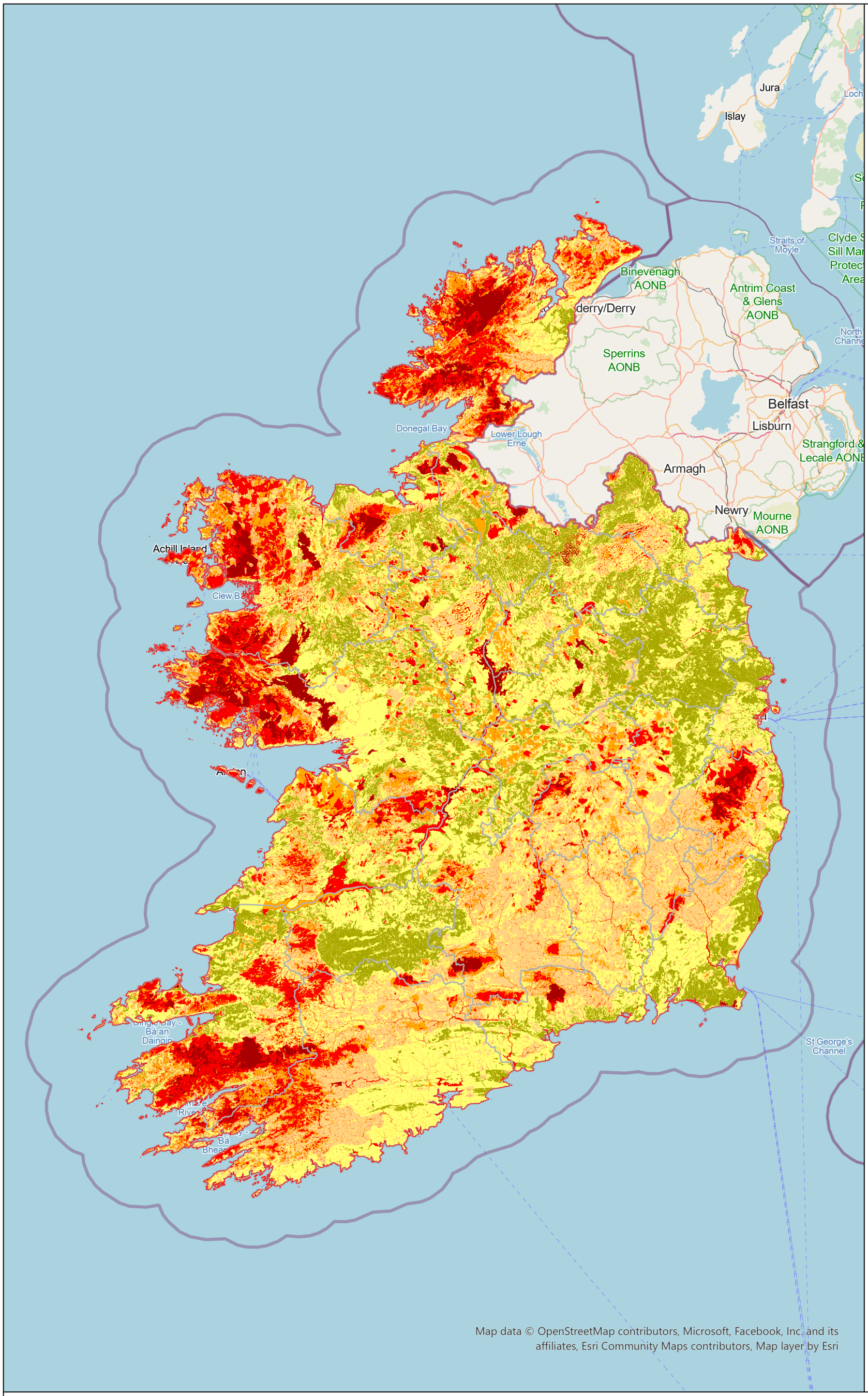
Date
July 2023

Drawing Title
WFD Groundwater Body Quality Status

Drawing Status

Figure No.
Fig A17

Project Number
294083-00



Legend

- Plan Extent
- County Boundaries
- Territorial Limits

Environmental Sensitivity Rating

- No sensitivity
- Low-sensitivity areas
- Moderate-sensitivity areas
- Elevated-sensitivity areas
- High-sensitivity areas
- Extreme-sensitivity areas
- Acute-sensitivity areas

Kilometers
0 12.5 25 50

Irish Transverse Mercator
EPSG: 2157

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Project Title
COILLTE: DEVELOPMENT OF FOREST ESTATE STRATEGIC LAND USE PLAN

Scale
1:1,750,000

Date
July 2023

Drawing Title
Environmental Sensitivity Map

Drawing Status

Figure No.
Fig A18

Project Number
294083-00

A.2 Relationship with Other Relevant Plans, Programmes, Policy, or Legislation

Plan, Programme, Policy or Legislation	Plan, Programme, Policy or Legislation Objectives	Relevance of Plan, Programme, Policy, or Legislation the FESLUP
Forestry and Agriculture		
Ireland's Forest Strategy 2023-2030	Ireland's National Forest Strategy aims to make the Department of Agriculture, Food and the Marine's ambitious Shared National Vision a reality. It is a Vision for meaningful change and the Strategy is designed to provide an overarching framework to identify the actions needed to implement that change over the period of 2023 to 2050. These actions are described in the associated Implementation Plan for the Forest Strategy.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Ireland's Forest Strategy Implementation Plan 2023-2027	Ireland's Forest Strategy Implementation Plan established by DAFM sets out how Ireland's ambitions to expand its forests and to increase its role in helping address the climate and biodiversity objectives at both National and EU level can be realised. The Implementation Plan acts as an enabler for the overarching National Forest Strategy through its detailed Forestry Programme and Annex of Actions.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
EU Forest Strategy 2021-2030	The EU Forest Strategy presents a concrete plan for 2030, combining regulatory, financial and voluntary measures. It includes measures for strengthening forest protection and restoration, enhancing sustainable forest management, and improving the monitoring and effective decentralised planning on forests in the EU with a view to ensuring resilient forest ecosystems and enabling forests to deliver on their multifunctional role. To further support sustainable forest-based bioeconomy for a climate neutral future, the strategy proposes measures for innovation and promotion of new materials and products to replace fossil-based counterparts as well as for boosting the non-wood forest economy, including ecotourism. The Strategy also focuses on sustainable re- and afforestation and is accompanied by a roadmap for planting at least 3 billion additional trees in the EU by 2030.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
EU Deforestation Law	The EU Deforestation Law aims to fight climate change and biodiversity loss, the new law obliges companies to ensure products sold in the EU have not led to deforestation and forest degradation. No country or commodity will be banned by the Law, however, companies will only be allowed to sell products in the EU if the supplier of the product has issued a "due diligence" statement confirming that the product does not come from deforested land or has led to forest degradation, including of irreplaceable primary forests, after 31 December 2020. As requested by Parliament, companies will also have to verify that these products comply with relevant legislation of the country of production, including on human rights, and that the rights of affected indigenous people have been respected.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.

Plan, Programme, Policy or Legislation	Plan, Programme, Policy or Legislation Objectives	Relevance of Plan, Programme, Policy, or Legislation the FESLUP
Forest Reproductive Material Directive	The aim of the Forest Reproductive Material Directive is to ensure that forest reproductive material, which is marketed, is from approved suitable sources and is clearly labelled and identified throughout the entire process from tree seed collection to processing, storage, forest nursery production and delivery to the final forest user.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
EU Common Agricultural Policy	To improve agricultural productivity, so that consumers have a stable supply of affordable food; and to ensure that EU farmers can make a reasonable living. The DAFM recently held a series of public information sessions relating to Ireland's draft CAP Strategic Plan (CSP) for the period 2023-2027. The information sessions took place over the month of March where negotiations are currently underway for CAP updates for the period 2023-2027.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Land Use and Forestry Regulation for 2021-2030	The EC adopted a series of legislative proposals setting out how it intends to achieve climate neutrality in the EU by 2050, including the intermediate target of an at least 55% net reduction in greenhouse gas emissions by 2030. The LULUCF Regulation implements the agreement between EU leaders in October 2014 that all sectors should contribute to the EU's 2030 emission reduction target, including the land use sector. It is also in line with the Paris Agreement, which points to the critical role of the land use sector in reaching our long-term climate mitigation objectives.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Land Use and Planning		
EPA Land Use Review - The Land Use Evidence Review	Aims to address land use challenges and inform consideration of policy responses, this review is being carried out in two distinct phases: Phase 1 – Evidential Review Phase 1 of the Land Use Review, was led by EPA. Phase 1 aims to provide an evidence base to determine an appropriate land use indicator set for Ireland, as well as determining the environmental, ecological, and economic characteristics of land types across Ireland. Phase 1 of the Evidence Review activity is completed and was published in March 2023. Phase 2 – Building on the evidence base from Phase 1, Phase 2 will identify appropriate policies, measures and actions in the context of the government's wider economic, social and climate objectives. It is anticipated that such a review will allow knowledge transfer to policymakers, advisory services, and landowners in making informed choices as to how best to use land. The Department of Environment, Climate and Communications (DECC) and DAFM had prepared a concept paper for the National Land Use Evidence Review and identified policy relevant questions and policy support outputs desired from the EPA led Phase 1 Evidence Review stage. These specifics were key to informing the agile work programme devised by EPA.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Ireland 2040 - Our Plan, the National Planning Framework and the National Development Plan (2018-2027)	The National Planning Framework is the Government's high-level strategic plan for shaping the future growth and development of to the year 2040. It is a framework to guide public and private investment, to create and promote opportunities for people, and to protect and enhance the environment - from villages to cities, and everything around and in between. The National Development Plan sets out the investment priorities that will underpin the successful implementation of the new National Planning Framework.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.

Plan, Programme, Policy or Legislation	Plan, Programme, Policy or Legislation Objectives	Relevance of Plan, Programme, Policy, or Legislation the FESLUP
	This will guide national, regional and local planning and investment decisions in Ireland over the next two decades, to cater for an expected population increase of over 1 million people.	
Planning, Land Use and Transport Outlook 2040 (in preparation)	The Planning, Land Use and Transport Outlook will take account of forecasted future economic and demographic scenarios, affordability considerations and relevant Government policies and will: • Quantify in broad terms the appropriate scale of financial investment in land transport over the long term; • Consider how fiscal, environmental and technological developments might impact on this investment; and, • Identify strategic priorities for future investment to ensure land transport infrastructure provision facilitates the objectives of Project Ireland 2040.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
National Landscape Strategy for Ireland 2015-2025	The National Landscape Strategy will be used to ensure compliance with the European Landscape Convention and to establish principles for protecting and enhancing the landscape while positively managing its change. It will provide a high-level policy framework to achieve balance between the protection, management and planning of the landscape by way of supporting actions. Landscape Strategy Vision: "Our landscape reflects and embodies our cultural values and our shared natural heritage and contributes to the well-being of our society, environment and economy. We have an obligation to ourselves and to future generations to promote its sustainable protection, management and planning."	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
National Rural Development Programme 2014 – 2022	The National Rural Development Programme, prepared by the Department of Agriculture, Fisheries and Food, sets out a national programme based on the EU framework for rural development and prioritises improving the competitiveness of agriculture, improving the environment, and improving the quality of life in rural areas.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Our Rural Future: Rural Development Policy 2021-2025	'Our Rural Future' provides a framework for the development of rural Ireland over the next five years. The Framework acknowledges that the country is heading into an era of unprecedented change as we recover from the impact of COVID-19, as we adapt to new ways of working, as the impact of Brexit presents itself and as we transition to a climate-neutral society. This change is considered a significant opportunity for rural areas.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Realising our Rural Potential: The Action Plan for Rural Development 2017	The Plan aims to unlock the potential of rural Ireland through a framework of supports at national and local level which will ensure that people who live in rural areas have increased opportunities for employment locally, and access to public services and social networks that support a high quality of life.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Regional Economic and Spatial Strategies 2019-2031	Regional Spatial and Economic Strategies provide a long-term strategic planning and economic framework for the Regions in order to support the implementation of the National Planning Framework.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.

Plan, Programme, Policy or Legislation	Plan, Programme, Policy or Legislation Objectives	Relevance of Plan, Programme, Policy, or Legislation the FESLUP
EU Green Infrastructure Strategy	Aims to create a robust enabling framework in order to promote and facilitate Green Infrastructure (GI) projects.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Local Authority County Development Plans (CDP)	County Development Plans are used across Ireland as the main instrument used to regulate and control development in each County. The Plan states the authority's policies for land use and for development control and promotion in its area. The authority, in making decisions on planning applications, must consider the provisions of the Plan, and try to secure its objectives.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Proposal for EU Soil Health Law (Soil Monitoring Law)	This proposal puts in place a solid and coherent soil monitoring framework for all soils across the EU, which will address the current gap of knowledge on soils. It should be an integrated monitoring system based on EU level, Member State and private data. This data will be based on a common definition of what constitutes a healthy soil and will underpin the sustainable management of soils, to maintain or enhance soil health, and thus to achieve healthy and resilient soils everywhere across the EU by 2050.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
The Marine (Northern Ireland) Act 2013	This Act establishes a strategic system of marine planning in Northern Ireland's inshore region (as defined), provides in part for a modernised licensing and enforcement regime and promotes the United Kingdom's aim of establishing an "ecologically coherent network of Marine Protected Areas", so that marine biodiversity is protected, and international and European commitments are met.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Archaeological and Cultural Heritage		
UNESCO (1972) The Convention for the Protection of the World Cultural and Natural Heritage	Links concepts of nature conservation and the preservation of cultural properties; and recognises the way in which people interact with nature, and the fundamental need to preserve the balance between the two.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Convention for the Protection of the Archaeological Heritage of Europe (revised) (Valletta, 1992)	The European Convention for the Protection of the Archaeological Heritage (revised) replaced and updated the original London Convention of 1969. The revised Convention drew on twenty-two years of experience in implementing the original Convention. It established a body of new basic legal standards for Europe, to be met by national policies for the protection of archaeological assets as sources of scientific and documentary evidence, in line with the principles of integrated conservation.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Convention of the Protection of the Architectural Heritage of Europe (Granada 1995)	The main purpose of the Convention is to reinforce and promote policies for the conservation and enhancement of Europe's heritage. It also affirms the need for European solidarity with regard to heritage conservation and is designed to foster practical co-operation among the Parties. It establishes the principles of "European co-ordination of conservation policies" including consultations regarding the thrust of the policies to be implemented.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Heritage Ireland 2030: A framework for Heritage, (Dept. of Housing, Local Government and Heritage, 2022)	Heritage Ireland 2030 is built around a vision of Ireland's heritage - in all forms - being at very centre of local and national discourse, valued by all and cared for and protected for future generations. Heritage Ireland 2030 suggests a series of structures under which all stakeholders can come together to advance the	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the

Plan, Programme, Policy or Legislation	Plan, Programme, Policy or Legislation Objectives	Relevance of Plan, Programme, Policy, or Legislation the FESLUP
	protection of Ireland's heritage through over 150 actions. Action 75 states "*Work with custodians of heritage in protecting the heritage in their care*"	regulatory framework for environmental protection and management.
Climate and Air Quality		
Paris climate conference (COP21) 2015 (Paris Agreement)	At the Paris climate conference (COP21) in December 2015, 195 countries adopted the first-ever universal, legally binding global climate deal. The agreement sets out a global action plan to put the world on track to avoid dangerous climate change by limiting global warming to well below 2°C.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
EU 2030 Framework for Climate and Energy	A 2030 Framework for climate and energy, including EU-wide targets and policy objectives for the period between 2020 and 2030 that has been agreed by European countries. Targets include a 40% cut in greenhouse gas emissions compared to 1990 levels, at least a 27% share of renewable energy consumption and at least 27% energy savings compared with the business-as-usual scenario.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
European Green Deal (EGD) 2020	The deal sets out how to make Europe the first climate-neutral continent by 2050, boosting the economy, improving people's quality of life, caring for nature and leaving no one behind.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
EU (2018) Clean Air Policy Package	Aims to substantially reduce air pollution across the EU.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Clean Air Strategy for Ireland	The Clean Air Strategy will provide the strategic policy framework necessary to identify and promote integrated measures across government policy that are required to reduce air pollution and promote cleaner air while delivering on wider national objectives.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
National Energy & Climate Plan (NECP) 2021 – 2030	Ireland's National Energy & Climate Plan (NECP) 2021-2030 takes into account energy and climate policies developed up to 2019, the levels of demographic and economic growth identified in the National Planning Framework - Project 2040 and includes all of the climate and energy measures as set out in the National Development Plan 2018- 2027.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
National Air Pollution Control Programme (DCCAE, 2019)	The National Air Pollution Control Programme (NAPCP) is the main governance instrument by which EU Member States must ensure that the emission reduction commitments for 2020-2029 and 2030 onwards are met. The first NAPCPs were due by 1 April 2019. This was the first iteration of the NAPCP report for Ireland, which comes under Article 6(10) of Directive (EU) 2016/22841. The NAPCP reports on both air quality and air pollution emissions of NO_x, SO_x, NMVOC, NH_3, and PM2.5. The NAPCP is to be submitted every fourth year.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Ag Climatise: A Roadmap Towards	This document is a roadmap designed to help all stakeholders to work together to tackle climate change and air pollution, by clearly explaining what we need to do and when we need	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and

Plan, Programme, Policy or Legislation	Plan, Programme, Policy or Legislation Objectives	Relevance of Plan, Programme, Policy, or Legislation the FESLUP
Climate Neutrality 2020-2050	to do it. By collectively pooling expertise and energy we can determine how best to do it, ensuring our sector remains at the forefront of globally sustainable food production systems.	cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Draft Renewable Electricity Development Framework (DCCAE) 2016	The goal of this framework is to optimise the opportunities in Ireland for renewable electricity development on land at significant scale, to serve both the All Island Single Electricity Market and any future regional market within the European Union, in accordance with European and Irish law, including Directive 2009/28/EC: On the promotion of the use of energy from renewable resources.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Climate Action Plan 2023	The Climate Action Plan 2023 (CAP 2023) is the second annual update to Ireland's Climate Action Plan 2019. This Plan is the first to be prepared under the Climate Action and Low Carbon Development (Amendment) Act 2021, and following the introduction, in 2022, of economy-wide carbon budgets and sectoral emissions ceilings. The CAP 2023 implements the carbon budgets and sectoral emissions ceilings and sets out a roadmap for taking decisive action to halve our emissions by 2030 and reach net zero no later than 2050, as committed to in the Programme for Government. The CAP 2023 also 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.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
National Adaptation Framework (NAF) 2018 and associated regional, local and sectoral adaptation plans	NAF specifies the national strategy for the application of adaptation measures in different sectors and by local authorities in their administrative areas in order to reduce the vulnerability of the State to the negative effects of climate change and to avail of any positive effects that may occur.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Renewable Energy Directive	The Renewable Energy Directive (RED) is the legal framework for the development of renewable energy across all sectors of the EU economy, supporting clean energy cooperation across EU countries. The Directive (2009/28/EC) was revised and entered into force in 2018, given the need to speed up the EU clean energy transition. It has been legally binding since June 2021. The RED sets the overarching European renewable energy target of 32% and includes rules to ensure the uptake of renewables in the transport sector and in heating and cooling, as well as rules for renewables support schemes, the rights to produce and consume renewable energy, to establish renewable energy communities, and sustainability criteria for biomass. The RED also establishes rules to remove barriers, stimulate investments and drive cost reductions in renewable energy technologies, and empowers citizens, consumers and businesses to participate in the clean energy transformation.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Proposal for EU Carbon Removals Certification Framework	The proposal will boost innovative carbon removal technologies and sustainable carbon farming solutions, and contribute to the EU's climate, environmental and zero-pollution goals. The proposed regulation will significantly improve the EU's capacity to quantify, monitor and verify carbon removals. Higher transparency will ensure trust from stakeholders and industry, and prevent greenwashing. Carbon removals can and must bring clear benefits for the climate,	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.

Plan, Programme, Policy or Legislation	Plan, Programme, Policy or Legislation Objectives	Relevance of Plan, Programme, Policy, or Legislation the FESLUP
	and the Commission will prioritise those carbon removal activities which will provide significant benefits for biodiversity.	
Water		
National Water Resources Plan (NWRP)	The NWRP is a plan on how to provide a safe, secure and reliable water supply to customers for the next 25 years, without causing adverse impact on the environment. The objective of the NWRP is to set out how we intend to maintain the supply and demand for drinking water over the short, medium and long term whilst minimising the impact on the environment.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Irish Water's Water Services Strategic Plan 2015 and associated Proposed Capital Investment Plan (2014-2016)	This Water Services Strategic Plan sets out strategic objectives for the delivery of water services over the next 25 years up to 2040. It details current and future challenges which affect the provision of water services and identifies the priorities to be tackled in the short and medium term.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Third Cycle Draft River Basin Management Plan 2022-2027	The River Basin Management Plan sets out the measures planned to maintain and improve the status of waters.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Flood Risk Management Plans arising from National Catchment Flood Risk Assessment and Management Programme	The national Catchment Flood Risk Assessment and Management (CFRAM) programme commenced in Ireland in 2011 and is being overseen by the Office of Public Works. The CFRAM Programme is intended to deliver on core components of the National Flood Policy, adopted in 2004, and on the requirements of the EU Floods Directive.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
The Marine Strategy Framework Directive	The Marine Strategy Framework Directive was adopted by the EU in 2008 to maintain clean, healthy, productive and resilient marine ecosystems while securing a more sustainable use of marine resources. This Directive directly contributes to the ambition of the European Green Deal, namely the EU's Biodiversity Strategy for 2030 and the Zero Pollution action plan. The main goal of the Marine Directive is to achieve Good Environmental Status of EU marine waters by 2020.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
The Draft Marine Plan for Northern Ireland (2018)	The Marine and Coastal Access Act 2009 (MCAA) and the Marine Act (Northern Ireland) 2013 (The Marine Act), require the Department of Agriculture, Environment and Rural Affairs (DAERA) as the Marine Plan Authority (MPA), to prepare marine plans. The Marine Plan has been developed within the framework of the UK Marine Policy Statement (UK MPS). This will facilitate the sustainable development of the marine area.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Biodiversity		
The draft 4th National Biodiversity Action Plan	The (draft) goal of the next National Biodiversity Action Plan (NBAP) is that biodiversity is effectively conserved and restored, and the causes and key drivers of the biodiversity crisis are recognised and addressed. There are six objectives in the current draft NBAP: • Fostering a whole-of-government, whole-of-society approach; • Meeting urgent conservation needs; • Securing nature's contribution to people;	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.

Plan, Programme, Policy or Legislation	Plan, Programme, Policy or Legislation Objectives	Relevance of Plan, Programme, Policy, or Legislation the FESLUP
	• Linking biodiversity and climate action; • Enhancing the evidence basis for action; and • Strengthening partnerships for people and planet.	
Threat Response Plans	New Threat Response Plans (TRP) are being prepared by the National Parks and Wildlife Services (NPWS) as part of Ireland's response to the judgement of the European Court of Justice in case C-183/05, and the requirement to establish a system of strict protection for species listed in Annex IV of the Habitats Directive. These three-year plans provide detailed information on range, distribution and habitat. They also focus on the particular threats facing each species and identify the measures required to address these threats, as well as identifying who is responsible for implementing them and providing a time frame for delivery. Forestry, agriculture and energy are the 3 relevant sectors for implementing the Threat Response Plans. The provisional publication date is Spring 2023 for the TRPs.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Species Action Plans (SAPs)	The Species Action Plans (SAPs) are intended to be used as a tool for identifying and prioritising measures to restore the populations of these species across their range within the EU. They provide information about the status, ecology, threats and current conservation measures for each species and list the key actions that are required to improve their conservation status in Europe. Each Plan is the result of an extensive process of consultation with individual experts in Europe. The Plans are intended to assist Member States in the conservation of these species but they not legally binding documents, nor do they engage the Member States beyond their existing legal commitments under this Directive. Consultation has recently been completed for the Lesser Horseshoe Bat SAP. The SAP was published last year and Coillte are listed as a key stakeholder with assigned actions, whilst also sitting on the SAPs Working Group.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
All Ireland Pollinator Plan 2021-2025	The All-Ireland Pollinator Plan aims to tackle the issue of Irish pollinators being in decline and ensure the sustainability of our food production; to avoid additional economic impact on the agricultural sector; and to protect the health of the environment. The All-Ireland Pollinator Plan is a shared plan of action. By working together, it aims to collectively take steps to help restore pollinator populations to healthy levels. Over the next five years, this Plan will work to bring about a landscape where pollinators can flourish.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats)	The convention has three main aims: • To conserve wild flora and fauna and their natural habitats; • To promote cooperation between states; and • To give particular attention to endangered and vulnerable species including endangered and vulnerable migratory species	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Convention on Biological Diversity (1992)	The convention was signed by 150 government leaders at the 1992 Rio Earth Summit and is dedicated to promoting sustainable development. The convention recognises that biological diversity is about more than plants, animals and micro-organisms and their ecosystems, it is about people and our need for food security, medicines, fresh air and water, shelter, and a clean and healthy environment in which to live.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.

Plan, Programme, Policy or Legislation	Plan, Programme, Policy or Legislation Objectives	Relevance of Plan, Programme, Policy, or Legislation the FESLUP
The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) (1983)	The Bonn Convention aims to conserve terrestrial, marine and avian migratory species throughout their range. It is one of a small number of intergovernmental treaties concerned with the conservation of wildlife and wildlife habitats on a global scale. The convention was brought into force on 1 November 1983.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
UNEP/ EUROBATS (Agreement on the Conservation of Populations of European Bats)	The Agreement on the Conservation of Populations of European Bats came into force in 1994. The Bat Agreement aims to protect all 51 European bat species through legislation, education, conservation measures and international co-operation with Agreement members and with those who have not yet joined. The Agreement provides a framework of co-operation for the conservation of bats across Europe, Northern Africa and the Middle East. In 1995, the First Session of the Meeting of Parties to the Agreement formed an Action Plan, which was to be translated into international action. An Advisory Committee was then established to carry forward this Plan between the Meetings of Parties. The EUROBATS Secretariat was established by the First Session of the Meeting of Parties in 1995. It started working in Bonn, Germany in 1996 and is co-located with the Secretariat of the Bonn Convention and other environment and development-related United Nations institutions at the UN Campus in Bonn. Its particular functions are to: • *'exchange information and co-ordinate international research and monitoring initiatives;* • *arrange the Meetings of the Parties and the Advisory and Standing Committee meetings;* • *stimulate proposals for improving the effectiveness of the Agreement, and attract more countries to participate in and join the Agreement;* • *stimulate public awareness of the threats to European bat species and what can be done at all levels to prevent their numbers dwindling further'.*	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
EU (2030) Biodiversity Strategy	A long-term plan for protecting nature and reversing the degradation of ecosystems across the European Union.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
National Peatlands Strategy (2015-2025)	This Strategy aims to provide a long-term framework within which all of the peatlands within the State can be managed responsibly in order to optimise their social, environmental and economic contribution to the well-being of this and future generations.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
UN (1992) The Convention on Biological Diversity	An overall objective is to develop national strategies for the conservation and sustainable use of biological diversity.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the

Plan, Programme, Policy or Legislation	Plan, Programme, Policy or Legislation Objectives	Relevance of Plan, Programme, Policy, or Legislation the FESLUP
		achievement of the objectives of the regulatory framework for environmental protection and management.
Nature Restoration Law (2023)	Agreement has been reached on a proposal for the EU Nature Restoration Law in June 2023. The Commission proposes to restore at least 20% of the EU's land and sea areas by 2030 and repair all ecosystems in need of restoration by 2050. This is the first European-wide law to set legally binding targets to restore nature. It aims to reverse the biodiversity and climate crises by placing the EU's degraded nature on a path to recovery. The proposal is the first major EU biodiversity law since the Habitats Directive in 1992 and follows the commitments made by the EC in the EU Biodiversity Strategy for 2030 which calls for the recovery of high-quality and resilient ecosystems in the EU.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
EU Habitats Directive (1992)	This Directive aims to protect over a thousand species, including mammals, reptiles, amphibians, fish invertebrates, and plants, and 230 characteristic habitat types. The overall objective of the Habitats Directive is to ensure that these species and habitat types are maintained, or restored, to a favourable conservation status within the EU. In addition to halting the further decline or disappearance of these species and habitats, the Directive aims to allow them to recover and thrive over the long-term.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
EU Birds Directive (1979)	This Directive aims to protect all naturally occurring wild bird species present in the EU along with their most important habitats. In addition to halting the decline or disappearance of bird species, the Directive aims to allow bird species to recover and thrive over the long-term. To achieve these aims, EU countries are required to take any necessary measures to maintain or restore bird populations.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Economy and Transport		
Tourism Policy Statement: People, Place and Policy – Growing Tourism to 2025	The main goal of this policy statement is to have a vibrant, attractive tourism sector that makes a significant contribution to employment across the country; is economically, socially and environmentally sustainable; helps promote a positive image of Ireland overseas and is a sector in which people want to work.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Integrated Implementation Plan 2019-2024	The Dublin Transport Authority Act 2008 required the National Transport Authority, following the approval of a transport strategy for the region by the Minister for Transport, Tourism and Sport, to prepare an Integrated Implementation Plan covering a six year period. The Transport Strategy for the Greater Dublin Area 2016-2035, was approved in February 2016. The preparation of this Integrated Implementation Plan was aligned with the Governments review of capital spending which commenced in 2016 and culminated with the publication of the National Development Plan 2018-2027 in February 2018. The Transport Strategy for the Greater Dublin Area 2016-2035, establishes an overall framework for transport investment over the next two decades and was subject to full SEA and Stage 2 AA. It is focused on improving public and sustainable transport.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Fáilte Ireland Tourism Plans, Strategies	Fáilte Ireland's work includes preparing various Plans and Strategies for Ireland's Ancient East and other brands and	Implementation of the FESLUP will comply with all relevant environmental

Plan, Programme, Policy or Legislation	Plan, Programme, Policy or Legislation Objectives	Relevance of Plan, Programme, Policy, or Legislation the FESLUP
	initiatives. These Plans are subject to their own environmental assessment processes and any project arising is required to be consistent with and conform with the provisions of all adopted/approved Statutory Policies, Strategies, Plans and Programmes, including provisions for the protection and management of the environment.	legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Food Wise 2025	Food Wise 2025 a roadmap for the Irish food industry, as it seeks to innovate and expand in response to increased global demand for quality foods. It sets out a vision for the potential growth in agricultural output after the removal of milk quotas.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Food Vision 2030	Food Vision 2030 is a roadmap for the Irish food industry. It sets out four high-level missions to fulfil this ambition: • A climate-smart, environmentally sustainable agri-food sector. • Viable and resilient primary producers, with enhanced wellbeing. • Food that is safe, nutritious and appealing, trusted and valued at home and abroad. • An innovative, competitive and resilient sector, driven by technology and talent.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
European 2020 Strategy for Growth	Europe 2020 sets out a vision of Europe’s social market economy for the 21st century and puts forward three mutually reinforcing priorities: • Smart growth: developing an economy based on knowledge and innovation. • Sustainable growth: promoting a more resource efficient, greener and more competitive economy. • Inclusive growth: fostering a high-employment economy delivering social and territorial cohesion.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
EU Taxonomy Regulation (2020)	The EU Taxonomy Regulation (Regulation (EU) 2020/852) was proposed as part of the European Commission’s earlier Action Plan on ‘Financing Sustainable Growth’ of March 2018, launching an ambitious and comprehensive strategy for sustainable finance with the aim of redirecting capital flows to help generate sustainable and inclusive growth. The Taxonomy Regulation is an important enabler for scaling up sustainable investment and therefore, implementing the European Green Deal as part of the EU’s response to the climate and environmental challenges. The Taxonomy Regulation provides uniform criteria for companies and investors on economic activities that can be considered environmentally sustainable, for example, making a substantial contribution to EU environmental objectives such as climate change mitigation, while doing no significant harm to other environmental objectives. This this regulation aims to increase transparency and consistency in the classification of such activities and limit the risk of greenwashing and fragmentation in relevant markets.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
Waste		
Ireland’s National Waste Policy 2020 – 2025	The Policy sets out new targets to tackle waste and move towards a circular economy. To maximise the collection of hazardous waste with a view to reducing the environmental and health impacts of any unregulated waste. To strive for increased self-sufficiency in the management of hazardous waste and to minimise hazardous waste export.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.

Plan, Programme, Policy or Legislation	Plan, Programme, Policy or Legislation Objectives	Relevance of Plan, Programme, Policy, or Legislation the FESLUP
	To minimise the environmental, health, social and economic impacts of hazardous waste generation and management.	
Whole of Government Circular Economy Strategy 2022-2023	The Strategy aims to provide a national policy framework for Ireland's transition to a circular economy and to promote public sector leadership in adopting circular policies and practices. To support and implement measures that significantly reduce Ireland's circularity gap, in both absolute terms and in comparison, with other EU Member States, so that Ireland's rate is above the EU average by 2030; such measures to address facets of sustainable production and consumption most impactful in an Irish context. To raise awareness amongst households, business and individuals about the circular economy and how it can improve their lives. To support and promote increased investment in the circular economy in Ireland, with a view to delivering sustainable, regionally balanced economic growth and employment; and To identify and address the economic, regulatory and social barriers to Ireland's transition to a more circular economy.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.
General		
UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention)	The Aarhus Convention originates in the 1992 Rio Declaration, specifically Principle 10 on the Environment. Principle 10 sets out three fundamental rights: access to information, access to public participation and access to justice, as key pillars of sound environmental governance. Ireland ratified the Aarhus Convention in June 2012.	Implementation of the FESLUP will comply with all relevant environmental legislation and will align with, and cumulatively contribute towards the achievement of the objectives of the regulatory framework for environmental protection and management.

A.3 Scoping Responses received from Statutory Consultees

Consultee/ Stakeholder	SEA Scoping Response	SEA Actions
Scoping Workshop with Consultees	• The interrelationships between environmental components have been included in the SEA Environmental Report.	This comment has been updated, refer to Section 8.4.
	• Environmental sensitivity mapping has been updated to reflect comments made by Statutory Consultees during the Scoping workshop.	All environmental sensitivity weightings have been reviewed and updated in so far as possible, on the back of responses received during the Workshop. All weighting updates have since been utilised to inform the environmental sensitivity mapping included in Appendix A.1 of the ER.
	• Schematic has been included in the ER to detail the relationship of Coillte's Plan and other forestry related Plans.	Updated to include, refer to Section 3.
Environmental Protection Agency (EPA)	• Cover letter highlighted some key environmental issues relating to forestry and also the SEA process, including: • Water Quality- Forestry is the third most significant pressure impacting on water quality in Ireland and there has been little net change in the relative scale of its impacts since the previous national water quality assessment. Forestry operations, particularly in legacy sites, continue to impact on water quality. Sediment losses from forestry operations in upland catchments is the most significant pressure impacting on our high-status waters. The potential impacts from forestry should also address the impacts of herbicides and pesticides on both water quality and biodiversity. Cypermethrin is one such plant-protection product and is included in the EU Priority Substances list. It is highly toxic to aquatic life, particularly to some invertebrates such as insects and crustaceans. • Emissions: The forestry sector is projected to become a net source of carbon emissions in the near future. Current low afforestation rates (~2,000 ha) are well below the planned 8,000 ha foreseen annually. This, combined with increased timber harvest, will lead to further reductions in the ability of our national forests to contribute to CO_2 emissions removals going forward. Recognising that the forestry sector is not the only CO_2 sink in Ireland, it plays an important role as a source of CO_2 removal from the atmosphere. However, there has been a noticeable reduction in the absolute value of this sink / removal activity due to the current age profile of our national forest stock.	The Key Environmental issues listed have been taken into account as part of baseline environment description, as appropriate and integrated into the environmental assessment outcome, as appropriate.
	We recommend including schematics in the Programme and SEA Environmental Report, showing the links and key inter-relationships with other key relevant national, regional, sectoral and environmental Plans, e.g., River Basin Management Plans, Agri-Food Strategy to 2030, CAP Strategic Plan 2023-2027, Ireland's Forest Strategy 2022-2030 and Ireland's Forest Strategy Implementation Plan.	This comment is welcomed, and a schematic has been included in Section 3 of this report.
	Collaborating with other key stakeholders (government departments and state agencies) will be important to align the FESLUP with national level environmental commitments set out in the National Planning Framework, Climate Action Plan, River Basin Management Plan, CAP Strategic Plan, other relevant forest Plans/Strategies etc.	This comment is welcomed. For the consideration of Coillte.

Consultee/ Stakeholder	SEA Scoping Response	SEA Actions
	Consider including a commitment to also support and resource awareness raising and training of the relevant stakeholders to implement the relevant guidelines and policies. Coillte should ensure that the available guidance and protocols are implemented in full within the forest sector to mitigate against forestry activities having an impact on water quality.	This comment is welcomed. For the consideration of Coillte.
	All recommendations from the SEA, including mitigation measures, should be integrated into the FESLUP. The SEA Environmental Report should include a chapter outlining how the recommendations and mitigation measures from the SEA have been incorporated into the FESLUP. We recommend that the SEA Environmental Report includes relevant summary tables outlining the key findings of the SEA and linking the significant environmental effects identified to the proposed mitigation measures, monitoring measures and recommendations.	Recommendations and Mitigation Measures of SEA have been integrated into the Plan, in so far as possible. Key findings of the SEA and the linking of significant environmental effects identified to the proposed mitigation measures, monitoring measures and recommendations have been considered and included, as appropriate.
	In finalising the FESLUP and integrating the findings of the SEA into the FESLUP, the relevant recommendations, key issues and challenges described in the SOER2020 should be taken into account.	Recommendations and key issues described in the SOER2020 have been reviewed and considered in the SEA ER, as appropriate.
	It is recommended to include a section on Monitoring, Implementation and Reporting. Ideally these should align with the Plan reviews and existing cyclical reporting. Reviewing and providing information on the previous Plan is recommended. Progress-related implementation reports are recommended as appropriate and should be aligned with environmental monitoring required under SEA legislation. Monitoring should address positive, negative and cumulative effects when they occur and should provide ongoing review to allow early response to environmental issues. This report should state monitoring frequency, responsibilities and provisions for reporting. The same indicators should be used for Plan and SEA related monitoring. An environmental working subgroup is recommended for overseeing the approach to the monitoring and reporting elements. Other Plans monitoring approaches should be considered (Offshore Renewable Energy Development Plan (OREDP) and current arrangement for Food Vision 2030.	Section 9 of this ER contains information on Monitoring and Reporting and includes a detailed monitoring table which states monitoring frequency, responsibilities, and provisions for reporting in relation to the draft FESLUP. Monitoring, reporting and establishment of environmental working sub-group – for the consideration of Coillte.
	Carrying out an opportunity / constraints mapping exercise, as done for Plans such as the first Offshore Renewable Energy Development Plan, would be useful. This would help inform which broad land types or areas may be best suited to certain types or scales of development covered under the FESLUP. Such an exercise could be committed to as a specific action under FESLUP/ FESLUP Implementation Plan.	This comment is welcomed. For the consideration of Coillte
	It is suggested that a recommendation is included promoting the use of the new detailed EPA/Taillte Eireann land cover mapping information for lower-level Plans and associated environmental assessments that may arise out of implementation of the FESLUP.	This comment is welcomed.
	While the minimum consultation time is 4 weeks, given that the FESLUP is a national level Plan, we recommend that a consultation timeframe of 8-10 weeks is considered to provide for sufficient public engagement and consideration by the SEA statutory authorities.	For the consideration of Coillte.

Consultee/ Stakeholder	SEA Scoping Response	SEA Actions
	Providing for a longer consultation time, may also assist the Plan and SEA Teams consider any changes to EU Legislation, such as the proposed Nature Restoration Law, Renewable Energy Directive, Soils Strategy, review of the CAFÉ Directive that may arise. In order to ensure as effective an SEA process as possible, and to ensure meaningful public/stakeholder consultation and engagement, it is important that the timing of the statutory consultations is appropriate to ensure sufficient time to incorporate the information gleaned into the FESLUP.	
	The final stage of the SEA process relates to the publication of an SEA Statement when the FESLUP is adopted. This statement will include information on how submissions and observations and consultation feedback made to DAFM during the SEA process have been incorporated into the FESLUP.	The SEA statement, when published, will include information on how submissions, observations and consultation feedback made to Coillte during the SEA process have been incorporated into the draft FESLUP.
	EPA recommend including a schematic of the forestry planning hierarchy (including any proposed new Plans, that may arise out of the FESLUP). This will help inform the level and type of engagement with other stakeholders in their own sectoral planning and land management, as well as taking account of Plans such as the National River Basin Management Plan and related integrated catchment management Plans that will be prepared.	A schematic has since been included in Section 3 of this ER to make reference to this comment.
	It would also be useful to include an additional column in Table 3.1 to summarise the relevance of the plans and programmes listed to the FESLUP.	An additional column has been added Table 3.1 which is now in Appendix A.2 of the ER to states the relevance of each Plan to the draft FESLUP.
	High Status waters (rivers, lakes, groundwater) should be included as specific elements (with a rating of 10), reflecting their importance in terms of water quality and biodiversity, but also given that afforestation is a key pressure affecting high status water bodies nationally	All weightings have been reviewed and updated on the back of comments made during the statutory consultee period. High Status waters have since been included as specific elements (with a rating of 10), reflecting their importance in terms of water quality and biodiversity, also reflecting that afforestation is a key pressure affecting high status water bodies nationally. Updated environmental sensitivity mapping is included in Appendix A.1 of this report.
	In Table 5.1, there is also merit in describing why both “peat and river alluvium” are combined for a rating of 10. While peat, with its significance in terms of supports for climate mitigation and biodiversity is rated at 10, the reasoning behind including river alluvium and assigning it a value of 10 should be clarified. • While we note the rating of 5 for “Windfarms” but consider clarifying the status of these. Do they refer to existing wind energy developments or proposed new locations? • We also note that Discharge licenses assigned a value of 1, the reasoning for this should be clarified in the context of the FESLUP and associated assessment. • Salmonid waters are currently assigned value of 5. There may be merits in upgrading these to 10.	All weightings have been reviewed and updated on the back of comments made during the statutory consultee period. Peat and River Alluvium weightings have been separated and River Alluvium into their own categories in order to inform the environmental sensitivity mapping in this SEA ER. Peat has a weighting of 10 in the updated mapping.

Consultee/ Stakeholder	SEA Scoping Response	SEA Actions
	In the peatlands subsection (p42) the National Peatlands Strategy is attributed to the EPA, rather than the NPWS, while the footnote for the reference points to a report on land use and land cover.	This comment has been updated in the ER.
	In Section 4.5 - Water, reference could be made to the recently published Water Quality in 2022 - An Indicators Report (EPA, 2023).	Noted. Section 5.5 of this ER "Water" has been updated on the back of this comment.
	Regarding Section 4.8 - Landscape and visual aspects, the EPA will be publishing a guidance note on SEA and Landscape during Q3 2023. It may be useful to consider, once available, in preparing the Plan and associated SEA Environmental Report. Additionally, EPA is also involved in a research project – RELAVENT (Reframe Landscape Character Assessment), which is looking to prepare a toolkit to help landscape character assessments and is due to be completed in Q4 2023. It may also be worth considering in implementing the FESLUP.	Noted. This guidance note, once available, will be reviewed.
	Chapter 2 – The Draft FESLUP Targets and the objectives of the FESLUP should include the objective not to cause impact on the condition of our waters.	Objective relating to water quality included in Section 6 of this ER.
	It is recommended that potential developers (many of whom are EPA licensees) are engaged in the plan-making process and SEA process in relation to the FESLUP.	The draft FESLUP and draft SEA ER will go on public display as part of the public and statutory consultation period, at which time these stakeholders are welcomed to make submissions/observations on the draft FESLUP and draft SEA ER.
	Regarding the additional lands to be acquired for increased afforestation and renewable energy, it is important to develop and set out the environmental criteria for selection of these lands and where engagement with other sectoral stakeholders is required.	This comment is welcomed. For further consideration of Coillte
	Chapter 4 – Environmental Baseline and Key Environmental Issues In Figure A1, consider clarifying the Coillte forest estate boundary on this (and other relevant maps/drawings as appropriate. Consider also showing the areas of Coillte recreational areas on the relevant figures/drawings in this scoping report.	A map has since been included in Appendix A.1 of this ER displaying Coillte's forest estate boundary across the Plan area.
	Provide an additional map in the SEA Scoping Report associated with "Land Use Change", to identify areas for potential changes in land use over the lifetime of the Plan.	A map has been included in Appendix A.1 of this SEA ER displaying Corine Landcover Dataset across the Plan area.
	Describe whether scheme such as The Native Woodland Conservation Scheme and the Neighbour Wood Scheme will be maintained and expanded upon over the lifetime of the FESLUP.	For the consideration of Coillte.

Consultee/ Stakeholder	SEA Scoping Response	SEA Actions
	Take the Draft Forestry and Freshwater Pearl Mussel Plan (DAFM) into account and provide an update of the status of this plan and its relationship with the FESLUP.	The Draft Forestry and Freshwater Pearl Mussel Plan (DAFM) has been taken into account throughout the duration of this SEA process. Further, for the consideration of Coillte.
	We suggest that providing for greater monitoring of the key issues, challenges and potential impacts facing biodiversity.	Refer to the detailed Monitoring Table included in Section 9 of this ER
	SEA and Plan should take account of the latest GHG projections (including LULUCF) and should consider the change in emissions due the stand maturity.	Noted. The latest GHG projections (including LULUCF) have been included in Section 5.6.1 of this Report. Further, for the consideration of Coillte.
	The SEA should also take account of the impacts of ammonia deposition on trees, see IWM135.pdf (npws.ie) for further information.	Noted. Section 5.6.1.1 of this Report has been updated to reflect this comment.
	The Plan needs to address the issue of forestry activities on waterways and measure the trajectory towards full achievement of the Water Framework Directive objectives.	Refer to Section 6 of this ER, where Objectives, Targets and Indicators has been provided related to water and refer to Section 9 Mitigation and Monitoring which is also inclusive to the protection of water quality. Further for the consideration of Coillte.
	The potential impacts from forestry should also address the impacts of herbicides and pesticides on both water quality and biodiversity. In addition to monitoring for priority substances, substances of emerging concern are also included in the EPA WFD monitoring programme. These substances include those from the EU Surface Water Watch List.	The ER has since been updated to make reference to potential forestry related impacts and the impacts of herbicides and pesticides on both water quality and biodiversity, as appropriate. Refer to Section 9 Mitigation and Monitoring a section is provided for water resources.
	We recommend updating the greenhouse gas emission data to point to the most recent EPA data from April 2023. This is available at: https://www.epa.ie/our-services/monitoring--assessment/climate-change/ghg/latest-emissions-data/	Greenhouse gas emission data has been updated in this ER to reflect the most recent data (April 2023).
	Chapter 5 – Sensitivity Mapping Use river catchments/river water bodies instead to attribute sensitivity to river water status	River water bodies have been used to attribute sensitivity to river water status in this ER.
	Considering using additional sensitivity mapping tools, such as the Environmental Sensitivity Mapping to generate additional sensitivity mapping outputs and compare the outputs with those already generated.	Noted. All weightings have been reviewed and updated on the back of comments made during the statutory consultee period and Environmental Sensitivity Mapping was updated for this ER.
	Quantifying the percentages of total area currently within each of the sensitivity categories provided.	Noted.

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	Where it is envisaged that Measures proposed in the Plan will be implemented via strategies and plans, which themselves have been or may be subject to SEA, this should be explained in the SEA Environmental Report and taken into account in the assessment.	Noted- where further environmental assessment is envisaged, this has been explained in the SEA ER.
	Where specific Measures will be implemented directly, provide detail in the Environmental Report and FESLUP on the relevant environmental assessments to be carried out at lower-level planning (BAU strategic forestry plans) and project stages and relevant mitigation measures to be applied, as appropriate.	Refer to Section 9 on Mitigation and Monitoring. Both sections of the ER have been detailed to mitigate and monitor any impacts that have potential to occur as a result of the draft FESLUP, furthermore these sections make reference to some impacts being more adequately identified and mitigated at project and EIA level. All proposals for development will be required to have due regard to environmental considerations outlined in this SEA ER and associated AA Screening.
	Split Objectives into a smaller number of higher-level environmental protection objectives (EPOs) which seek to address the key environmental objectives, support by sub-objectives for more specific elements. EPOs should be more specific where possible	Noted. Higher-level environmental protection objectives (EPOs) have since been included in Table 6.1 of this ER. Objectives within have been updated on the back of this comment, as appropriate.
	Where possible monitoring indicators should take into account the potential impacts of the FESLUP and which monitoring indicators may be best placed to take these into account over the lifetime of the FESLUP.	These comments have been taking into consideration in this ER, as appropriate. The monitoring table in Section 9 has since been updated to include a likely significant effect column of the draft FESLUP in relation to each environmental component.
	In Table 6.1– Environmental Objectives, Targets and Targets, the indicators could benefit from: • Having a closer alignment between the respective targets that they measure • Taking account of changes in trends in environmental status • Review wording of targets and objectives	The Objectives, Indicators and Target Table in Section 6 of this report has been reviewed and updated, as appropriate. Table 6.1 has since been updated.
	Under the 'Biodiversity, flora and fauna' component, mention protected habitats and species related to areas of forestry, that are outside of designated areas.	Noted. Table 6.1 has since been updated as appropriate.
	Consider including an associated target and indicator for the Safeguard areas of prime agricultural land and designated geological sites objective.	Noted. Table 6.1 has since been updated as appropriate.
	For 'Air, Noise and Climatic Factors' criteria, consider including an indicator associated with human health to reflect the objective of "To avoid, prevent or reduce harmful effects on human health and the environment as a whole resulting from emissions to air from transport". Clarify if this objective relates to the transport of forestry products or the manufacture of wood based products from forestry.	Noted. The Objectives, Indicators and Target Table in Section 6 of this ER have been reviewed and updated accordingly in the Air, Noise and Climate Section.

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	One Air-related indicator could be "Wind energy developments will only be facilitated, at suitable locations, within the context of environmentally sustainable forest management within the national forest estate." Consideration should also be given to slope stability aspects of forest siting in relation to landslide risk. It is also worth clarifying whether the SEA needs to consider the likely impacts of wind energy related development, in terms of defining siting criteria or areas open to consideration, preferred areas, areas not considered for renewable energy developments etc	Noted. The Objectives, Indicators and Target Table in Section 6 of this ER have been reviewed and updated accordingly.
	Referred to EPA guidance "Developing and Assessing Alternatives in Strategic Environmental Assessment (SEA)." The SEA could also consider examining the different scenarios under which the alternatives support achievement of the national climate objective. The reasons for selecting the alternatives considered should include a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information. Include a summary of alternative considered and justification for selection of the preferred scenario. Review EPA Guidance Practice Guidance Note on Cumulative Effects Assessment in Strategic Environmental Assessment (EPA, 2020).	Refer to Section 7 Alternatives Assessment. EPA Guidance documents have been referred to throughout the Alternatives Assessment which has been incorporated into this SEA ER.
	Requirements of the SEA protocol under the ESPOO Convention should be taken into account, for any possible transboundary consultations with non-EU Member States.	Requirements of the SEA protocol under the ESPOO Convention have been taken into account, as appropriate.
	Consult with the relevant authorities under SEA Regulations	The relevant authorities have been consulted with as part of the SEA Scoping process, and the SEA ER will be put on public display alongside the draft FESLUP.
	Note in chapter 7 that the scoping for the SEA is dynamic and should continue to feed into the preparation of the SEA environmental report and Plan.	Scoping has fed into the preparation of the draft SEA ER and Plan. All scoping responses have been reviewed and incorporated into the SEA ER as appropriate.
	Publish a SEA Statement alongside the adopted Plan summarising the how environmental considerations have been integrated into the Plan, how the environmental report and consultation comments on it have been taken into account, the reasons for choosing the Plan as adopted, in the light of the other reasonable alternatives dealt with (in the Environmental Report and the associated consultation and the measures decided concerning monitoring.	An SEA Statement will be prepared following the finalisation of the FESLUP. The SEA Statement will summarise how environmental considerations have been integrated into the Plan, how the draft SEA ER and consultation comments on it have been taken into account and the reasons for choosing the Plan as adopted, in the light of the other reasonable alternatives dealt with
	Refer to EPA published Guidance.	EPA Guidance documents have been referred to and incorporated throughout the SEA ER.

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Department of the Environment, Climate and Communications (DECC)	Comments on plans, programmes and legislation already listed: • LULUCF Regulation – the LULUCF Regulation was revised in 2023 for the period up to 2030. • The Land use Review – Phase 1 is now complete and was published in March 2023. Phase 2 is now due for completion in Q1 2025 with an interim report to be published in Q4 2023. • Climate Action Plan 2023 – subsequent annual CAPs will also be relevant. Other relevant plans, programmes and legislation: • Proposal for EU Soil Health Law (draft text to be published 5th July) • Proposal for EU Carbon Removals Certification Framework • Whole of Government Circular Economy Strategy 2022-2023	Noted. The Plans, Programmes, Policy and Legislation section of this ER already listed, have since been updated on the back of these comments. Noted. Other relevant Plans, Programmes, Policy and Legislation suggested have since been added.
	It is good to see the "Teagasc Soils – Peat and River Alluvium" included here and given a weighting of 10. Given that there are approximately 333,000 ha of grasslands on organic soils there may be further scope for using additional data sets here.	All environmental sensitivity weightings have been reviewed and updated in so far as possible, on the back of responses received during the Statutory Consultee period. All weighting updates have since been utilised to inform the environmental sensitivity mapping included in Appendix A.1 of the ER.
	With reference to the below text, current DAFM policy distinguishes the permissibility of afforestation on organic soils on the basis of an assigned depth threshold in order to avoid afforestation on deep peat soils and the associated GHG emissions. While there has been research into afforestation on shallow peat soils indicating the potential for net removals, this is an area requiring significant further work in order to advocate for a generalised approach and at present still presents environmental and climate risks. We would highlight that this is an area likely to evolve in line with developments at an EU level and which may be impacted by requirements around State Aid. It is important that Coillte's FESLUP will have the flexibility and the structures in place to be able to adapt to these and other likely developments impacting the forestry sector in Ireland. "4.4.2 Key Issues and Opportunities: Potential for negative impacts on land and soils where any forestry activity disturbs organic (peat) soils, including if afforestation on peat soils is facilitated and also the rewetting of peatlands and replanting within these area."	This comment is welcomed. For the consideration of Coillte.
	It is noted that there are a large number of environmental objectives, targets and indicators and consideration might be given to further refinement with a view to ensuring that there is a clear focus on the most significant issues.	Noted. Table 6.1 of this ER has been updated, as appropriate.

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	Redesign of Peatlands Forest With reference to the below text, this is an area of significant interest to DECC and would welcome more detail as the plans for the redesign of peatlands forest develop on, for example, the measures that will be involved, the distribution of measures such as rewilding and rewetting across the 30,000 ha cited, and the anticipated GHG emissions profiles as a result of these measures being implemented. 2.4 Coillte's Strategic Vision 1. Forests for Climate: … c. Redesign 30,000 ha of Peatlands Forest for climate and ecological benefits by 2050;	This comment is welcomed. For the consideration of Coillte.
	Mapping With reference to the below text, we note the use of the CORINE Land Cover map and would encourage further engagement with the EPA and Tailte Eireann on obstacles relating to the use of the recently developed and more spatially refined Tailte Eireann and EPA Land cover map and the EPA Land use map. 5.8 Landscape and Visual 5.8.1 Baseline … In the absence of a national landscape character assessment, the CORINE Land Cover is used as a proxy for the purposes of landscape, refer to Figure A2 in Appendix A	During the preparation of GIS Mapping that was used to inform the baseline environmental of the Plan area at SEA Scoping and SEA ER stages, difficulties were encountered while attempting to utilise the EPA's most recent Landcover datasets. A number of system crashes were experienced while attempting to utilise the datasets. Hence, the use of the Corine land cover datasets have been incorporated into this ER. Section 4.10 of this ER has been updated to make reference to the technical difficulties encountered during the SEA process.
	SEA Alternatives Process: The Scoping Report might further clarify how the considerations of alternatives will proceed given that this is an integral part of the SEA process.	Refer to Section 7 (Alternatives Considered) of this ER the alternatives have been detailed and further expanded upon in this ER.
	Given the high-level nature of the Plan and its geographic non-specificity, it is important that the Plan is flexible and capable of incorporating changes in a fast-moving policy and legislative landscape at national and EU level.	This comment is welcomed. For the consideration of Coillte.
	SEA and AA: It's important that both of these processes inform each other as they proceed and both, in turn, inform the emerging Plan. Given the high-level nature of the Plan and the importance of the downstream plans and programmes which are to be developed subsequently, there is an opportunity for both the SEA and AA processes to anticipate future environmental assessment requirements including data requirements and to put in place mechanisms to ensure that these assessments can place in a timely and efficient manner.	The SEA and AA processes have been undertaken as an iterative process, both of which have also informed and fed into the preparation of the draft FESLUP throughout its development.

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Geological Survey Ireland (GSI)	Cover letter highlighted some key issues including: We recommend using data available on our website (http://www.gsi.ie/), when conducting the EIAR, SEA, planning and scoping processes. Use of our data or maps should be attributed correctly to 'Geological Survey Ireland'. The list of our publicly available datasets that may be useful to the environmental assessment and planning process are as follows: • Geoheritage (https://www.gsi.ie/en-ie/data-and-maps/Pages/Geoheritage.aspx) • Groundwater (https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228) • Geological Mapping (https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228 • Geotechnical Database Resources (http://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228) • Geohazards (http://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228) • Natural Resources (Mineral/Aggregates) (https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228) • Geochemistry of soils, surface waters and sediments (https://www.gsi.ie/en-ie/data-and-maps/Pages/Geochemistry.aspx) • Geophysical data (http://www.gsi.ie/tellus) • Historic Mines (https://www.epa.ie/publications/monitoring--assessment/assessment/historic-mine-sites---inventory-and-risk-classification-volume-1.php) • Marine and Coastal Unit (https://www.gsi.ie/en-ie/programmes-and-projects/marine-and-coastal-unit/projects/Pages/default.aspx.) • National Coastal Change Assessment (https://www.gsi.ie/en-ie/programmes-and-projects/marine-and-coastal-unit/projects/Pages/Coastal-Vulnerability-Index.aspx) • Physiographic Units (https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228)	These comments are welcomed. These data sources have been reviewed and taken into consideration, as appropriate.
DAERA	Cover letter highlighted some key environmental issues including:	The assessment of significant effects outlined in Section 8.2 – Section 8.4 of this ER report also takes regard for transboundary effects of the draft FESLUP on Northern Ireland. Where there is

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	DAERA would like the SEA Environmental Report to contain a clear statement indicating the opinion about whether or not the implementation of the of the strategy is likely to have a significant effect on the environment of Northern Ireland, in combination with any identified measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment	potential for any significant effects to occur, potential impacts have been detailed within Section 8.2 – Section 8.4 of this ER, the potential for transboundary effects between the Republic of Ireland and Northern Ireland have also been considered throughout the assessment process. Refer to Section 8 of this ER for further detail and Section 5 of this ER for transboundary baselines against each environmental component. Refer to Section 9 for Mitigation and Monitoring measures set in place for any significant effects envisaged from the draft FESLUP.
	Consideration with regards to HRA should assess direct and indirect effects on designated sites including potential emissions and hydrological links to include any potential impacts to National Site Network (NSN) sites within Northern Ireland that may be impacted by the FESLUP and we look forward to commenting on this	Noted. Transboundary effects on NI have been considered, as appropriate in Section 8 of this report and transboundary baselines have also been included throughout the entirety of Section 5 of this report.
	Question 1 It may be worth including in your considerations the following: • The Wildlife (NI) Order 1985 (as amended) • Wildlife and Natural Environment Act (NI) 2011 • The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended) • The Environment (NI) Order 2002 • The Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 2017 • The Strategic Planning Policy Statement (SPPS) for Northern Ireland • Planning Policy Statements (PPS – in particular PPS2). It should be noted that the PPS's will be superseded by Local Development Plans when they are adopted. • Biodiversity Strategy for NI to 2020 https://www.daera-ni.gov.uk/publications/biodiversity-strategy-northern-ireland-2020-0 • Draft Environment Strategy https://www.daera-ni.gov.uk/consultations/esni-public-discussion-document • The Draft NI peatland policy: https://www.daera-ni.gov.uk/consultations/ni-peatland-strategy-consultation. • The Draft Green Growth Strategy Consultation on the draft Green Growth Strategy for Northern Ireland | Department of Agriculture, Environment and Rural Affairs (daera-ni.gov.uk) • Northern Ireland Energy Strategy 2050 Northern Ireland Energy Strategy 2050 | Department for the Economy (economy-ni.gov.uk)	These Plans have been reviewed and consideration has been given to the suggested Plans, as appropriate. The websites detailed have also been reviewed and used to inform the transboundary baseline in this ER, as appropriate.

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	A number of useful information sources that highlight the current state of the environment in Northern Ireland at a regional level and which could be referenced are: • Northern Ireland State of the Environment Reports: https://www.daera-ni.gov.uk/publications/state-environment-report-2013 • Northern Ireland Environmental Statistics Reports: https://www.daera-ni.gov.uk/articles/northern-ireland-environmental-statistics-report Other relevant web-links are; • Designated Scientific Sites: www.daera-ni.gov.uk/landing-pages/protected-areas • Regional Landscape Character Map viewer: https://www.daera-ni.gov.uk/services/regional-landscape-character-areas-map-viewer DAERA have a map browser for NI protected sites and known priority habitat: www.daera-ni.gov.uk/services/natural-environment-map-viewer Our natural environment datasets are available at the link below: www.daera-ni.gov.uk/articles/download-digital-datasets	
	Question 2 Transboundary issues arising from this plan should be considered as part of the forthcoming SEA including the potential disturbance to/impact on NI/RoI migratory/mobile species. Consideration should be given to all potential impacts on NI habitats (particularly designated sites, priority habitats and those important for migratory species and NI populations) including habitat quality and conservation status.	The assessment of significant effects outlined in Section 8.2 – Section 8.4 of this ER report also takes regard for transboundary effects of the draft FESLUP on Northern Ireland. Where there is potential for any significant effects to occur, potential impacts have been detailed within Section 8.2 – Section 8.4 of this ER, the potential for transboundary effects between the Republic of Ireland and Northern Ireland have also been considered throughout the assessment process. Refer to Section 8 of this ER for further detail and Section 5 of this ER for transboundary baselines against each environmental component. Refer to Section 9 for Mitigation and Monitoring measures set in place for any potential significant effects envisaged from the draft FESLUP.
	NED requires more detailed information to be included within the ER, particularly as to the distances used for the transboundary baseline and any impacts that may arise from the plan. NED would consider a buffer of 15km to be a standard buffer for inclusion in any analysis.	Section 5 of this ER details transboundary baselines against each environmental component, as appropriate. The purpose of the draft FESLUP is to support the implementation of Coillte's Strategic Vision and the policies and ambitions of Coillte by providing a long-term strategic planning framework for the development of the forest estate. The draft FESLUP does not set out criteria to determine land suitability for any development and or projects, this will be done as part of the Implementation Plan phase.

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	NED notes that in the same section that the baseline has only included designated sites within Northern Ireland. Other environmental effects may occur in NI due to the FESLUP and these should be taken into account in the ER. Priority habitats, river basins, and other landscape types also require special attention as ecological functionality and 'views' of landscape cross political boundaries.	Section 5 of this ER details transboundary baselines against each environmental component, as appropriate. The assessment of significant effects outlined in Section 8.2 – Section 8.4 of this ER report also takes regard for transboundary effects of the draft FESLUP on Northern Ireland. Where there is potential for any significant effects to occur, potential effects have been detailed within Section 8.2 – Section 8.4 of this ER, the potential for transboundary effects between the Republic of Ireland and Northern Ireland have also been considered throughout the assessment process. Refer to Section 8 of this ER for further detail and Section 5 of this ER for transboundary baselines against each environmental component. Refer to Section 9 for Mitigation and Monitoring measures set in place for any significant effects envisaged from the draft FESLUP.
	In the section on Land and soils at 4.4.2, p 44, the following issues have been highlighted: • Potential for negative impacts to land and soil during new development, for example such as wind farm development and or the construction of new forest roads to transport wood materials; • Potential for negative impacts on wet soils, particularly peats, that can become badly compacted by machine passage; • Potential for landslides particularly in deep peats; • Potential for negative impacts on land and soils where any forestry activity disturbs organic (peat) soils, including if afforestation on peat soils is facilitated and also the rewetting of peatlands and replanting within these areas. • Compaction of soil during the construction of roads has the potential to result in changes to the physical and chemical properties of soil that may have detrimental effects on soil biodiversity and lead to increased surface run-off, flooding, erosion and transport of nutrients and agrochemicals to open water; NED would consider that there is a possibility for implications for the environment in NI by changing peatland habitat type and potentially releasing greenhouse gasses. Potential transboundary issues with this regard should also be addressed at project level and engagement with NI authorities sought should potential transboundary issues arise. Consideration should be given to the habitat condition as a whole i.e., on both sides of the border as the condition may vary across the habitat.	The assessment of significant effects outlined in Section 8.2 – Section 8.4 of this ER report also takes regard for transboundary effects of the draft FESLUP on Northern Ireland. Where there is potential for any significant effects to occur, potential effects have been detailed within Section 8.2 – Section 8.4 of this ER, the potential for transboundary effects between the Republic of Ireland and Northern Ireland have also been considered throughout the assessment process. Refer to Section 8 of this ER for further detail and Section 5 of this ER for transboundary baselines against each environmental component. Refer to Section 9 for Mitigation and Monitoring measures set in place for any significant effects envisaged from the draft FESLUP. Section 9 of the ER has been detailed to mitigate and monitor any impacts that have potential to occur as a result of the draft FESLUP, furthermore these sections make reference to some impacts being more adequately identified and mitigated at project and EIA level. All proposals for development will be required to have due regard to environmental considerations outlined in this SEA ER and associated AA Screening.

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	Question 3 Transboundary issues arising from this plan should be considered as part of the forthcoming SEA including the potential disturbance to/impact on NI/RoI migratory/mobile species. Consideration should be given to all potential impacts on NI habitats (particularly designated sites, priority habitats and those important for migratory species and NI populations) including habitat quality and conservation status. Considerations with regard to HRA should assess direct and indirect effects on designated sites including potential emissions and hydrological links to include any potential impacts to NSN sites within Northern Ireland that may be impacted by the FESLUP and we look forward to commenting on this. We would reiterate that the results of the screening and any resulting AA should be included along with the final Environmental Report (ER).	Noted. Please refer to SEA action of Question 2 above. Noted. The assessment of significant effects outlined in Section 8.2 – Section 8.4 of this ER report also takes regard for transboundary effects of the draft FESLUP on Northern Ireland. Where there is potential for any significant effects to occur, potential effects have been detailed within Section 8.2 – Section 8.4 of this ER, the potential for transboundary impacts between the Republic of Ireland and Northern Ireland have also been considered throughout the assessment process. Refer to Section 8 of this ER for further detail and Section 5 of this ER for transboundary baselines against each environmental component. Refer to Section 9 for Mitigation and Monitoring measures set in place for any significant effects envisaged from the draft FESLUP. Any resulting AA will go on public display alongside the draft SEA ER and Plan.
	Question 4 NED has no comment to make regarding anything that should be excluded from the SEA Environmental Report	Noted. This comment is welcomed.
	Question 5 NED considers that the draft Objectives, Targets, and Indicators are adequate to deliver a plan of this nature.	This comment is welcomed.
	Water Management Unit The SEA should consider any potential transboundary issues in relation to the aquatic environment during all aspects / phases in relation to the implementation of Coillte's Forest Estate Strategic Land Use Plan (FESLUP). This includes (but not limited to) the potential disturbance to/impact on NI/RoI migratory/mobile species such as salmon. Such species rely on, and can be impacted by, water quality and water resource issues. The SEA should clearly state whether, or not, any potential impacts to the aquatic environment have been identified and the nature of those impacts.	Noted. The assessment of significant effects outlined in Section 8.2 – Section 8.4 of this ER report also takes regard for transboundary effects of the draft FESLUP on Northern Ireland. Where there is potential for any significant effects to occur, potential effects have been detailed within Section 8.2 – Section 8.4 of this ER, the potential for transboundary effects between the Republic of Ireland and Northern Ireland have also been considered throughout the assessment process. Refer to Section 8 of this ER for further detail and Section 5 of this ER for transboundary baselines against each environmental component. Refer to Section 9 for Mitigation and Monitoring measures set in place for any significant effects envisaged from the draft FESLUP.

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	Water Management Unit notes it can find no specific mention of Northern Irelands River Basin Management Plans. River Basin Management Plans are the key tools for implementing the Water Framework Directive and to achieving its objectives. Water Management Unit recommends these are considered during the SEA process. DAERA has published the Draft River Basin Management Plan for the 3rd cycle period which runs from 2021-2027 which should also be considered as part of the assessment.	This comment has been noted and taken into consideration, as appropriate. The assessment of significant effects outlined in Section 8.2 – Section 8.4 of this ER report also takes regard for transboundary effects of the draft FESLUP on Northern Ireland. Where there is potential for any significant effects to occur, potential effects have been detailed within Section 8.2 – Section 8.4 of this ER, the potential for transboundary effects between the Republic of Ireland and Northern Ireland have also been considered throughout the assessment process. Refer to Section 8 of this ER for further detail and Section 5 of this ER for transboundary baselines against each environmental component. Refer to Section 9 for Mitigation and Monitoring measures set in place for any significant effects envisaged from the draft FESLUP.
	A number of useful information sources are available that highlight the current state of the environment in Northern Ireland at a regional level which could be referenced including the Northern Ireland Environmental Statistics Report the latest of which currently is dated May 2023. (It is important that he most up to date information is used).	Noted. These data sources have been reviewed.
	Where adverse impacts on the aquatic environment are identified during the SEA process, relevant and appropriate mitigation measures should be proposed. In addition, monitoring regimes should be identified (including where feasible, consideration of the frequency of monitoring, appropriate analysis, and reporting) to ensure both the efficacy of those mitigation measures and identify any unforeseen impacts to the aquatic environment that may arise from implementation of FESLUP.	Refer to Section 9 of this ER for Mitigation and Monitoring. Both sections of the ER have been detailed to mitigate and monitor any impacts that have potential to occur as a result of the draft FESLUP, a specific section for water has been detailed. Section 9.3 of this ER contains information on Monitoring and Reporting and includes a detailed monitoring table which states monitoring frequency, responsibilities, and provisions for reporting in relation to the draft FESLUP, a specific section for water has been detailed.
	Air Quality and Biodiversity Unit Comments In Table 6.1 (SEA Objectives Indicators and Targets), ‘Air and Climate’, reference could be made to wood burning (biomass/renewables) and the impact that this may have on local air quality. There is reference made in Section 4.6.6.1 of burning wood with moisture content <25% in order to comply with Ecodesign standards. Is this something that can be part of an SEA objective?	These comments have been taken into consideration and Table 6.1has since been updated, as appropriate.

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	Drinking Water Inspectorate Comments The following is a list of additional documentation which we deem relevant to the scope of the Plan for inclusion, particularly in the consideration of transboundary issues: • The Private Water Supplies Regulations (Northern Ireland) 2017; • The Water and Sewerage Servicers (Northern Ireland) Order 2006; • The Water Supply (Water Quality) Regulations (Northern Ireland) 2007; • The Drinking Water Directive (98/83/EC); and, • The Drinking Water Directive Recast (2020/2184).	The suggested Plans have been acknowledged. Transboundary effects have been taken into consideration throughout this ER whereby, the assessment of significant effects outlined in Section 8.2 – Section 8.4 of this ER report also takes regard for transboundary effects of the draft FESLUP on Northern Ireland. Where there is potential for any significant effects to occur, potential impacts have been detailed within Section 8.2 – Section 8.4 of this ER, the potential for transboundary effects between the Republic of Ireland and Northern Ireland have also been considered throughout the assessment process. Refer to Section 8 of this ER for further detail and Section 5 of this ER for transboundary baselines against each environmental component. Refer to Section 9 for Mitigation and Monitoring measures set in place for any significant effects envisaged from the draft FESLUP.
	Within Table 5.1, DWI believe there should be the inclusion of Drinking Water Protected Areas, both surface and groundwater.	This comment is welcomed and the inclusion of Drinking Water Protected Areas, both surface and groundwater (with a weighting of 10) have since been updated and included within the Environmental Sensitivity Mapping of this ER. Refer to Appendix A.1 of this ER for relevant mapping.
	Marine and Fisheries Division Response It is suggested that marine policy, legislation, plans and programmes be included within this section. From a transboundary perspective this includes • The Marine and Coastal Access Act 2009, • The Marine (Northern Ireland) Act 2013, • The UK Marine Policy Statement 2011, • The draft Marine Plan for Northern Ireland • The Towards an Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026.	The suggested Plans have been acknowledged. Transboundary impacts have been taken into consideration throughout this ER whereby, the assessment of significant effects outlined in Section 8.2 – Section 8.4 of this ER report also takes regard for transboundary effects of the draft FESLUP on Northern Ireland. Where there is potential for any significant effects to occur, potential impacts have been detailed within Section 8.2 – Section 8.4 of this ER, the potential for transboundary effects between the Republic of Ireland and Northern Ireland have also been considered throughout the assessment process. Refer to Section 8 of this ER for further detail and Section 5 of this ER for transboundary baselines against each environmental component. Refer to Section 9 for Mitigation and Monitoring measures set in place for any significant effects envisaged from the draft FESLUP.

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	Given the hydrological linkages of lakes, rivers and the sea and the acknowledgement that there is potential for transboundary issues relating to water quality, it is suggested the Water component within this section draws out the relationship between forestry and the Marine Strategy Framework Directive (MSFD) and the achievement of good environmental status. This would provide transparency, link with the SEA Objectives chapter and support any future conclusions regarding likely significant transboundary marine effects	Noted. Transboundary impacts have been taken into consideration throughout this ER whereby, the assessment of significant effects outlined in Section 8.2 – Section 8.4 of this ER report also takes regard for transboundary impacts of the draft FESLUP on Northern Ireland. Where there is potential for any significant effects to occur, potential impacts have been detailed within Section 8.2 – Section 8.4 of this ER, the potential for transboundary impacts between the Republic of Ireland and Northern Ireland have also been considered throughout the assessment process. Refer to Section 8 of this ER for further detail and Section 5 of this ER for transboundary baselines against each environmental component. Refer to Section 9 for Mitigation and Monitoring measures set in place for any significant effects envisaged from the draft FESLUP.
	The Northern Ireland Seascape Character Assessment Northern Ireland Regional Seascape Character Assessment | Department of Agriculture, Environment and Rural Affairs (daera-ni.gov.uk) should be included within the Transboundary Baseline under the Landscape and Visual section. It is recommended that seascape is considered within the draft SEA objectives, targets and indications for Landscape and Visual.	Landscape Character Assessments (LCA) will be considered in detail at site specific and or project level. Refer to Mitigation in Section 9 of this report.
	MCR With regards to the proposals in close proximity to Lough Foyle and Carlingford Lough we recommend the following Plans to be considered • The Marine and Coastal Access Act 2009 • The Marine Strategy regulations 2010 • Marine Policy Statement 2011 • The draft Marine Plan for Northern Ireland (consultation 2018) • Wildlife (Northern Ireland) Order 1985 • Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 • Marine Act (Northern Ireland) 2013 • Strategic Planning Policy Statement for Northern Ireland 2015 • An Integrated Coastal Zone Management Strategy for Northern Ireland 2006-2026	Transboundary impacts have been taken into consideration throughout this ER whereby, the assessment of significant effects outlined in Section 8.2 – Section 8.4 of this ER report also takes regard for transboundary effects of the draft FESLUP on Northern Ireland. Where there is potential for any significant effects to occur, potential impacts have been detailed within Section 8.2 – Section 8.4 of this ER, the potential for transboundary effects between the Republic of Ireland and Northern Ireland have also been considered throughout the assessment process. Refer to Section 8 of this ER for further detail and Section 5 of this ER for transboundary baselines against each environmental component. Refer to Section 9 for Mitigation and Monitoring measures set in place for any significant effects envisaged from the draft FESLUP.

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	In Table 5.1 Marine Conservation Branch advise that DAERA's Marine Map Viewer can be used as a data source for Marine Protected Areas (MPAs), Seascape, historic monuments and other transboundary datasets. In addition, data on Northern Ireland's priority Species can be found here: https://www.daera-ni.gov.uk/publications/list-northern-ireland-priority-species-2023 Furthermore, we advise that MCZs, ASSIs, Ramsar Sites and Regional Seascape Character Areas should be included in the table.	Transboundary impacts have been taken into consideration throughout this ER whereby, the assessment of significant effects outlined in Section 8.2 – Section 8.4 of this ER report also takes regard for transboundary effects of the draft FESLUP on Northern Ireland. Where there is potential for any significant effects to occur, potential impacts have been detailed within Section 8.2 – Section 8.4 of this ER, the potential for transboundary effects between the Republic of Ireland and Northern Ireland have also been considered throughout the assessment process. Refer to Section 8 of this ER for further detail and Section 5 of this ER for transboundary baselines against each environmental component. Refer to Section 9 for Mitigation and Monitoring measures set in place for any significant effects envisaged from the draft FESLUP. Further, Landscape Character Assessments will be considered in detail at site specific and or project level. Refer to Mitigation in Section 9 of this report. The comments related to MCZs, ASSIs, and Ramsar Sites have been taken into consideration and reviewed, however, based on the available Ramsar Site data, there are only point reference file that highlights the general area of these sites; which is a mixture of SPAs, SAC, etc. and these are already included in the Environmental Sensitivity Mapping.
	In Figure A4: Designated Sites in the Republic of Ireland and Northern Ireland, we welcome the inclusion of SACs, SPAs and ASSIs but recommends also including MCZs and Ramsar Sites.	These comments have been taken into consideration. However, based on the available Ramsar Site data there are only point reference file that highlights the general area of these site; which is a mixture of SPAs, SAC, etc and these are already included in the Environmental Sensitivity Mapping.
	In Section 4.3.1.4 Transboundary baseline for Northern Ireland we advise the following edits: • there are 58, not 57, SACs • the North Channel pSAC is the North Channel SAC • Along with Carlingford Lough MCZ there are four other MCZs: Strangford Lough MCZ, Outer Belfast Lough MCZ, Waterfoot MCZ and Rathlin MCZ	Noted. The transboundary baseline section for Northern Ireland has been updated on the back of this comment in this ER.
	In Section 4.3.2 Marine Conservation Branch advise considering marine species where developed is occurring in coastal or hydrologically linked locations as construction may cause marine pollution, excessive nutrients and increased sedimentation.	Transboundary impacts have been taken into consideration throughout this ER whereby, the assessment of significant effects outlined in Section 8.2 – Section 8.4 of this ER report also takes regard for transboundary effects of the draft FESLUP on Northern Ireland.

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		Where there is potential for any significant effects to occur, potential impacts have been detailed within Section 8.2 – Section 8.4 of this ER, the potential for transboundary effects between the Republic of Ireland and Northern Ireland have also been considered throughout the assessment process. Refer to Section 8 of this ER for further detail and Section 5 of this ER for transboundary baselines against each environmental component. Refer to Section 9 for Mitigation and Monitoring measures set in place for any significant effects envisaged from the draft FESLUP.
	In Section 4.2.2, we recommend including the potential impacts to Seascapes, particularly where renewable energy developments are planned near the coast. In Section 4.8 Marine Conservation Branch recommend considering Seascape.	Landscape Character Assessments (LCA) will be considered in detail at site specific and or project level. Refer to Mitigation in Section 9 of this report.
	Marine Conservation Branch advise the following screening distances for coastal developments: • all SACs within 100km of the project should be screened for Grey seals (Halichoerus grypus) • all SACs within 50km should be screened for Harbour seals (Phoca vitulina) • all SACs within 100km should be screened for Harbour porpoise (Phocoena phocoena)	These comments will be taken into considered, as appropriate. However, the draft FESLUP does not set out criteria to determine land suitability for any development and or projects, this will be done as part of the Implementation Plan phase. Section 9 of the ER has been detailed to mitigate and monitor any impacts that have potential to occur as a result of the draft FESLUP, furthermore these sections make reference to some impacts being more adequately identified and mitigated at project and EIA level. All proposals for development will be required to have due regard to environmental considerations outlined in this SEA ER and associated AA Screening.
	Marine Conservation Branch recommend including Regional Seascape Character Areas: • Northern Ireland Regional Seascape Character Assessment 2014	Landscape Character Assessments (LCA) will be considered in detail at site specific and or project level. Refer to Mitigation in Section 9 of this report.
Department for Communities (Historic Environmental Division (HED))	Cover letter highlighted some key environmental issues including: Many heritage assets are located near the border area including some historic parks and gardens, and historic landscapes and routeways, which can be traverse . In taking forward the plan, which will guide geographical areas, HED's historic environment datasets and evidence bases should therefore be comprehensively utilized to inform decision making.	Noted. These comments have been taken into account in the ER, as appropriate. Transboundary impacts have been taken into consideration throughout this ER whereby, the assessment of significant effects outlined in Section 8.2 – Section 8.4 of this ER report also takes regard for transboundary effects of the draft FESLUP on Northern Ireland. Where there is potential for any significant effects to occur, potential impacts have been detailed within Section 8.2 – Section 8.4 of this ER, the potential for transboundary effects between the Republic of Ireland and Northern Ireland have also been considered throughout the assessment process.

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		Refer to Section 8 of this ER for further detail and Section 5 of this ER for transboundary baselines against each environmental component. Refer to Section 9 for Mitigation and Monitoring measures set in place for any significant effects envisaged from the draft FESLUP.
	Question 1 With reference to Table 3.1 p. 10 under Archaeological and Cultural Heritage, the relevant Plans and Strategies relating to the historic environment in Northern Ireland are outlined below: Conventions • Convention for the Protection of the Archaeological Heritage of Europe (revised) (Valletta, 1992) Legislation • Planning Act (Northern Ireland) 2011 • Historic Monuments and Archaeological Objects (Northern Ireland) Order 1995 • Regional Strategies and policies • Regional Development Strategy 2035 (infrastructure-ni.gov.uk) - Spatial strategy for Northern Ireland • Archaeology 2030 - A Strategic Approach for Northern Ireland.pdf (niheritagedelivers.org) • The Strategic Planning Policy Statement , Paragraphs 6.1-6.30 outlines the strategic planning policy around heritage assets in Northern Ireland. Chapters relating to Renewable and Low Carbon Energy Paragraphs 6.214 – 6.234 are currently under review. Public consultation documents are available to view at: Review of Regional Strategic Planning Policy on Renewable and Low Carbon Energy - Public Consultation | Department for Infrastructure (infrastructure-ni.gov.uk). Guidance HED has also now published its 'Conservation Principles'- a best practice conservation framework for all aspects of decision making affecting our historic environment. Conservation Principles guidance | Department for Communities (communities-ni.gov.uk)	Transboundary impacts have been taken into consideration throughout this ER whereby, the assessment of significant effects outlined in Section 8.2 – Section 8.4 of this ER report also takes regard for transboundary effects of the draft FESLUP on Northern Ireland. Where there is potential for any significant effects to occur, potential impacts have been detailed within Section 8.2 – Section 8.4 of this ER, the potential for transboundary effects between the Republic of Ireland and Northern Ireland have also been considered throughout the assessment process. Refer to Section 8 of this ER for further detail and Section 5 of this ER for transboundary baselines against each environmental component. Refer to Section 9 for Mitigation and Monitoring measures set in place for any significant effects envisaged from the draft FESLUP.
	Question 2 We recommend our datasets and evidence bases are fully utilized and interrogated to inform sensitivity mapping around the border region. We recommend that these datasets inform updates to Chapter 4.7.1.1	Noted. These comments have been reviewed and taken into consideration, as appropriate.

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	Historic Environment datasets available at: https://www.communities-ni.gov.uk/publications/historic-environment-digital-datasets	
	We also note that not all the identified heritage assets are designated – see HED definition of a designated heritage asset 'A World Heritage Site, State Care Monument, Scheduled Monument, Area of Significant Archaeological Interest, Listed Building, Conservation Area, Area of Townscape/Village Character, Local Landscape Policy Area or Protected Wreck Site.' Glossary of conservation terms | Department for Communities (communities-ni.gov.uk)	Noted. Section 5.7.1 of this ER has been updated on the back of this comment.
	Question 3 UNESCO awarded global geopark status to Northern Ireland's Mourne Gullion Strangford in May 2023. This is now the second global geopark in NI and borders with RoI around South Armagh. Local Councils in Northern Ireland are also in the process of taking forward Local Development Plans for their council areas, as part of a two stage process (Plan Strategy, and Local Policies Plan). Engagement with relevant border councils is therefore recommended.	This comment is welcomed. For the consideration of Coillte.
	Question 5 Objective 1: Suggest: Protect, and conserve and where possible enhance the cultural heritage, including the built historic environment and setting; archaeological recorded and unrecorded monuments, architectural (Protected Structures, Architectural Conservation Areas, vernacular buildings, materials and urban fabric) and manmade historic landscape features (e.g, field walls, footpaths, gate piers etc.) within and surrounding Coillte's forest estate.	Objective 1, has been updated on the back of this comment.
DHLGH	Cover letter highlighted some key environmental issues including: Archaeology Section 3.2 Relationship with Other Relevant Plans, Programmes and Legislation, Heritage Ireland 20230: A Framework for Heritage, (Dept. of Housing, Local Government and Heritage, 2022), would also be of relevance. In particular please note action 75 on page 67 of the plan, which states, 'Work with custodians of heritage in protecting the heritage in their care.'	Appendix A.2 has since been updated on the back of this comment.
	The National Monuments Service participated in a series of meetings (which ended in 2016) with Coillte staff and archaeologist on the staff of the Forest Service, Department of Agriculture, Food and the Marine, during which the process for Environmental Risk Assessment of forestry activities for Archaeology and Cultural Heritage was agreed. There was some discussion at these meetings about the usefulness of an inventory of archaeological monuments on the Coillte Estate.	These comments are welcomed. For the consideration of Coillte.

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	It would be a very positive outcome from the current process, if an archaeological survey were carried out on the Coillte Estate and an inventory produced, which listed the types, condition and level of statutory protection (under National Monuments legislation), of all archaeological monuments on the Estate.	
	Nature Conservation The Department would draw attention to our submission made on the Forest Strategy Implementation Plan Draft for public consultation dated 2 December 2022. Many of the comments made in that submission are relevant to the proposed FESLUP and the Department would advise that this is also referred to by Coillte and the SEA Team when determining the content of the proposed plan and the scope of the Environmental Report.	This submission has been reviewed and taken into consideration during the preparation of the SEA ER, as appropriate.
	Addressing legacy-related impacts on biodiversity It is recommended that the proposed FESLUP and the SEA process and associated documentation address the need for the environmental baseline to reflect current forest estate biodiversity issues and to comprehensively address environmental problems and sensitivities. This will allow objectives to be developed to address "legacy issues" of forestry in inappropriate locations or in sensitive ecological habitats. Page 30 of the SEA Scoping report in relation to " Reforestation" states "at present, any felling that takes place in Ireland has to be followed by reforestation under the Forestry Act 2014". The Department's understanding is that exceptions to this requirement can be made for environmental reasons (section 19(1),(c)(iv) of the 2014 Act, to mitigate a threat to a habitat or other important environmental resource). It is recommended that this is noted in the text and not allowed be an excuse or cover for inaction.	These comments are welcomed. A section detailing legacy issues has since been included within the draft FESLUP.
	Need for objectives and criteria to maximize biodiversity gain through afforestation. It is noted that the objectives to plant 100,000ha of forestry by 2050 has potential to impact severely on other high nature value habitats. It may be beneficial for biodiversity in cases where it may replace areas of low ecological value but in the absence of qualifying criteria beyond compliance with statutory requirements, it is a missed opportunity to create real biodiversity gain. Opportunity exists here to create preferential areas for afforestation, which for native broadleaf species, should be cleared areas which may appear as native woodland on historic OS maps and, for conifer plantation, could include grassland low in biodiversity value away from sites important for wildfowl. Conversely, there may also need to be areas deemed unfavourable for afforestation, the identification of which should go beyond merely not breaching the nature Directives.	These comments are welcomed. To be further considered by Coillte.

Consultee/ Stakeholder	SEA Scoping Response	SEA Actions
	Need to address conflicting objectives and the process as to how these will be resolved. It is recommended that clear procedures are described in proposed FESLUP and the SEA process and associated documentation to address the process for balancing the economic need for afforestation against the need to avoid impacting on high nature value areas. Currently, it would appear that there is a reliance on statutory planning processes but there is a need to set out a clear process using objective criteria when addressing the prioritisation and selection of sites.	Section 3 of the draft FESLUP discusses how the multiple themes or pillars - i.e., Forests for Nature, Forests for Climate, Forests for Wood and Forests for People have been balanced.
	It is understood that the proposed FESLUP, will identify, at a strategic level, criteria, which will be used to determine what areas in Coillte ownership will be suitable for renewable energy projects, and what areas will not be suitable. Again, the use of clear objective criteria used within a transparent decision-making process will provide clarity for all plans and projects arising from this proposed plan and avoid unnecessary expense and delays on pursuing projects where environmental impacts are likely.	The purpose of the draft FESLUP is to support the implementation of Coillte's Strategic Vision and the policies and ambitions of Coillte by providing a long-term strategic planning framework for the development of the forest estate. The draft FESLUP does not set out criteria to determine land suitability for renewable energy projects. This will be done as part of the Implementation Plan phase

A.4 Mitigation Measures as set out in the accompanying NIS (as they relate to proposed objectives)

During the AA process, sixteen of the FESLUP's objectives were determined to have the potential, without the provision of mitigation, to result in adverse effects on the integrity of European sites in light of their conservation objectives. Prior to proposing mitigation measures, the forestry licensing system was reviewed to assess whether embedded mitigation measures existed and could apply to the Plan's objectives. It was determined that for one of the objectives, sufficient embedded mitigation existed to negate the requirement for recommended mitigation.

Text changes were proposed for 14 of the objectives which are designed to negate the potential for adverse effects on the integrity of EU Sites. Of the 14 proposed text changes made to the FESLUP, 12 of those were accepted by Coillte and no longer required mitigation. One objective was considered sufficiently protected by the mitigation measures of the forestry licensing process. One measure was considered to require mitigation and was accepted by Coillte (see below in Table A.4). These changes are considered to have a positive impact on the environment and do not require further consideration.

Table A.4 Accepted changes made to the FESLUP mitigation measures to negate the risk of adverse effects on the integrity of European sites. (Reproduced from Table 7 of the NIS)

Objective	Changes to FESLUP Mitigation Measures as a Result of the Natura Impact Statement
CO11. Identify and quantify the impacts of climate change and develop measures to make Coillte's estate more climate resilient	It is recommended that the development of any measures to make Coillte's estate more climate resilient integrates input from suitably qualified professionals including environmental managers and specialist ecologists. The measures should take full account of environmental constraints and opportunities, including protection of European sites, and shall be developed with ecological professionals, as necessary.