NATURA IMPACT STATEMENT

IN SUPPORT OF THE

APPROPRIATE ASSESSMENT

OF THE

WILD ROOTS FESTIVAL

IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 6(3) OF THE EU HABITATS DIRECTIVE

for: **NOC Events**

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1. Introduction

1.1. Background

This Natura Impact Statement (NIS) has been prepared by EIS in support of the Appropriate Assessment (AA) of the Wild Roots Festival at Hazelwood, Sligo (the proposed project) in accordance with the requirements of Article 6(3) of Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (hereafter referred to as the "Habitats Directive").

1.2. Legislative Context

The Habitats Directive provides legal protection for habitats and species of European importance. The overall aim of the Habitats Directive is to maintain or restore the "favourable conservation status" of habitats and species of European Community Interest. These habitats and species are listed in the Habitats and Birds Directives (Council Directive 2009/147/EC on the conservation of wild birds) with Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) designated to afford protection to the most vulnerable of them. These two designations are collectively known as European sites and Natura 2000.

AA is required by the Habitats Directive, as transposed into Irish legislation by the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) and the Planning and Development Act (as amended). AA is an assessment of the potential for adverse or negative effects of a plan or project, in combination with other plans or projects, on the conservation objectives of a European Site. These sites consist of SACs and SPAs and provide for the protection and long-term survival of Europe's most valuable and threatened species and habitats.

Article 6(3) of the Habitats Directive States:

> *'Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public'.*

The AA process relates to the protection of species listed in Annex I and Annex II of the Habitats Directive which form the Natura 2000 network (Article 3(1)). Species breeding and resting places of species listed in Annex IV of the Habitats Directive are nationally protected in Ireland as per Articles 15 and 16 of the Habitats Directive. The species listed in Annex IV do not form part of the Natura 2000 network as they are not mentioned in Article 3(1) of the Directive which defines the Natura 2000 network.

Article 3(1) of the Habitats Directive States:

> *'A coherent European ecological network of special areas of conservation shall be set up under the title Natura 2000. This network, composed of sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II, shall enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range'.*

AA is an assessment of the potential for adverse or negative effects of a plan or project, in combination with other plans or projects, on the conservation objectives of a European site. These sites consist of SACs and SPAs and provide for the protection and long-term survival of Europe's most valuable and threatened species and habitats.

1.3. Approach

This NIS is based on best scientific knowledge and has utilised ecological and hydrological expertise.

In addition, a detailed online review of published scientific literature and 'grey' literature was conducted. This included a detailed review of the National Parks and Wildlife Website including mapping and available reports for relevant sites and in particular sensitive qualifying interests/special conservation interests described and their conservation objectives. The EPA Envision map viewer (www.epa.ie) and available reports were also reviewed, as was the NPWS (2019) publication "The Status of Protected EU Habitats and Species in Ireland".

The ecological desktop study that has been completed for the AA screening of the proposed project, comprised the following elements:

- Identification of European sites within 15km[1] of the subject lands;
- Identification of European sites within 15km of the site with identification of potential pathways to specific sites (if relevant) greater than 15km from the subject lands;
- Review of the NPWS site synopses and conservation objectives for European sites within 15km and for which potential pathways from the proposed site have been identified; and
- Examination of available information on protected species.

There are four main stages in the AA process as follow:

Stage One: Screening
The process that identifies the likely impacts upon a European site of a project or plan, either alone or in combination with other projects or plans and considers whether these impacts are likely to be significant.

Stage Two: Appropriate Assessment
The consideration of the impact on the integrity of the European site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse effects mitigation measures are required to avoid or minimise potential effects. The details of these mitigation measures are then assessed in the context of the ecological integrity of the plan/project characteristics to ensure no significant adverse effects on European sites. If this assessment process shows there are no residual significant effect, then the process may end at this stage, stage two, of the AA process which are formalised in Natura Impact Statements (NIS) reports which support the overall AA process. However, if the likelihood of significant impacts remains, then the process must proceed to Stage Three.

Stage Three: Assessment of Alternative Solutions
The process that examines alternative ways of achieving the objectives of the project or plan that avoids adverse impacts on the integrity of the European site.

Stage Four: Assessment where no alternative solutions exist and where adverse impacts remain
An assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed.

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. This approach aims to avoid any effects on European sites by identifying possible effects early in the plan-making process and avoiding such effects. Second, the approach involves the application of mitigation measures, if necessary, during the AA process to the point where no adverse effects on the site(s) remain. If potential effects on European sites remain, the approach requires the consideration of alternative solutions. If no alternative solutions are identified and the plan/project is required for imperative reasons of overriding public interest, then compensation measures are required for any remaining adverse effect(s).

Source-Pathway-Receptor Model

The assessment of potential effects on European sites is conducted following a standard source-pathway-receptor model[2], where, in order for an effect to be established all three elements of this mechanism must be in place. The absence or removal of one of the elements of the model is sufficient

[1] While the actual zone of impact is likely to be much smaller, the default 15km zone extent has been applied on a precautionary basis

[2] Source(s) – e.g. pollutant run-off from proposed works; Pathway(s) – e.g. groundwater connecting to nearby qualifying wetland habitats; and Receptor(s) – qualifying aquatic habitats and species of European Sites

to conclude that a potential effect is not of any relevance or significance.

In the interest of this report, receptors are the ecological features that are known to be utilised by the qualifying interests or special conservation interests of a European site. A source is any identifiable element of the proposed project provision that is known to interact with ecological processes. The pathways are any connections or links between the source and the receptor. This report provides information on whether direct, indirect and cumulative adverse effects could arise from the proposed project.

Guidance
The NIS has been prepared taking into account legislation including the aforementioned legislation and guidance including the following:

- *Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities,* Department of the Environment, Heritage and Local Government, 2009;
- Commission Notice: *Managing Natura 2000 sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC",* European Commission 2018;
- *Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC",* European Commission Environment DG, 2002; and
- *Managing Natura 2000 sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC",* European Commission, 2000.

1.4. Author details

Andrew Torsney is a Senior Ecologist with 8 years' experience working on major national and local scale projects. Andrew graduated from University College Dublin in 2011 with a B.Sc. degree in Zoology and obtained Master's degree in Biodiversity and Conservation from the University of Leeds in 2012. He has a range of ecological skills which include habitat mapping, ecological surveying, data interpretation and report writing. Andrew is a vegetative plant specialist, who has a wealth of experience classifying riparian habitats and identifying rare floral species. Andrew has a vast knowledge of riparian and freshwater ecosystems and undertakes freshwater surveys regularly. Andrew holds 4 national protected species licenses and has a lot of experience optioning surveying licenses for aquatic species such as the white clawed crayfish. He is also a Bat specialist with a wealth of experience, in acoustic surveying and monitoring of bats. Throughout Andrews's career he has worked on a number of large-scale multifaceted projects such as the Killaloe to Dublin water supply project NIS. For this work, Andrew designed and oversaw all ecological field work relating to the Environmental Impact Assessment (EIA) and AA.

2. Description of proposed project and receiving environment at Hazelwood, Sligo

2.1. Receiving Environment

2.1.1. Survey methods

Data was collected through a series of surveys conducted in April 2021. This data covered the whole Festival area and some of the surrounding Hazelwood, Sligo area and was not limited to the footprint of the proposed project (Figure 2.1). A habitat survey of the study area was conducted following standard guidelines set out in 'Best practice guidance for habitat surveys and mapping' developed by the Heritage Council of Ireland. Habitats were classified using habitat descriptions and codes published by the Heritage Council in 'A Guide to Habitat Types in Ireland'. Plant species nomenclature follows Rose's 'The Wild Flower Key: How to identify wild flowers, trees and shrubs in Britain and Ireland'. A list of the dominant and notable plant species was taken for each habitat type. Particular emphasis was given to the possible occurrence of rare or legally protected plant species (as listed in Flora Protection Order 1999) or Red-listed plant species (Curtis & McGough 1985, Wyse Jackson et al. 2016).

Survey type	Area covered	Methods	Dates
Habitat Assessment	Entire site and surrounding area within 200m (see map below)	Floral ID combined with vegetative ID when flower was not present.	9th and 10th of April 2022 8th and 9th of February 2022
Aquatic habitat assessment	All areas of Lough Gill which interact with the festival activities. This included investigation of potential launch points which were deemed to be inappropriate from an ecological perspective.	Stream character assessment	9th and 10th of April 2022 8th and 9th of February 2022
Otter holt survey	All areas of Lough Gill which interact with the festival activities.	Visual inspections looking for field signs and holts	9th and 10th of April 2022 1st and 2nd of June 2022 8th and 9th of February 2022
Other surveys undertaken not related to the AA process			
Mammal walkover survey	Entire site and surrounding area within 50m of the festival boundary Main focus was on the hedgerows and woodland as open grassland is not favoured mammal habitat.	Field sign ID	9th and 10th of April 2022 8th and 9th of February 2022
Badger Survey	Entire site and surrounding area within 50m of the festival boundary Main focus was on the hedgerows and woodland as open grassland is not favoured mammal habitat.	Field sign ID [3]	9th and 10th of April 2022 1st and 2nd of June 2022 8th and 9th of February 2022
Badger Sett Monitoring	Sett adjacent to the site	Camera trap monitoring was undertaken continuously for summer 2021 and Visual spot check inspections were done bi-weekly over the winter period.	Continuously June, July August 2021 Visual spot check inspections bi-weekly September 2021-March 2021
Preliminary bat roost	All areas within the festival and	Visual inspections following the	9th and 10th of April

[3] Harris, S., Cresswell, P. & Jefferies, D.J., 1989. Surveying Badgers. London: Mammal Society

assessment	within 5m of the boundary.	Collins guidelines[4].	2022
Bat Activity Surveys	Walked transects around the site to identify activity levels.	Heterodyne detectors following the Collins guidelines.	9th and 10th of April 2022 30th and 31st of June 2022
Bird surveys	All linear features (see transect map below)	Transect method along all linear features. Following the BWI country breeding bird survey methods. These surveys were conducted at dawn.	9th and 10th of April 2022 1st and 2nd of June 2022

Broader ecological data was collected to assess the ecological context of the site. Observations were made for fauna species present or likely to occur on site. Emphasis was placed on mammals and birds, and especially for species listed in the respective Red lists, namely Colhoun and Cummins (2013), and Marnell et al. (2009). For mammals, search was focused on signs of their presence, such as tracks, feeding marks and droppings, as well as direct observations. For bats, the main focus was on evaluation of suitable habitats to support roosting bats; however, an ecological assessment of habitat suitability was undertaken throughout the site. The assessment process undertaken for bats followed the BCT Guidelines. Chapter 4 of these guidelines identify the approach to assess 'preliminary ecological appraisal for bats'. This chapter sets out methods for identifying habitat suitability which do not constitute assumptions. Bird species were recorded by sight and sound during all field visits.

During all surveys, particular attention was given to assessing the presence of rare or protected species. Each species identified was assessed in term of the EU Habitat Directive (92/43/EEC), Bird Directive (2009/147/EC), the Wildlife Act (1976), the Wildlife Amendment Act (2000) and the Red Data Lists for threatened and protected species, published on the NPWS website (www.npws.ie).

2.1.2. Limitations

It is considered that there are no significant limitations to the present assessment of the ecological importance of the site.

2.1.3. Habitats

The main area of the festival is comprised of Agricultural Grasslands or Wet Grassland habitats (Figure 2.1). The site is bordered by a mixed broadleaved woodland to the south and a small woodland patch to the west. The area is dominated by agricultural land and residential properties. Within the woodland between the site and Lough Gill, there is a complex woodland system which has extensive Rhododendron issues which are currently being managed by Coillte. Furthermore, there is a conifer woodland patch within this area. The Hazelwood woodlands (to the south west of the site) is a mixed conifer and broadleaved woodland with Hazel, yew trees and Norse pine etc. The understory is relatively open with ground cover of ivy.

There are two areas of the site boundary within the SAC which can be seen in Figure 2.2 and then in further detail in Figure 2.3 and Figure 2.4.

The woodland area beside the main stage area is identified as having a sparce understory with samplings present but no ground flora. The dominant tree species are beech tress encompassing over nearly 100% of the tree cover – with some birch trees also present around the woodland edge. This woodland patch does not align with any of the qualifying interest habitats of the SAC. A photo is provided below to demonstrate. This was investigated for potential use by the festival in 2021 – however, in 2022 the within woodlands area selected for occupation was the Coilte conifer plantation which will be accessed through existing walkways. This woodland is within the SAC but has recently been cleared of dense rhododendron by Coilte and is a conifer plantation set to be felled. There are no features of the woodland which align with any Annex I habitat classifications.

[4] Collins, J. (ed.) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust London. ISBN-13 978-1-872745-96-1

There is no habitat on site suitable to support otter. The small stream which rums through the site is no more than a few centimetres deep and 80cm wide in flood conditions in winter. The picture below is from June 2021 – which shows this has no suitability as otter habitats. The only areas of the festival boundary which are likely to interact with Otter habitat are the recreational activities.

The lakeside area where water sports will take place have 2 launch points identified. One concrete slipway and the other is a beach area known as Halfmoon Bay. Along the concrete slipway the site is open with no bankside vegetation with 2 rock piers on either side. Therefore, this is seen to be an unsuitable location for the QI species of the SAC for predator avoidance reasons. The site has large levels of silt and therefore, silt disturbance needs to be considered.

At Halfmoon Bay the site is a cobble area with low slowing entry into the lake. This is also devoid of bankside vegetation; however, the large shallow expanse would make it suitable for adult crayfish to forage at dawn and dusk. Therefore, considerations are needed.

The callows and shallow root systems around the lake edge are identified to be the key features for the QIs of the SAC, none of which are present at the two selected launch locations.

Figure 2.1 Habitats present as at April 2021

Figure 2.2 SAC Boundary in relation to the festival area

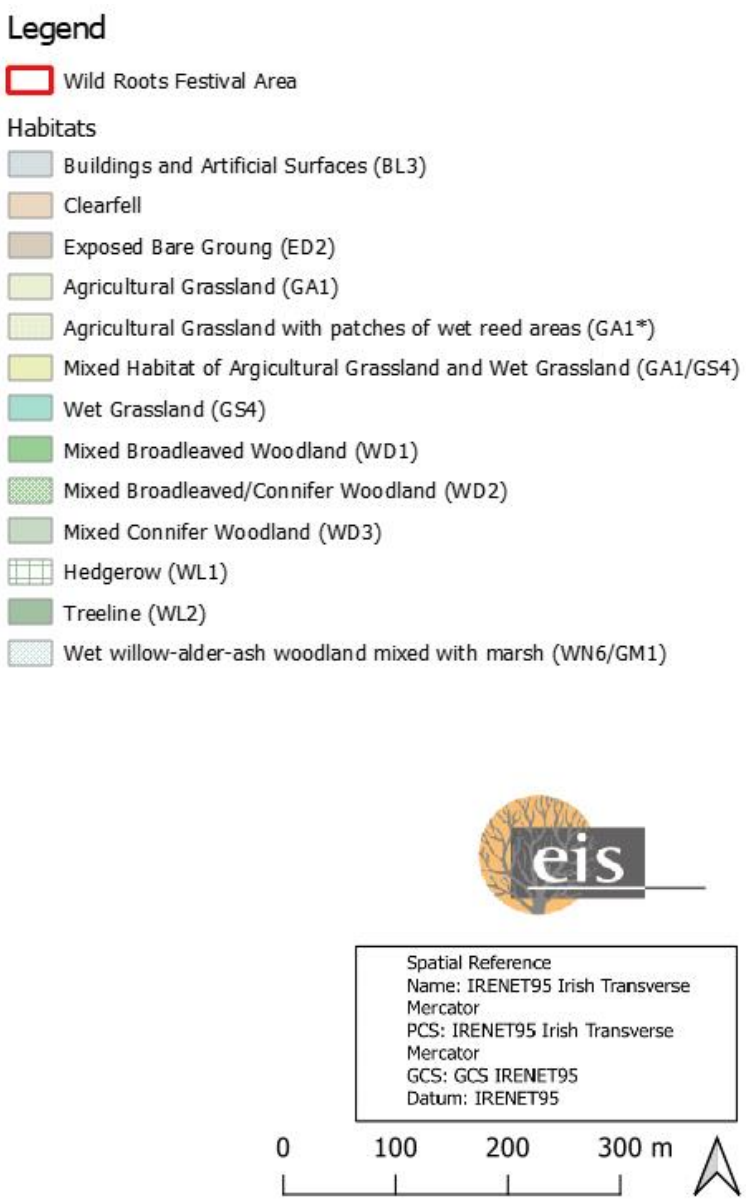

Figure 2.3 Woodland Patch used for Poetry reading within the SAC

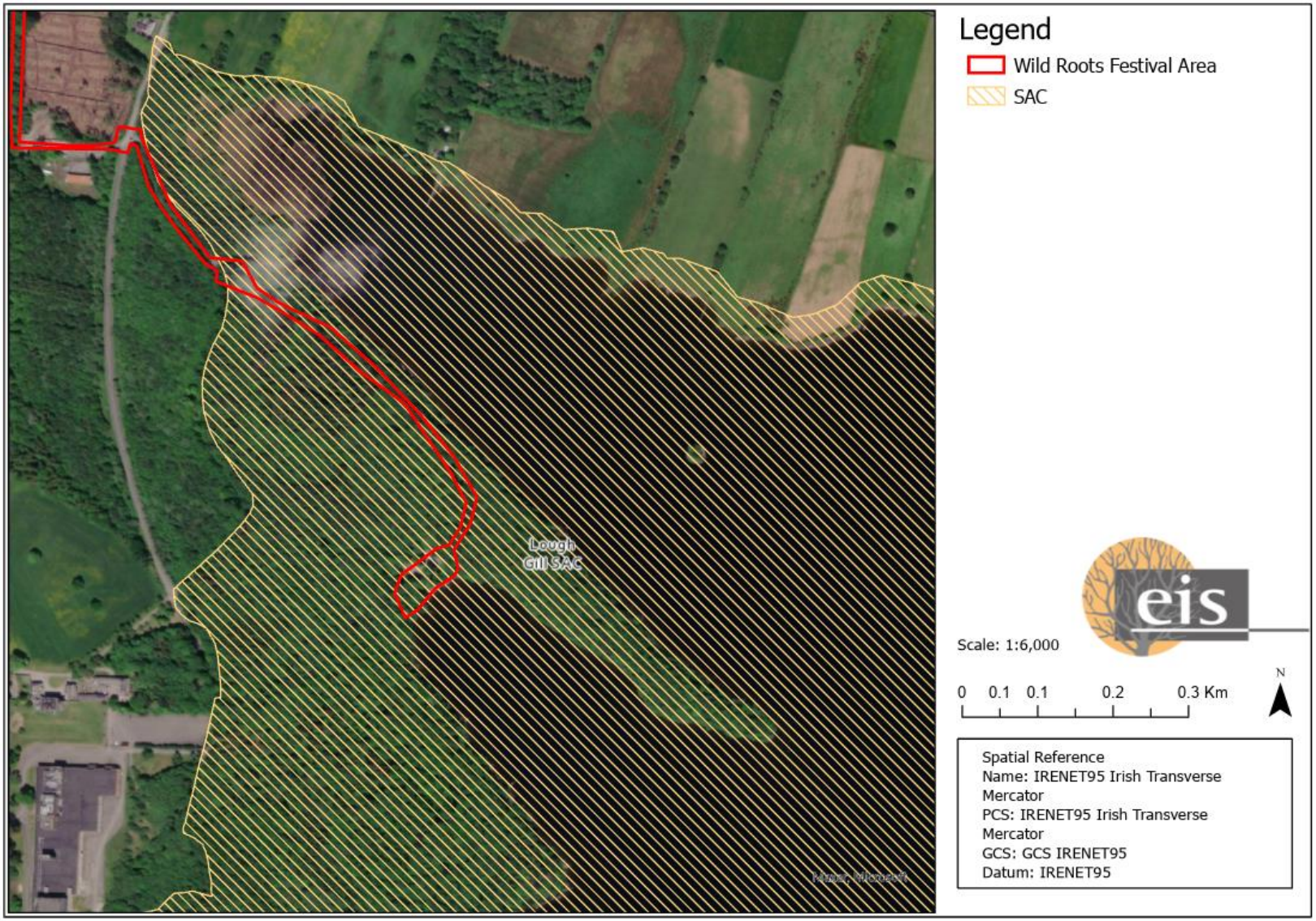

Figure 2.4 Route to and location of water activities that are within the SAC[5]

[5] note that activities will be ticketed throughout the festival

2.2. Proposed works at Hazelwood, Sligo

The NIS should be read in conjunction with the full event management plan, below is a summary of the key sections relevant to the ecological features of European sites.

An application is being made by NOC Events Limited to hold Wild Roots in the environs of Hazelwood from Friday 3rd to Monday 6th June 2022 (inclusive). The event will be a three-day family-friendly (boutique) music and arts festival. The maximum expected attendance is not anticipated to exceed 12,500 at any one time.

This Draft Event Management Plan has been prepared in accordance with the following codes of practice:

- Code of Practice for Safety at Outdoor Pop Concerts and other outdoor musical events which is a voluntary code issued by the Department of Education in January 1996.
- Code of Practice for Management of Fire Safety in Places of Assembly, Department of Environment.
- Code of Practice for Fire Safety of Furnishings and Fittings in Places if Assembly, Department of Environment.
- This plan includes / will include the following key elements:
- Event Management Structure & Responsibilities
- Event Safety Strategy
- Medical Facilities
- Site Security
- Traffic Management Plan
- Emergency Plans
- An environmental monitoring programme for before, during and after the proposed event

2.2.1. Main music activities:

- Friday 17.00 – 02.00
- Saturday 12.00 – 02.00
- Sunday 12.00 – 00.00

Ancillary entertainment is proposed each night (after main stages/ tents have ceased) both in the campsites and within the main arena. Pending satisfactory pre-opening checks of the arena, gates into the arena will open approximately one hour before the music begins in order to alleviate any queues forming, and to allow a safe and relaxed entry for those patrons attending the event. If substantial crowds congregate prior to opening times the gates may be opened earlier.

2.2.2. Infrastructure for the event:

Stages and marquees will be erected by specialist contract companies using a structurally validated system. All temporary structures will be inspected and certified by an Independent Structural Engineer.

See event management document for specific details.

2.2.3. Festival event:

The festival itself will be a live music and performance event that is 4-days long. The festival facilitates camping and will have associated services such as toilets, showers, food vendors, bar vendors etc.

2.2.4. Litter Management:

Wild Roots Festival have contracted a company to manage and implement Litter Management. They will have staff on patrol throughout the event to ensure there is no build-up of materials to cause a fire hazard. See the Appendix M for a copy of the litter management plan.

Refuse skips will be located at the event site in areas where the general public are not permitted.

2.2.5. Crowd control and temporary mesh fencing

Crowd control barriers and temporary mesh fencing will be used throughout the event site to secure site boundaries, protect structures and facilitate the safe distancing & movement of crowds. Additional barriers / fences are to be provided within the venue to prevent patrons entering potentially unsafe areas and to ensure an ordered egress at the end of the event.

In the case of the entrances, corral barriers are to be removed as soon as practicable after commencement of the festival. These barriers are to be immediately moved to one side of the exit in the event of an evacuation being initiated. In advance of commencement of the event a check is to be made on all exit gates on escape routes to ensure that padlocks, chains and any other fastenings are removed, so that gates can be readily and quickly opened in emergency by the security personnel manning the gate.

2.2.6. Site boundaries and barriers

Temporary barriers / fences are to be installed to provide a secure site boundary within the festival environs and the campsite area. Additional barriers will be provided where necessary to prevent patrons from access / entering potentially unsafe and historic areas. These are proposed to be located as shown on the draft site layout map.

For full details, please see the associated planning application which contains the full event management plan.

3. Screening for Appropriate Assessment

3.1. Introduction to Screening

This stage of the process identifies any potential significant affects to European sites from a project or plan, either alone or in combination with other projects or plans. A series of questions are asked in order to determine:

- Whether a plan or project can be excluded from AA requirements because it is directly connected with or necessary to the management of a European site.
- Whether the project will have a potentially significant effect on a European site, either alone or in combination with other projects or plans, in view of the site's conservation objectives or if residual uncertainty exists regarding potential impacts.

An important element of the AA process is the identification of the "'conservation objectives", "Qualifying Interests" (QIs) and/ or "Special Conservation Interests" (SCIs) of European sites requiring assessment. QIs are the habitat features and species listed in Annexes I and II of the Habitats Directive for which each European Site has been designated and afforded protection. SCIs are wetland habitats and bird species listed within Annexes I and II of the Birds Directive. It is also vital that the threats to the ecological / environmental conditions that are required to support QIs and SCIs are considered as part of the assessment.

The following NPWS Generic Conservation Objectives have been considered in the screening:

- For SACs, to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected; and
- For SPAs, to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

Where available, Site-Specific Conservation Objectives (SSCOs) designed to define favourable conservation status for a particular habitat[6] or species[7] at that site have been considered.

3.2. Identification of Relevant European Sites

The Department of the Environment (2009) Guidance on AA recommends a 15 km buffer zone to be considered. Although sites beyond this buffer zone would be considered if relevant, a review of all sites within this zone has allowed a determination to be made that in the absence of significant hydrological links the characteristics of the proposed project will not impose effects beyond the 15 km buffer.

Details of European sites that occur within 15 km of the proposed project boundary are provided in Table 3.1. European sites and EPA Rivers Catchments are also mapped in Figure 3.1 below. Information on QIs, SCIs and site-specific vulnerabilities and sensitivities (see Appendix I) and background information (such as that within Ireland's Article 17 Report to the European Commission, site synopses and Natura 2000 standard data forms) have been considered by both the AA screening assessment (provided under this section) and Stage 2 AA (provided under Section 4). Conservation objectives that have been considered by the assessment are included in the following National Parks and Wildlife Service documents:

- NPWS (2013) Conservation Objectives for Ballysadare Bay SAC [IE0000622] Version 1.
- NPWS (2021) Conservation objectives for Ben Bulben, Gleniff and Glenade Complex SAC [000623]. Generic Version 8.0. Department of Housing, Local Government and Heritage.

[6] Favourable conservation status of a habitat is achieved when: its natural range, and area it covers within that range, are stable or increasing; the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and the conservation status of its typical species is favourable.

[7] The favourable conservation status of a species is achieved when: population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

- NPWS (2013) Conservation Objectives for Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC [IE0000627] Version 1.
- NPWS (2021) Conservation Objectives: Union Wood SAC 000638. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
- NPWS (2015) Conservation Objectives for Streedagh Point Dunes SAC [IE0001680] Version 1.
- NPWS (2021) Conservation objectives for Unshin River SAC [001898]. Generic Version 8.0.
- Department of Housing, Local Government and Heritage.
- NPWS (2021) Conservation objectives for Glenade Lough SAC [001919]. Generic Version 8.0. Department of Housing, Local Government and Heritage.
- NPWS (2021) Conservation objectives for Lough Gill SAC [001976]. Generic Version 8.0. Department of Housing, Local Government and Heritage.
- NPWS (2013) Conservation Objectives for Drumcliff Bay SPA [IE0004013] Version 1.
- NPWS (2013) Conservation Objectives for Cummeen Strand SPA [IE0004035] Version 1.
- NPWS (2013) Conservation Objectives for Ballysadare Bay SPA [IE0004129] Version 1.
- NPWS (2021) Conservation objectives for Sligo/Leitrim Uplands SPA [004187]. Generic Version 8.0. Department of Housing, Local Government and Heritage.
- NPWS (2021) Conservation objectives for Ballintemple and Ballygilgan SPA [004234]. Generic Version 8.0. Department of Housing, Local Government and Heritage.

The assessment considers available conservation objectives. Since conservation objectives focus on maintaining the favourable conservation condition of the QIs/SCIs of each site, the screening process concentrated on assessing the potential effects of the proposed project against the QIs/SCIs of each site. The conservation objectives for each site were consulted throughout the assessment process.

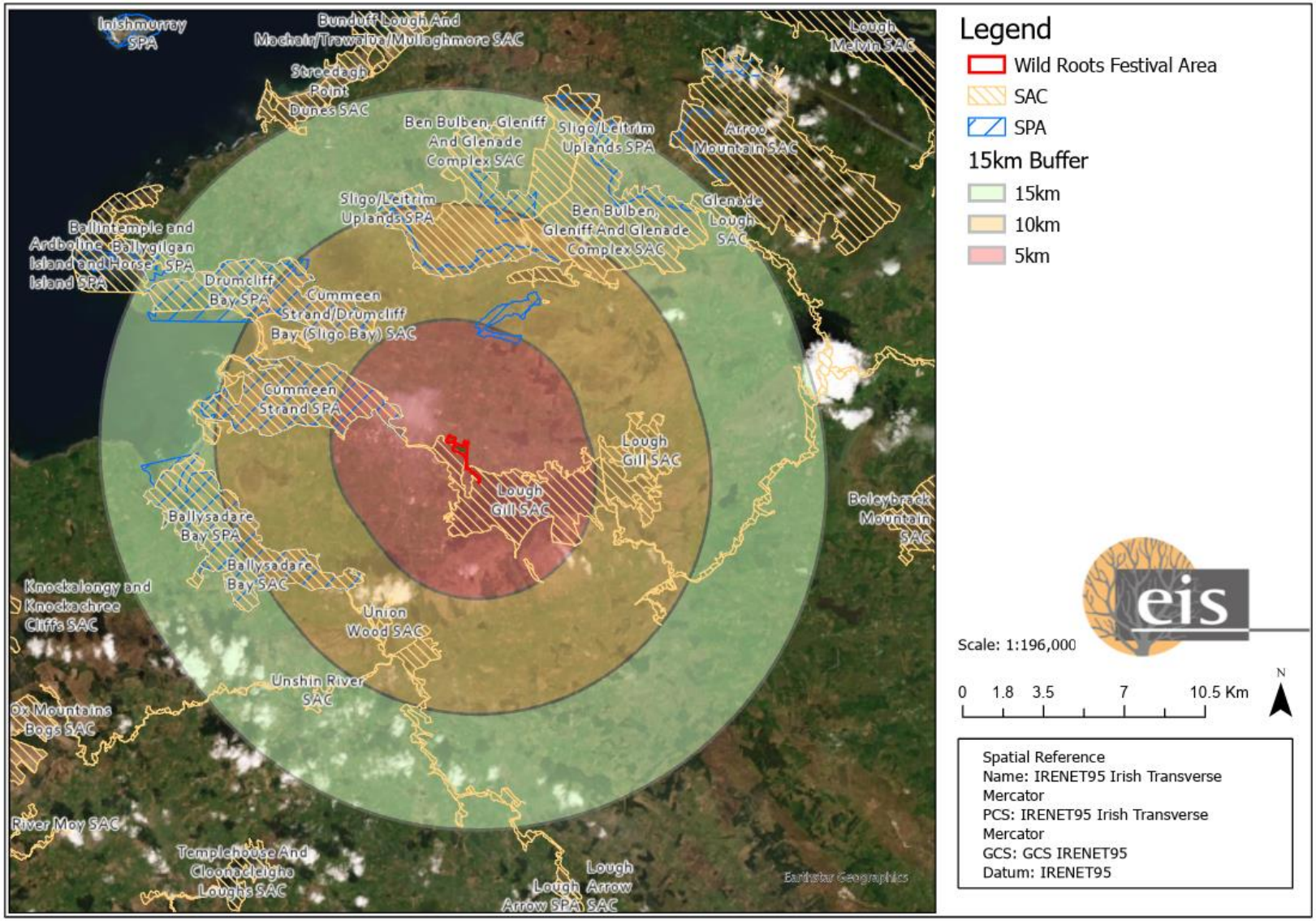

Figure 3.1 European sites within 15km of the boundary[8]

[8] Source: NPWS (datasets downloaded 26th April 2021)

3.3. Assessment Criteria and Screening

3.3.1. Is the proposed project Necessary to the Management of European Sites?

The overarching objective of the proposed project is not the nature conservation management of the sites, but to provide for a live music festival event with associated facilities such as camping, food stalls and activities. Therefore, the proposed project is not considered to be directly connected with or necessary to the management of European sites.

3.3.2. Elements of the proposed project with Potential to Give Rise to Effects

The proposed project has two primary avenues for potential effects; relating to the construction phase and the operational phase.

The construction phase introduces sources for potential effects such as habitat loss, disturbance through noise pollution, hydrological interactions through surface run off etc. The key areas for concern in this regard are:

- Augmentation of existing habitats within the footprint of the proposed structure itself and relating to construction compounds etc.;
- Construction and Earthworks sources such as Dust;
- Surface Water Management; and
- Noise and vibration.

Due to the nature and extent of the proposed project the construction phase will be small scale temporary; however, these potential effects are considered throughout the assessment process.

The operational phase of the festival will be for 4-days, at which time there will be up to 12,000 festival goes as well as staff, service providers, performers and other attendees. The festival will produce sources for effects such as noise pollution, grey water run-off from the shower and toilet facilities, increased litter potential, as well as trampling and habitat damage. The waste from the site of materials left behind is also a potential impact. Therefore, these sources are considered in the context of European sites below.

All potential sources for effects are considered in this assessment with respect to the ecological integrity of each of the European sites identified. Considering the sensitivities/vulnerabilities of the QIs and SCIs in relation to all potential sources for effects and potential pathways for such effects. Where sources and pathways for effects are identified potential effects will be assessed in relation to the SSCOs.

3.4. Screening of Sites

Table 3.1 examines whether there is potential for effects on European sites considering information provided above, including Appendix I. Sites are screened out based on one or a combination of the following criteria:

- The existence of potential for pathways for significant effects, such as hydrological links, proposed project proposals and the site to be screened;
- The distance of the relevant site from the proposed project boundary; and
- The existence of a link between identified threats or vulnerabilities at a site to potential impacts that may arise from the proposed project.

Table 3.1 Screening of European Sites

Site Code	Site Name	Distance	Qualifying Feature	Potential Effects	Pathway for Significant Effects	Potential for In-Combination Effects
001976	Lough Gill SAC	0	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150], Semi-natural dry grasslands and scrubland facies on calcareous substrates *(Festuco-Brometalia) (* important orchid sites)* [6210]. Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0], Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0], Austropotamobius pallipes *(White-clawed Crayfish)* [1092], Petromyzon marinus *(Sea Lamprey)* [1095], Lampetra planeri *(Brook Lamprey)* [1096], Lampetra fluviatilis *(River Lamprey)* [1099], Salmo salar *(Salmon)* [1106], Lutra lutra *(Otter)* [1355]	There are hydrological pathways for effects, and pathways for disturbance effects to QI species. Therefore, mitigation measures are required.	Yes	Yes
000627	Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	1.69	Common seal *(Phoca vitulina)* [1365], Estuaries [1130], Fixed coastal dunes with herbaceous vegetation *(""grey dunes"")*"" [2130], Narrow-mouthed whorl snail *(Vertigo angustior)* [1014], Semi-natural dry grasslands and scrubland facies on calcareous substrates *(Festuco-Brometalia) (* important orchid sites)* [6210], Shifting dunes *(Embryonic shifting dunes)* [2110], Fixed coastal dunes with herbaceous vegetation *("grey dunes")* [2130], Shifting dunes along the shoreline with Ammophila arenaria *("white dunes")* [2120], Embryonic shifting dunes [2110], Juniperus communis formations on heaths or calcareous grasslands [5130], Freshwater Pearl Mussel *(Margaritifera margaritifera [1029], Petrifying springs with tufa formation (Cratoneurion)* [7220], Mudflats and sandflats not covered by seawater at low tide [1140], River lamprey *(Lampetra fluviatilis)* [1099], Shifting dunes along the shoreline with Ammophila arenaria *(""white dunes"")*"" [2120], Sea lamprey *(Petromyzon marinus)* [1095]	The SAC is sensitive to hydrological interactions, effecting trophic structure as well as vulnerable species such as the freshwater pearl mussel; as well as direct land use management for the terrestrial habitats. There are no pathways for effects from the Festival to the terrestrial habitats and the hydrological pathway introduces significant dilution effects. This combined with the temporary (4-day event) and small-scale nature of the potential sources for effects, ensure there will be no effects to the European site. Therefore, no further consideration is required.	No	No
004035	Cummeen Strand SPA	1.83	Mew gull *(Larus canus)* [A182], Eurasian teal *(Anas crecca)* [A052], Common greenshank *(Tringa nebularia)* [A164], Red knot *(Calidris canutus)* [A143], Red-breasted merganser *(Mergus serrator)* [A069], European golden plover *(Pluvialis apricaria)* [A140], Wetland and Waterbirds [A999], Common shelduck *(Tadorna tadorna)* [A048], Eurasian wigeon *(Anas penelope)* [A050], Common redshank *(Tringa totanus)* [A162], Eurasian curlew *(Numenius arquata)* [A160], Northern lapwing *(Vanellus vanellus)* [A142], Eurasian oystercatcher *(Haematopus ostralegus)* [A130], Black-headed gull *(Larus ridibundus)* [A179], Ringed plover *(Charadrius hiaticula)* [A137], Ruddy turnstone *(Arenaria interpres)* [A169], Bar-tailed godwit *(Limosa lapponica)* [A157], Sanderling *(Calidris alba)* [A144], Mallard *(Anas platyrhynchos)* [A053]	There are hydrological pathways for effects, and pathways for disturbance effects to SCI species. Therefore, mitigation measures are required.	Yes	Yes
004013	Drumcliff Bay SPA	5.87	Red knot *(Calidris canutus)* [A143], Ringed plover *(Charadrius hiaticula)* [A137], Common greenshank *(Tringa nebularia)* [A164], Red-breasted merganser *(Mergus serrator)* [A069], Barnacle goose *(Branta leucopsis*	The SPA is sensitive to hydrological interaction and disturbance effect to the SCI species as well as direct land use management. There are	No	No

Site Code	Site Name	Distance	Qualifying Feature	Potential Effects	Pathway for Significant Effects	Potential for In-Combination Effects
			[Svalbard/Denmark/UK]) [A045], Common redshank *(Tringa totanus)* [A162], Whooper swan *(Cygnus cygnus)* [A038], Mallard *(Anas platyrhynchos)* [A053], Northern lapwing *(Vanellus vanellus)* [A142], Eurasian curlew *(Numenius arquata)* [A160], Eurasian oystercatcher *(Haematopus ostralegus)* [A130], Ruddy turnstone *(Arenaria interpres)* [A169], Common shelduck *(Tadorna tadorna)* [A048], Sanderling *(Calidris alba)* [A144], Wetland and Waterbirds [A999], Long-tailed duck *(Clangula hyemalis)* [A064], Barnacle goose *(Branta leucopsis)* [A045], Eurasian wigeon *(Anas penelope)* [A050], Bar-tailed godwit *(Limosa lapponica)* [A157], Barnacle goose *(Branta leucopsis [Eastern Greenland/Scotland/Ireland])* [A045]	no pathways for effects to the land use management at the SPA, given the distances between the SPA and the Festival there will be no noise pollution or disturbance effects at this distance. The hydrological pathway is through the marine environment and there is considerable dilution effects. Given the scale and temporary nature of the event and the indirect pathway, there are no effects identified to the European site. Therefore, no further consideration is required.		
000638	Union Wood SAC	6.17	Western acidic oak woodland *(Old sessile oak woods with Ilex and Blechnum in the British Isles)* [91A0], Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0]	The SAC is sensitive to direct land use management for the terrestrial habitats. There are no pathways for effects from the Festival to the terrestrial. Therefore, no further consideration is required.	No	No
000622	Ballysadare Bay SAC	6.29	Estuaries [1130], Narrow-mouthed whorl snail *(Vertigo angustior)* [1014], Shifting dunes *(Embryonic shifting dunes)* [2110], Humid dune slacks [2190], Freshwater Pearl Mussel *(Margaritifera margaritifera [1029], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with Ammophila arenaria (""white dunes"")*"" [2120], Fixed coastal dunes with herbaceous vegetation *(""grey dunes"")*"" [2130], Common seal *(Phoca vitulina)* [1365], Mudflats and sandflats not covered by seawater at low tide [1140], Fixed coastal dunes with herbaceous vegetation *("grey dunes")* [2130], Shifting dunes along the shoreline with Ammophila arenaria *("white dunes")* [2120]	The SAC is sensitive to hydrological interactions, effecting trophic structure as well as vulnerable species such as the freshwater pearl mussel; as well as direct land use management for the terrestrial habitats. There are no pathways for effects from the Festival to the terrestrial habitats and the hydrological pathway introduces significant dilution effects. This combined with the temporary (4-day event) and small-scale nature of the potential sources for effects, ensure there will be no effects to the European site. Therefore, no further consideration is required.	No	No
004129	Ballysadare Bay SPA	6.31	Common goldeneye *(Bucephala clangula)* [A067], Grey plover *(Pluvialis squatarola)* [A141], Eurasian curlew *(Numenius arquata)* [A160], Common greenshank *(Tringa nebularia)* [A164], Common redshank *(Tringa totanus)* [A162], Mew gull *(Larus canus)* [A182], Eurasian teal *(Anas crecca)* [A052], Brent Goose *(Light-bellied) (Branta bernicla hrota)* [A046], Eurasian oystercatcher *(Haematopus ostralegus)* [A130], Ringed plover *(Charadrius hiaticula)* [A137], Red-breasted merganser *(Mergus serrator)* [A069], Whooper swan *(Cygnus cygnus)* [A038], Mallard *(Anas platyrhynchos)* [A053], Wetland and Waterbirds [A999], Northern lapwing *(Vanellus vanellus)* [A142], Great cormorant *(Phalacrocorax carbo)* [A017], Common shelduck *(Tadorna tadorna)* [A048], Eurasian wigeon *(Anas penelope)* [A050], Black-headed gull	The SPA is sensitive to hydrological interaction and disturbance effect to the SCI species as well as direct land use management. There are no pathways for effects to the land use management at the SPA, given the distances between the SPA and the Festival there will be no noise pollution or disturbance effects at this distance. The hydrological pathway is through the marine environment and there is considerable dilution effects. Given the scale and temporary nature of the event and the	No	No

Site Code	Site Name	Distance	Qualifying Feature	Potential Effects	Pathway for Significant Effects	Potential for In-Combination Effects
			(Larus ridibundus) [A179], Ruddy turnstone *(Arenaria interpres)* [A169], Bar-tailed godwit *(Limosa lapponica)* [A157], European golden plover *(Pluvialis apricaria)* [A140], Dunlin *(Calidris alpina)* [A149]	indirect pathway, there are no effects identified to the European site. Therefore, no further consideration is required.		
001898	Unshin River SAC	6.56	Semi-natural dry grasslands and scrubland facies on calcareous substrates *(Festuco-Brometalia) (* important orchid sites)* [6210], Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260], Sea Lamprey *(Petromyzon marinus [1095], Otter (Lutra lutra)* [1355], Atlantic salmon *(Salmo salar)* [1106], Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0], Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinion caeruleae)* [6410]	The SAC is sensitive to hydrological interactions, effecting trophic structure as well as vulnerable species such as the freshwater pearl mussel; as well as direct land use management for the terrestrial habitats. There are no pathways for effects from the Festival to the terrestrial habitats and there is no hydrological connection between the two sites. Therefore, no further consideration is required.	No	No
000623	Ben Bulben, Gleniff and Glenade Complex SAC	6.85	Geyer`s whorl snail *(Vertigo geyeri)* [1013], Calcareous rocky slopes with chasmophytic vegetation [8210], Freshwater Pearl Mussel *(Margaritifera margaritifera [1029], Alpine and Boreal heaths [4060], Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)* [6210], Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260], Petrifying springs with tufa formation *(Cratoneurion)* [7220], Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430], Juniperus communis formations on heaths or calcareous grasslands [5130], Siliceous scree of the montane to snow levels *(Androsacetalia alpinae and Galeopsietalia ladani)* [8110], Transition mires and quaking bogs [7140], European dry heaths [4030], Alkaline fens [7230], Calcareous and calcshist screes of the montane to alpine levels *(Thlaspietea rotundifolii)* [8120], Otter *(Lutra lutra)* [1355], Species-rich Nardus grasslands, on silicious substrates in mountain areas *(and submountain areas in Continental Europe)* [6230], Northern Atlantic wet heaths with Erica tetralix [4010]	The SAC is sensitive to hydrological interactions, effecting trophic structure as well as vulnerable species such as the freshwater pearl mussel; as well as direct land use management for the terrestrial habitats. There are no pathways for effects from the Festival to the terrestrial habitats and there is no hydrological connection between the two sites. Therefore, no further consideration is required.	No	No
004187	Sligo/Leitrim Uplands SPA	8.55	Peregrine falcon *(Falco peregrinus)* [A103], Red-billed chough *(Pyrrhocorax pyrrhocorax)* [A346]	The SPA is sensitive to changes in trophic structure and disturbance effect to the SCI species as well as direct land use management. There are no pathways for effects to the land use management at the SPA, given the distances between the SPA and the Festival there will be no noise pollution or disturbance effects at this distance. Therefore, no further consideration is required.	No	No
004234	Ballintemple and Ballygilgan SPA	9.32	Barnacle goose *(Branta leucopsis)* [A045], Barnacle goose *(Branta leucopsis [Eastern Greenland/Scotland/Ireland])* [A045], Barnacle goose *(Branta*	The SPA is sensitive to hydrological interaction and disturbance effect to the SCI species as	No	No

Site Code	Site Name	Distance	Qualifying Feature	Potential Effects	Pathway for Significant Effects	Potential for In-Combination Effects
			leucopsis [Svalbard/Denmark/UK]) [A045]	well as direct land use management. There are no pathways for effects to the land use management at the SPA, given the distances between the SPA and the Festival there will be no noise pollution or disturbance effects at this distance. The hydrological pathway is through the marine environment and there is considerable dilution effects. Given the scale and temporary nature of the event and the indirect pathway, there are no effects identified to the European site. Therefore, no further consideration is required.		
001919	Glenade Lough SAC	14.07	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150], Slender naiad *(Najas flexilis)* [1833], Sea Lamprey *(Petromyzon marinus [1095], White-clawed (or Atlantic stream)* crayfish *(Austropotamobius pallipes)* [1092]	The SAC is sensitive to hydrological interactions, effecting trophic structure as well as vulnerable species such as the freshwater pearl mussel; as well as direct land use management for the terrestrial habitats. There are no pathways for effects from the Festival to the terrestrial habitats and there is no hydrological connection between the two sites. Therefore, no further consideration is required.	No	No
001680	Streedagh Point Dunes SAC	14.4	Petalwort *(Petalophyllum ralfsii [1395], Atlantic salt meadows (Glauco-Puccinellietalia maritimae)* [1330], Atlantic salt meadows *(Atlantic salt meadows (Glauco-Puccinellietalia maritimae)*) [1330], Mudflats and sandflats not covered by seawater at low tide [1140], Narrow-mouthed whorl snail *(Vertigo angustior)* [1014], Shifting dunes along the shoreline with Ammophila arenaria *(""white dunes"")*"" [2120], Perennial vegetation of stony banks [1220], Fixed coastal dunes with herbaceous vegetation *("grey dunes")* [2130], Shifting dunes along the shoreline with Ammophila arenaria *("white dunes")* [2120], Fixed coastal dunes with herbaceous vegetation *(""grey dunes"")*"" [2130], Mediterranean salt meadows *(Juncetalia maritimi)* [1410]	The SAC is sensitive to hydrological interactions, effecting trophic structure as well as vulnerable species such as the freshwater pearl mussel; as well as direct land use management for the terrestrial habitats. There are no pathways for effects from the Festival to the terrestrial habitats and the hydrological pathway introduces significant dilution effects. This combined with the temporary (4-day event) and small-scale nature of the potential sources for effects, ensure there will be no effects to the European site. Therefore, no further consideration is required.	No	No

3.5. Other plans and projects

Article 6(3) of the Habitats Directive requires an assessment of a plan or project to consider other plans or projects that might, in combination with the plan or project, have the potential to adversely affect European sites.

As part of this assessment each plan or project is considered within a radius of the red line boundary of the proposed area as defined by the ecologist. The distance of this radius works from a standard 200m, but can be extended if the ecologist deems it necessary depending on whether certain characteristics are present, such as:

- Direct or indirect connectivity to a European site;
- In close proximity to a European site;
- The proposal is of a substantial scale relative to the conditions and/or current works taking place in the surrounding landscape;
- The characteristics of the project are likely to have effects beyond the local environment.

These factors are considered particular to the festival and it was identified that, as the majority of the effects are localised and the connection to the European site is indirect, the 200m distance is adequate; however, it is noted that visitor movements within the Lough Gill SAC will occur however potential effects from this are addressed at source.

Plans of relevance in the context of this proposal include:

- Sligo County Development Plan 2017-2023
- There is no specific Local Area Plan for the Hazelwood area.

There are no specific policies or objectives that conflict with the proposed project. The proposed project is aligned with the development goals set out in the abovementioned plan and therefore in-combination effects are not identified. Furthermore, all policies and objectives contained within the County Development Plan relating to noise pollution etc. must be complied with.

Projects of relevance to this development:

To identify projects for consideration for the in-combination effects section, the National Planning and Housing development database was used[9]. A review of all planning applications within the identified zone was conducted focusing on all application within the past 5 years[10].

The planning applications in the surrounding area relate to alterations to existing structures such as a factory to a distillery, extensions to residential properties and commercial units. All of these are identified to be small scale and the temporary small-scale nature of the Festival, ensures that there will be no significant in combination effects.

[9] https://data-housinggovie.opendata.arcgis.com/datasets/planning-application-sites-2010-onwards;
[10] planning application have a standard lifespan of 5 years as per Section 40 (3)(b) of the Planning & Development Act 2000, as amended; thereofore, these are viewed to be the 'live' applications, all other projects are considered as part of the site context

Table 3.2 Local planning applications within the receiving environment of the Festival

Project Code	Status	Overview	Project Area (sq m)	Possible significant effects from plan or project	Is there a risk of in-combination effects	Possible Significant in-combination effects
18412	Conditional	for development consisting of amendments to previously permitted development PL 15/296. The changes sought are for: 1) an onsite waste water treatment plant (pop equivalent of 104); 2) Change to the cooling water supply as previously permitted to include.	977,741	Both projects are small scale with temporary construction phases. There are no direct pathways for effects to any European sites. Given the characteristics and scale of the projects combined with temporary nature of the festival there are no likely in combination effects.	No	No
15296	Conditional	consisting of a ten-year permission for (1) alterations and change of use of the former Saehan Media factory (20,170 sqm) to a whiskey distillery including ancillary bonded warehouse storage, distillation plant areas offices, visitor tour and staff facilities.	977,741	Both projects are small scale with temporary construction phases. There are no direct pathways for effects to any European sites. Given the characteristics and scale of the projects combined with temporary nature of the festival there are no likely in combination effects.	No	No
19203	Conditional	Development consisting of construction of a single storey extension of a living room and new entrance doorway to house.	2,980	Both projects are small scale with temporary construction phases. There are no direct pathways for effects to any European sites. Given the characteristics and scale of the projects combined with temporary nature of the festival there are no likely in combination effects.	No	No
17426	Conditional	for development consisting of the upgrade of an existing waste water treatment system to current EPA code of practice standards together with all associated ancillary works	2,964	Both projects are small scale with temporary construction phases. There are no direct pathways for effects to any European sites. Given the characteristics and scale of the projects combined with temporary nature of the festival there are no likely in combination effects.	No	No
18483	Conditional	for development consisting of the construction of a single storey side and rear extension with all associated site works	2,615	Both projects are small scale with temporary construction phases. There are no direct pathways for effects to any European sites. Given the characteristics and scale of the projects combined with temporary nature of the festival there are no likely in combination effects.	No	No

3.6. AA Screening Conclusion

The effects that could arise from the proposed project have been examined in the context of several factors that could potentially affect the integrity of any European site. On the basis of the findings of this Screening for AA, it is concluded that the proposed project:

- Is not directly connected with or necessary to the management of any European site; and
- May, if unmitigated, have significant adverse effects on 2 (no.) European sites.

Therefore, a Stage 2 AA is required for the proposed project (see Section 4 of this report). An AA Screening Determination undertaken by the planning authority accompanies this report and the Draft proposed project.

4. Stage 2 Appropriate Assessment

4.1. Introduction

The Stage 2 AA assesses whether the proposed project alone, or in-combination with other plans, programmes, and/or projects, would result in adverse effects on the integrity of the 2 European sites brought forward from screening (those considered on Table 3.1 for which there is "Potential Pathway for Significant Effects" and/or "Potential for In-Combination Effects"), with respect to site structure, function and/or conservation objectives.

4.2. Characterisation of European sites Potentially Affected

The AA Screening identified 2 European sites with pathway receptors for potential effects arising from the implementation of the proposed project. Appendix I characterises each of the qualifying features of the 2 European sites brought forward from Stage 1 in context of each of the sites' vulnerabilities. Each of these site characterisations were taken from the NPWS website[11].

4.3. Identifying and Characterising Potential Significant Effects

The following parameters can be used when characterising impacts[12]: Sites are screened out based on one or a combination of the following criteria:

- where it can be shown that there are no significant pathways such as hydrological links between activities of the and a site;
- where a site is located at such a distance from area that effects are not foreseen; and
- where known threats or vulnerabilities of a site cannot be linked to potential impacts that may arise from the proposed project.

4.4. Characterising potential significant effects

The following parameters are described when characterising impacts (following guidance from the Chartered Institute of Ecology and Environmental Management, Environmental Protection Agency and National Roads Authority):

- **Direct and Indirect Impacts** - An impact can be caused either as a direct or as an indirect consequence of a Plan/Project.
- **Magnitude** - Magnitude measures the size of an impact, which is described as high, medium, low, very low or negligible.
- **Extent** - The area over that the impact occurs – this should be predicted in a quantified manner
- **Duration** - The time that the effect is expected to last prior to recovery or replacement of the resource or feature.
  - Temporary: Up to 1 Year;
  - Short Term: The effects would take 1-7 years to be mitigated;
  - Medium Term: The effects would take 7-15 years to be mitigated;
  - Long Term: The effects would take 15-60 years to be mitigated; and
  - Permanent: The effects would take 60+ years to be mitigated.
- **Likelihood** – The probability of the effect occurring taking into account all available information.
  - Certain/Near Certain: >95% chance of occurring as predicted;
  - Probable: 50-95% chance as occurring as predicted;
  - Unlikely: 5-50% chance as occurring as predicted; and
  - Extremely Unlikely: <5% chance as occurring as predicted.

The Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines for ecological

[11] Last accessed 26th April 2021; https://www.npws.ie/protected-sites

[12] These descriptions are informed by publications including: Chartered Institute of Ecology and Environmental Management (2016) "Guidelines for ecological impact assessment"; Environmental Protection Agency (2002) "Guidelines on the Information to be contained in Environmental Impact Statements"; and National Roads Authority (2009) "Guidelines for Assessment of Ecological Impacts of National Roads Schemes".

impact assessment (2016) define: an ecologically significant impact as an impact (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographic area; and the integrity of a site as the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified.

The Habitats Directive requires the focus of the assessment at this stage to be on the integrity of the site as indicated by its Conservation Objectives. It is an aim of NPWS to draw up conservation management plans for all areas designated for nature conservation. These plans will, among other things, set clear objectives for the conservation of the features of interest within a site.

SSCOs have been prepared for a number of European sites. These detailed SSCOs aim to define favourable conservation condition for the qualifying habitats and species at that site by setting targets for appropriate attributes which define the character habitat. The maintenance of the favourable condition for these habitats and species at the site level will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

> Favourable conservation status of a species can be described as being achieved when: *'population data on the species concerned indicate that it is maintaining itself, and the natural range of the species is neither being reduced or likely to be reduced for the foreseeable future, and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.'*
>
> Favourable conservation status of a habitat can be described as being achieved when: *'its natural range, and area it covers within that range, is stable or increasing, and the ecological factors that are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable'.*

A Generic Conservation Objective for a cSAC is provided below:

- To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.

A Generic Conservation Objective for a SPA is provided below:

- To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

EC guidance[13] outlines the types of effects that may affect European sites. These include effects from the following activities.

4.4.1. Types of Potential Effects

Assessment of potential effects on European sites is conducted utilising a standard source-pathway model (see approach referred to under Sections 1.3 and 3). The 2001 European Commission AA guidance outlines the following potential changes that may occur at a designated site, which may result in effects on the integrity and function of that site: loss/reduction of habitat area; habitat or species fragmentation; disturbance to key species; reduction in species density; changes in key indicators of conservation value (water quality etc.); and climate change. Each of these potential changes are considered below and in Table 4.1 with reference to the QIs/SCIs of all of the European sites brought forward from Stage 1 of the AA process (see Section 3).

4.4.2. Loss/Reduction of Habitat Area

The closest SAC to the Festival area is the Lough Gill SAC which is directly adjacent to the site, and some of the activities at the festival are within the SAC (see Figure 2.3 and Figure 2.4). The closest SPA is 1.83 km away from the proposed red line boundary.

The operational phase elements of the project could result in habitat loss though visitor movements (as identified above), the key considerations in this regard relate to:

[13] Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, European Commission Environment DG, 2001

- Destruction of structures, vegetation or fauna; and
- Trampling of herbaceous vegetation.

Therefore, habitat loss or reduction could arise through the implementation of the proposed project as a result of improper visitor management; either within Annex I priority habitat or within habitat which supports Annex II species. The habitat assessments undertaken at the site were incorporated into the route selection process and location of activities at Lough Gill. Further details in relation to the visitor management protocols can be found in section 5. The access points to the lake were specifically selected to avoid effects to the SAC. The habitats identified within the footprint of the proposed project at Hazelwood do not align with any Annex I priority habitat which form part of the associated SAC. Similarly, the habitats present on site were not identified to be supporting habitat utilised by the SCI species of the associated SPA.

In relation to the woodland patch which is identified to be used for events of the festival; this is a Coilte managed coniferous plantation which has recently been cleared of rhododendron. Therefore, the area is devoid of natural vegetation.

As can be seen in the picture above this habitat does not provide any supporting role to the QI of the SAC. This site will be accessed along existing Coilte access tracks which can be seen below.

The works in this area will require the removal of deadwood and minor ground resurfacing works within the Coilte plantation. For this the wood will be moved a pile within the woodland to be replaced after the event. The ground underfoot has no ground flora, and is irregular, the groundworks will manually augment the soil to level it in a manner that will not undermine the stability of the root system. The works undertaken in this area will be supervised by an ecological clerk of works to ensure the earth works do not impact the trees, and the deadwood piles remain within the woodland for return later. All lighting and artwork will be hung in a manner that does not damage the trees. Following the event, the area will be returned to existing condition, however the topography will remain in its altered state; however, there is no ecological implications of this in the context of the SAC.

Therefore, there will be no loss or reduction of Annex I habitats or supporting habitat for Annex II species. See section 5 for further details in relation to the Mitigation Measures.

4.4.3. Habitat or species Fragmentation

As previously stated, the proposed project provides for infrastructure developments which have associated effects. However, all structures being built are small scale temporary and are predominantly located within Agricultural Grassland. On site clearance works are extremely minor, and will be the removal of a few branches for safety along existing walkways which have existing management practices associated with them. Furthermore, the site will be returned to the original condition at the end of the event, and therefore there are no habitat fragmentation issues identified for the event.

4.4.4. Disturbance to Key Species

Lough gill is designated for a range of habitats which are not affected by disturbance effects. 5 of the 6 QI species are exclusively aquatic and bound to the lake. There is no suitable habitat for otter within the festival boundary except in the areas which directly interact with Lough Gill. Whilst there is a general perception that otters are negatively affected by disturbance effects, there has been little published evidence demonstrating any consistent relationship with pollution or human disturbance (Mason & Macdonald 1986; Delibes et al. 1991; Bailey & Rochford, 2006) and breeding and/or colonisation

success. The NPWS published Otter Survey of Ireland report states the following: '*No significant relationships were detected with other habitat variables, nor, surprisingly, with pollution or human disturbance* [14]'; this statement is confirmed in the subsequent revision of this assessment in 2013 published by the NPWS[15][16]. It is common knowledge that otters are not sensitive to disturbance effects, as recognised in the NPWS publications. Therefore, very small-scale disturbance events at 2 locations in the SAC, which are already hard surface concrete and gravel entry points to the water with continual high frequency use by humans, which will occur for 5 days during the proposed project, is not a potential significant effect to the SAC.

To provide further clarity the context of the site is explained. The closest point of the main festival area to the water's edge is over 700m away from anywhere with potential for hosting otter activity. Given the attenuation of sound in air, the distance, the acoustic buffer effects from the woodlands and the temporary nature (4 days) of the festival, there are no sources for significant disturbance effects to otters from the main activities of the festival. However, with respect to disturbance effects to otters, this is a 4-day event which will have on site water-based activities that are ticketed and controlled within the daylight hours. As discussed in the reports, there are 2 points at which the visitors will access the lake itself; these have been surveyed and do not have any otter holts present and they are existing recreation areas. Furthermore, all recreation on the lake will be undertaken within daylight hours. Otters are crepuscular and nocturnal animals, and as such they will be inactive when the lake is in use by festival goers during high daylight hours. Similar to bats, there is no additional presence data required for otter as there are no sources that will persist for more than 3 days. Therefore, the only potential source for effects to otter relate to visitor use of the lake during controlled recreation activities in the daytime – which are deemed not significant due to the reasons stated above.

Disturbance effects are caused by any activity that has potential to alter the movement patterns/distribution of species. Disturbance effects can relate to direct disturbance through human activity/movement or noise pollution. This is particularly relevant in relation to visitor movements at Lough Gill for water sports and to the noise disturbance from the construction and operational phases. Therefore, visitor management and noise management plans have been devised. It is important to note that the event is only 4-days long and therefore all associated disturbance effects are considered in the context of this duration. Nonetheless, mitigation measures have been described to further minimise potential effects. These measures relate to noise reduction protocols and chaperoned visitor movements outside of the main festival area along existing tracks down to the designated launch points which are being serviced by existing operators from the area. Furthermore, the visitor management plan states that all activities in the lake will be constrained to the deep areas of the lake and the shallow vegetated areas such as reed beds will be avoided to ensure disturbance effects for the 4-day period are minimised. For further detail in relation to the visitor management strategy and noise considerations see section 5.

4.4.5. Reduction in species density

Species densities are reliant on species distributions, habitat condition, connectivity of ecological resources and availability of resources such as prey/food. The proposed project introduces potential sources for effects to affect these four determinant factors for species densities in the form of construction phase effects such as habitat destruction, light pollution, hydrological interaction or operational effects such as disturbance effects, habitat encroachment, trampling etc.

Detailed survey work has been undertaken at the site, particularly in relation to the QIs and SCIs of the

[14] Bailey, M. and Rochford J. (2006) Otter Survey of Ireland 2004/2005. Irish Wildlife Manuals, No. 23. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

[15] Some level of perceived disturbance (on an ordinal scale from 1-5) was recorded at 578 sites (59%) but 53% of these had a score of less than 3 (intermediate levels). Sources of disturbance included canal resectioning with bank maintenance at 216 sites (22%) and canalisation with mechanical weed control at 110 sites (11%). Boating activity and harbours occurred at 94 sites (10%) whilst angling, shooting and game keepering were present at 212 sites (22%). Mink were recorded at 117 sites out of 841 (14% occurrence) at which surveyors completed the field survey (see Appendix III). None of these perceived pressures or water quality was determined as actual threats as none was retained in the top models of otter occurrence, and thus had no discernible negative effect on otter occurrence in either rivers, lakes or the coast (Fig. 15).

[16] Reid, N., Hayden, B., Lundy, M.G., Pietravalle, S., McDonald, R.A. & Montgomery, W.I. (2013) National Otter Survey of Ireland 2010/12. Irish Wildlife Manuals No. 76. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

nearby European sites. Hydrological interactions are likely to cause alterations to the trophic structure of a site; however, these interactions are discussed below. The site is an agricultural landholding, with no ecological features of note on site. The area where visitors will access the lake is within the Lough Gill SAC. However, the site selection process was cognisant of the ecological feature and existing access points were selected and will be serviced by extant activity providers in the area. A visitor management plan has been devised and a ticketing system will be used to control visitor movements at this area. Therefore, these activities will not interact with any vegetation or habitat quality metrics. Similarly, the area of woodland which is within the SAC boundary does not align with the QIs for which the habitat is designated and there are no supporting habitats for Annex II species of the site within this area. The temporary construction works in this area will not result in a loss of habitat quality and the site will be returned to existing condition after the site work. An ecological clerk of works will be appointed to ensure these works are implemented in such a way that no trees are removed from the woodland patch.

There are no annex I habitats or supporting habitats for annex II species - relevant to the European sites identified in the area - that were identified during the field surveys within the footprint of the development. Therefore, aside from the visitor management plan and ecological clerk of works there are no additional mitigation measures required to avoid effects to species density that are not already identified for disturbance effects, habitat interactions and/or water quality interactions.

4.4.6. Changes of Indicators of Conservation Value

Water quality is the primary macro indicator of conservation value. The proposed project is adjacent to the water's edge and therefore construction phase effects could introduce sources for effects with respect to water quality. Sources such as greywater run off could interact with the ecological integrity of European sites. Therefore, a Greywater Management Plan has been devised for the proposed project to ensure operational phase effects are avoided. All greywater from the site from the toilet and shower facilities will be collected and removed from the site to be disposed of by a wastewater treatment company (see associated grey water management plan). There is only 1 open water source at the location and this is within the camping area, therefore there are no construction elements that may interact with this waterway. This area will be fenced off to ensure festival goers are not able to access this to avoid potential contamination events. In addition to this there are 2 locations (identified previously) where festival goers will access the lake. These will be ticketed excursions which will be chaperoned to the lake and managed throughout their experience. The Halfmoon Bay area is a cobble beach area and therefore, there is limited potential for silt mobilisation. The concrete plinth area has a build-up of silt present; therefore, a floating pontoon will be used to minimise the silt mobilisation from visitor movements in this area. The floating pontoon will be anchored on land in the hard surfaced and managed areas to ensure there is no interaction with natural habitats. This pontoon will minimise the amount of silt kicked up from the visitors. However, it is important to note that the number of people accessing the water at any one time will be controlled and the access followed a timetabled schedule (see associated visitor management plan for details). Any increased siltation will be localised and temporary (for the 4-day period) and therefore, this is not identified to be a significant effect.

4.4.7. Climate change

The proposed works will not result in any greenhouse gas emissions to air during the operational phase. The construction phase works will have increased temporary emissions which will be localised however, given the distance to the nearest European site these are determined to be negligible. Such effects upon greenhouse gas emissions will not affect changes projected to arise from climate change to the degree that it would affect the QIs or SCIs of the European sites considered.

Characterisation of Potential Effects arising from the subject land area

Site Code	Site Name	Characterisation of potential effects	Qualifying Interests	Potential Impacts
001976	Lough Gill SAC	The known threats and pressures for the SAC are: Grazing in forests or woodland, invasive non-native species, dispersed habitation, disposal of inert materials, modifying structures of inland water courses, management of aquatic and bank vegetation for drainage purposes, sylviculture, forestry, removal of hedges and copses or scrub, continuous urbanisation, paths, tracks, cycling tracks, motorized nautical sports. These threats and pressures relate to interactions with the bankside character, forestry and agricultural practices, paths tracks and trails and motorised nautical sports. The festival does not introduce any potential sources for any of these effects. The aquatic activities being provided by the festival do not include motorised nautical sports. The sources for effects from the festival relate to hydrological interactions, threats related to visitor movements at the SAC and noise interactions. The mitigation measures designed to avoid the effects include a visitor management plan, floating pontoon to avoid excess siltation issues, greywater management systems and noise reduction measures; as well as the appointment of an ecological clerk of works for the poetry podium installation works. See section 5 for further details.	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150],	Hydrological interactions from the festival are likely to affect this QI. The greywater and construction protocols are required to mitigate potential effects. There will be localised increases in siltation levels, however the pontoon will minimise this. The QI species are known to be resilient to temporary siltation effects as would be consistent with flood events. Therefore, there are no significant effects identified in this regard. Nonetheless a floating pontoon is being installed to minimise any potential effects.
			Semi-natural dry grasslands and scrubland facies on calcareous substrates *(Festuco-Brometalia) (* important orchid sites)* [6210].	There are no sources with pathways for effects to this QI as this habitat is sensitive to local management practices and there are no features of this habitat at or near the festival.
			Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0],	There are no sources with pathways for effects to this QI as this habitat is sensitive to local management practices and there are no features of this habitat at or near the festival.
			Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0],	Hydrological interactions from the festival are likely to affect this QI. The greywater and construction protocols are required to mitigate potential effects.
			Austropotamobius pallipes *(White-clawed Crayfish)* [1092],	Hydrological interactions from the festival are likely to affect this QI. The greywater and construction protocols are required to mitigate potential effects. Additionally, issue related to biosecurity with regard to recreational activities are required. Disturbance effects will persist for 4 days with regard to ticketed supervised aquatic recreation. These disturbance effects are not likely to be significant as they are existing recreational operators and the disturbance effects will only last 4 days. There will be localised increases in siltation levels, however the pontoon will minimise this. The QI species are known to be resilient to temporary siltation effects as would be consistent with flood events. Therefore, there are no significant effects identified in this regard. Nonetheless a floating pontoon is being installed to minimise any potential effects.
			Petromyzon marinus *(Sea Lamprey)* [1095],	Hydrological interactions from the festival are likely to affect this QI. The greywater and construction protocols are required to mitigate potential effects. Additionally, issue related to biosecurity with regard to recreational activities are required. Disturbance effects will persist for 4 days with regard to ticketed supervised aquatic recreation. These disturbance effects are not likely to be significant as they are existing recreational operators and the disturbance effects will only last 4 days. There will be localised increases in siltation levels, however the pontoon will minimise this. The QI species are known to be resilient to temporary siltation effects as would be consistent

Site Code	Site Name	Characterisation of potential effects	Qualifying Interests	Potential Impacts
				with flood events. Therefore, there are no significant effects identified in this regard. Nonetheless a floating pontoon is being installed to minimise any potential effects.
			Lampetra planeri *(Brook Lamprey)* [1096],	Hydrological interactions from the festival are likely to affect this QI. The greywater and construction protocols are required to mitigate potential effects. Additionally, issue related to biosecurity with regard to recreational activities are required. Disturbance effects will persist for 4 days with regard to ticketed supervised aquatic recreation. These disturbance effects are not likely to be significant as they are existing recreational operators and the disturbance effects will only last 4 days. There will be localised increases in siltation levels, however the pontoon will minimise this. The QI species are known to be resilient to temporary siltation effects as would be consistent with flood events. Therefore, there are no significant effects identified in this regard. Nonetheless a floating pontoon is being installed to minimise any potential effects.
			Lampetra fluviatilis *(River Lamprey)* [1099],	Hydrological interactions from the festival are likely to affect this QI. The greywater and construction protocols are required to mitigate potential effects. Additionally, issue related to biosecurity with regard to recreational activities are required. Disturbance effects will persist for 4 days with regard to ticketed supervised aquatic recreation. These disturbance effects are not likely to be significant as they are existing recreational operators and the disturbance effects will only last 4 days. There will be localised increases in siltation levels, however the pontoon will minimise this. The QI species are known to be resilient to temporary siltation effects as would be consistent with flood events. Therefore, there are no significant effects identified in this regard. Nonetheless a floating pontoon is being installed to minimise any potential effects.
			Salmo salar *(Salmon)* [1106],	Hydrological interactions from the festival are likely to affect this QI. The greywater and construction protocols are required to mitigate potential effects. Additionally, issue related to biosecurity with regard to recreational activities are required. Disturbance effects will persist for 4 days with regard to ticketed supervised aquatic recreation. These disturbance effects are not likely to be significant as they are existing recreational operators and the disturbance effects will only last 4 days. There will be localised increases in siltation levels, however the pontoon will minimise this. The QI species are known to be resilient to temporary siltation effects as would be consistent with flood events. Therefore, there are no significant effects identified in this regard. Nonetheless a floating pontoon is being installed to minimise any potential effects.

Site Code	Site Name	Characterisation of potential effects	Qualifying Interests	Potential Impacts
			Lutra lutra *(Otter)* [1355]	Hydrological interactions from the festival are likely to affect this QI. The greywater and construction protocols are required to mitigate potential effects. Additionally, issue related to biosecurity with regard to recreational activities are required. Disturbance effects will persist for 4 days with regard to ticketed supervised aquatic recreation. These disturbance effects are not likely to be significant as they are existing recreational operators and the disturbance effects will only last 4 days.
004035	Cummeen Strand SPA	Leisure fishing, fertilisation, urbanised areas, human habitation, industrial or commercial areas, shipping lanes, reclamation of land from sea, estuary or marsh, roads, motorways, pollution, marine and freshwater aquaculture. These threats relate to urbanisation, fishing interactions, sea protection works and pollution. The only potential source for effect from the festival that interact with the known threats and pressures relate to pollution. However, the indirect hydrological pathway reduces the potential risk. Nevertheless, following the precautionary principal a grey water management system has been employed as well as a visitor management plan to reduce potential hydrological interactions. Given the distance between the festival and the SPA there are no disturbance effects identified from the main festival; however, there is potential for SCI species to use Lough gill as a foraging location, therefore the visitor use of the lake could cause disturbance effects. The visitor management plan ensures no movement will be incurred in the reed beds or shallow areas and therefore there are no significant effects identified pending the implementation of these mitigation measures. For further details see section 5.	Mew gull *(Larus canus)* [A182], Eurasian teal *(Anas crecca)* [A052], Common greenshank *(Tringa nebularia)* [A164], Red knot *(Calidris canutus)* [A143], Red-breasted merganser *(Mergus serrator)* [A069], European golden plover *(Pluvialis apricaria)* [A140], Wetland and Waterbirds [A999], Common shelduck *(Tadorna tadorna)* [A048], Eurasian wigeon *(Anas penelope)* [A050], Common redshank *(Tringa totanus)* [A162], Eurasian curlew *(Numenius arquata)* [A160], Northern lapwing *(Vanellus vanellus)* [A142], Eurasian oystercatcher *(Haematopus ostralegus)* [A130], Black-headed gull *(Larus ridibundus)* [A179], Ringed plover *(Charadrius hiaticula)* [A137], Ruddy turnstone *(Arenaria interpres)* [A169], Bar-tailed godwit *(Limosa lapponica)* [A157], Sanderling *(Calidris alba)* [A144], Mallard *(Anas platyrhynchos)* [A053]	Hydrological interactions from the festival are likely to affect the SCIs. The greywater and construction protocols are required to mitigate potential effects.

5. Mitigation Measures

This section outlines measures that have been incorporated into the proposed project in order to mitigate against potential effects to European sites as identified above. The proposed project was prepared in an iterative manner whereby the project design (including the location of the proposed structure) and AA documents have informed subsequent versions of the other. These mitigation measures ensure that there will be no significant effects to the ecological integrity of any European site from implementation of the proposed project. The mitigation measures most relevant to the protection of European sites are identified in Table 5.1 below.

Table 5.1 Mitigation measures devised to avoid or minimise potential effects to European sites

Mitigation Measure	Detail
Site selection process	The selection of the launch points for the water sports activities were informed by ecological considerations to ensure the areas were free from habitat features which aligned with Annex I or supported Annex II species for which the SAC was designated.
Best Practice Construction Control Measures	Routine practice and procedures to prevent pollution of the environment will apply. These include: • During the construction stage, standard construction and site management practices will be implemented by the contractor; • All material including oils, solvents and paints will be stored within temporary bunded areas or dedicated bunded containers; • Refuelling will take place in a designated bunded area away from surface water gullies, drains and water bodies, in the event of refuelling outside of this area, fuel will be transported in a mobile double skinned tank; • All machinery and plant used will be regularly maintained and serviced and will comply with appropriate standards to ensure that leakage of diesel, oil and lubricants is prevented; • Spill kits and hydrocarbon absorbent packs will be available and drip trays will be used during refuelling; • Drainage wardens/silt socks will be placed around drainage gullies connected to the live network; • Ongoing monitoring of the water receptors throughout the works; • Excavated material will be segregated into inert, non-hazardous and/or hazardous fractions; • The excavation and handling of inert material will be carefully managed in such a way as to prevent any potential negative impact on the receiving environment.
Greywater management	Sources of greywater on site: - Traders - Showers - Sinks All greywater on site will be collected and held in 1000L waste water tanks. These will be monitored throughout the site by the site management team and emptied as required and emptied post event. Two Sligo contactors JJ Drains and Whimsey will be contracted to drain out the IBC tanks.
Hydrological interactions	A floating pontoon will be installed at the concrete launch point for the recreational activities. This will be secured on the landward side and the rock pier – not anchored in the lake itself. The floating pontoon will facilitate visitors walking from the hard infrastructure areas to their recreational activity without direct trampling of the substrate. This will reduce the siltation disturbance and avoid direct trampling effects.
Visitor Management Plan	Appendix G of the Event Management Plan Figure 2.0 shows the area where chaperone staff will meet festival goers to engage in water activities. These individuals will be brought along the walkway to points C and E where the activities will launch and return from. Key sections of the Visitor Management Plan include: **Adventure activities on the water:** The Wild Roots festival is partnering with various outdoor adventure activity providers to bring festival attendees out on Lough Gill. Tour operators are: Northwest adventure tours Sligo: providing Stand-up Paddle tours 35 people at a time.

Mitigation Measure	Detail
	Sligo Kayak tours: providing kayak tours 35 people at a time. Wild West Sailing: Sailing trips for up to 16 people at one time. The Rose of Innisfree tour boat: Lake tours for 50 people at one time. These activities will be staggered through the day to reduce traffic on the walkways and on the water. A sample timetable: • 10.00am - SUP tour • 10.15am - Sailing Tour • 10.30am - Kayak tour • 10.45am - Boat Tour This schedule will be repeated between 10am and 5pm each day. … The attendees will then be escorted by festival staff to the activity providers at point E shown on the map in figure 2.0. The purple line marked on the above maps is a public walkway. The access to this walkway from the festival arena will be staffed with security 24 hours a day. Only festival attendees who are accompanied by festival staff with an activity booked can proceed down this walkway and only at allocated times. The walkway will be lined with ropes to prevent people from leaving the allocated walkway. Festival staff and security will be situated along the paths to ensure attendees safety and the safety of the land. Festival attendees will leave the public walkway and proceed through privately owned land (at point D on the map) to access another public road and proceed to point E on the map where they will begin their outdoor activity. From here the festival attendees will be briefed by the adventure providers and will head out on the water. The water activity will end at Anna Bay slipway marked on the map point C. At point C on the map there will be a temporary floating pontoon erected to facilitate the entry and exit of the water-based activities. Festival attendees will walk back to the main festival arena from point C along the public walkway marked purple on the map. The same way they arrived. All outdoor adventure providers must adhere to our user's agreement. The user agreement specifically states: All equipment - stand up paddle boards, kayaks, paddles etc. used at this area must be washed down before and after use in this area in a manner which prevents the spread of invasive species such as zebra mussels. All visitor activities will avoid the shallow lake edge areas, particularly soft vegetated areas such as reed beds.
Biosecurity of aquatic habitats	The aquatic recreational activities are being provided by local providers who already operate from Lough Gill. Therefore, there are no additional sources for effects in this regard. However, all outdoor adventure providers must adhere to our user's agreement. The user agreement specifically states: All equipment - stand up paddle boards, kayaks, paddles etc. used at this area must be washed down before and after use in this area in a manner which prevents the spread of invasive species such as zebra mussels. All visitor activities will avoid the shallow lake edge areas, particularly soft vegetated areas such as reed beds.
Noise reduction protocols	NOISE MONITORING The accepted sound levels will be in accordance with the Code of Practice on Environmental Noise Control at Concerts, or as otherwise agreed with the Local Authority. James Walsh (SED) has been contracted to assess the potential impact of noise and will advise both the organiser and the Festival's Technical team to ensure that the impact of noise is minimised. An acoustic monitoring system will be installed for the Wild Roots Festival and readings will be taken throughout the event in accordance with the code of practice in agreement with the Environmental Health Department. All of the equipment used for the event will be prefabricated for safety and speed of erection. No heavy drilling, debris or nuisance which can arise with normal building construction is due to arise in the context of the set up for this event. Should the organisers receive a call or complaint from a local resident adversely affected by noise every effort will be made immediately to rectify the situation. Ear Plugs will be made available to all staff throughout the event on request. In certain areas like stages etc. they will be provided by default rather than on request.

Mitigation Measure	Detail
	Furthermore, a sound test will be undertaken in advance of the festival to ensure these metrics will be attired to in advance of the live event.
Ecological Clerk of Works	An ecological clerk of works will be appointed to monitoring all vegetation clearance which will be limited to the removal of branches for health and safety reasons related to walkways. As well as the supervision of the installation of the poetry podium and associated earthworks, lighting and artwork. The ecological clerk of works will ensure no trees are removed and that all fallen dead wood is collected and stored within the woodland to be replaced after the event.
Clear up Programme	CLEAN UP PROGRAMME, REMOVAL OF STRUCTURES & REINSTATEMENT / REMEDIAL WORKS Staff and volunteers will be engaged to undertake a clean-up in all areas before, during and immediately after the event. It is noted the work on the removal of all temporary structures associated with the event (i.e. stages, delays etc) will commence immediately following the event and will be fully completed together with any reinstatement works required on the site, within a reasonable time scale. It is not anticipated that any damage to public property, facilities or amenities in the area of the Event will arise.

Table 5.2 Other mitigation measures devised to avoid or minimise potential effects to ecological features of the receiving environment not relevant to European sites

Lighting	All edge lighting shall be placed 2m from the treeline and face inwards towards the event. This will facilitate the foraging or commuting of bats along the treeline as the event continues.
Vegetation Clearance	No trees will be removed, only light pruning will be undertaken on site for safety reasons and to manage existing pathways to be free from debris for access.
Badger Sett	A 30m buffer zone will be fenced off around the badger sett, that will allow the badgers to pass into the broader woodland area, but will preclude festival goers from accessing the badger sett. No works will take place in and around the sett to ensure the sett will remain intact.

6. Conclusion

Stage 1 AA Screening and Stage 2 AA of the Wild Roots Festival at Hazelwood Sligo has been carried out. Implementation of the proposed project at Hazelwood, Sligo has the potential to result in effects to the integrity of any European sites, if unmitigated.

The risks to the safeguarding and integrity of the qualifying interests, special conservation interests and conservation objectives of the European sites have been addressed by the inclusion of mitigation measures that will prioritise the avoidance of effects in the first place and mitigate effects where these cannot be avoided.

In-combination effects from interactions with other plans and projects was considered in the assessment and the mitigation measures incorporated into the plan are seen to be robust to ensure there will be no significant adverse effects as a result of the implementation of the proposed project either alone or in-combination with other plans/projects.

Having incorporated mitigation measures, it is concluded that the Wild Roots Festival at Hazelwood Sligo is not foreseen to give rise to any significant adverse effects on designated European sites, alone or in combination with other plans or projects[17]. This evaluation is made in view of the conservation objectives of the habitats or species, for which these sites have been designated.

[17] Except as provided for in Article 6(4) of the Habitats Directive, viz. There must be: a) no alternative solution available, b) imperative reasons of overriding public interest for the plan to proceed; and c) Adequate compensatory measures in place.

Appendix I Background information on European sites

Site characteristics and quality of European sites within 15km of the subject lands

Site Code	Site Name	Documentation	Quality of Site	Other Site Characteristics
000638	Union Wood SAC	Curtis T. Goodwillie R. and Young R. (1978). Areas of Scientific Interest in County Sligo. Unpublished report An Foras Forbartha Dublin.	A typical western oakwood of the Blechno-Quercetum type but ecological interest lowered by the presence of conifers and other exotics. Also, regeneration may be low. Nevertheless, one of the best remaining oakwoods in the region and has good prospects as it is state owned.	Situated on a slope on the eastern side of the Ballysadare River the acidic soils are underlain by gneiss. In places the woodland has a fairly natural open character and a typical flora. There is a rich epiphytic flora. There is however much inter- and under-planting with commercial conifers. Habitat diversity is created by an area of heath which is dominated by Calluna vulgaris at Union Rock.
001680	Streedagh Point Dunes SAC	Cawley M. (1996). Notes on some non-marine mollusca from Co Sligo and Co Leitrim including a new site for Vertigo geyeri Lindholm. Irish Naturalists? Journal 25: 183-185. Colhoun K. (1998). I-WeBS Report 1996-97. BirdWatch Ireland Dublin. Curtis T.G.F. (1991a). A site inventory of the sandy coasts of Ireland. In Quigley M.B. (ed.) A Guide to the Sand Dunes of Ireland. E.U.C.C. Dublin. Curtis T.G.F. (1991b). The flora and vegetation of sand dunes in Ireland. In Quigley M.B. (ed.) A Guide to the Sand Dunes of Ireland. E.U.C.C. Dublin.Curtis T. Goodwillie R. and Young R. (1978). A preliminary report on areas of scientific interest in County Sligo An Foras Forbartha Dublin.Curtis T.G.F. and Sheehy Skeffington M.J. (1998). The salt marshes of Ireland: an inventory and account of their geographical variation. Biology and the Environment Proceedings of the Royal Irish Academy 98B: 87-104. Falvey J.P. Costello M.J. and Dempsey S. (1997). Survey of intertidal biotopes in estuaries in Ireland. Unpublished report to the National Parks and Wildlife Service Dublin.Moorkens E.A. (1997). An Inventory of Mollusca in Potential SAC Sites with Special Reference to Vertigo angustior V. moulinsiana and V. geyeri. Unpublished report National Parks & Wildlife Service Dublin. Sheppard R. (1993). Ireland?s Wetland Wealth. IWC Dublin.	Sand dunes are part of an interesting tombolo formation. Fixed dunes are well represented and are notably species-rich. Also, good development of shifting marram dunes and both Atlantic and Mediterranean salt meadows. Extensive intertidal sand flats of good quality. The Annex II mollusc Vertigo angustior recently confirmed at site. Supports moderate populations of wintering waterfowl. Site of importance for both ecological geological and geomorphological reasons.	Situated on the north Co. Sligo coastline this site comprises a fine diversity of coastal habitats. A shingle/stony spit is overlaid by a well-developed sand dune system fronted by a boulder beach. The spit provides shelter for the formation of salt marshes which fringe extensive intertidal sand flats. The River Grange flows into the site. Underlying geology is limestone (Glencar formation) shale (Benbulben formation) and sandstone (Mullaghmore formation). The fossilised remains of corals and brachiopods are locally abundant. Site also has a number of National Monuments. Main landuses within site are grazing and recreational activities.
001898	Unshin River SAC	Browne A. Dunne F. and Roche N. (2000). A Survey of Broadleaf Woodlands in three SACs: Barrow-Nore River Unshin and Lough Forbes. Unpublished report to National Parks and Wildlife Dublin. Central Fisheries Board (2001). Irish Salmon Catches 2000.	The Unshin River is an excellent example of a pristine unmanaged undrained lowland limestone river and is extremely important as it represents one of only four remaining undrained limestone rivers in Ireland. Such rivers as this are otherwise	The Unshin River has a spring-fed lake Lough Arrow as its source and flows north-westwards for some 24 km to reach the sea at Ballysadare Bay. The river supports a rich aquatic and emergent flora and runs beside or through a wide variety of

Site Code	Site Name	Documentation	Quality of Site	Other Site Characteristics
		http://www.cfb.ie/:February 2001.Doris Y. McGarrigle M.L. Clabby K.J. Lucey J. Neill M. Flanagan M. Quinn M.B. Sugrue M. and Lehane M. (1999). Water Quality in Ireland 1995-1997. Statistical Compendium of River Quality Data. Electronic Publication on Disk. Environmental Protection Agency Wexford.Goodwillie R.N. Buckley P. and Douglas C. (1992). Owenmore River Proposed Arterial Drainage Environmental Impact Assessment. Botanical and Ornithological Surveys. Unpublished report to the National Parks and Wildlife Service Office of Public Works Dublin.Holmes N.T.H. (1996). River Unshin - Macrophyte Community. Notes of Records Made During May 1996 RHS Surveys. Unpublished report.O'Reilly P. (1991). Trout and Salmon Rivers of Ireland: An Anglers Guide. Merlin Unwin Books London.	almost unknown in Europe. It is unpolluted for almost its entire length and supports a species-rich diverse aquatic flora several important bird species fish and several rare riverbank plant species including Poa palustris. Of particular importance is the population of Salmo salar. The site is used by Lutra lutra. A good diversity of adjacent habitats is found along its length including alluvial woodland.	habitats. The site also includes the Ballysadare and Owenboy/Owenbeg rivers. The whole site is underlain by Carboniferous limestone.
004013	Drumcliff Bay SPA	Colhoun K. (2001). I-WeBS Report 1998-99. BirdWatch Ireland Dublin. Curtis T.G.F. and Sheehy Skeffington M.J. (1998). The salt marshes of Ireland: an inventory and account of their geographical variation. Biology and Environment Proceedings of the Royal Irish Academy 98B: 87-104. Falvey J.P. Costello M.J. and Dempsey S. (1997). Survey of Intertidal Biotopes in Estuaries in Ireland. Unpublished report to the National Parks and Wildlife Service Dublin.Goodwillie R. (1972). A Preliminary Report on Areas of Scientific Interest in County Sligo. An Foras Forbartha Dublin.Hunt J. Derwin J. Coveney J. and Newton S. (2000). Republic of Ireland. Pp. 365-416 in Heath M.F. and Evans M.I. (eds). Important Bird Areas in Europe: Priority Sites for Conservation 1: Northern Europe. Cambridge UK: BirdLife International (BirdLife Conservation Series No. 8). Irish Wetland Birds Survey (I-WeBS) Database 1994/95-2000/01. BirdWatch Ireland Dublin. McGarrigle M.L. Bowman J.J. Clabby K.J. Lucey J. Cunningham P. MacCarthaigh M. Keegan M. Cantrell B. Lehane M. Clenaghan C. and Toner P.F. (2002). Water Quality in Ireland 1998-2000. Environmental Protection Agency Wexford. Merne O.J. (1989). Important bird areas in the Republic of Ireland. In: Grimmett R.F.A. and Jones T.A. (eds). Important Bird Areas in	Drumcliff Bay SPA is of importance for the diversity of wintering waterfowl and is an integral part of the larger unit of Sligo Bay. Its principal importance however is that it supports an internationally important population of Branta leucopsis which is one of the two most important flocks in the country (ca. 21% of the national total). It also supports nationally important populations of Calidris alba (4.0% of the national total) and populations of Clangula hyemalis and Limosa lapponica that are close to national importance as well as a population of Cygnus cygnus of local/regional importance. More intensive survey may show that higher numbers of some species occur. Drumcliff Bay has a population of Phoca vitulina.	Drumcliff Bay is the most northerly sector of Sligo Bay's three estuarine inlets. It extends from the village of Drumcliff as far west as Raghly Point a distance of over 9 km. The innermost part of the site is well sheltered and at low tide extensive intertidal flats are exposed. The flats support Zostera noltii. The outer part of the site is shallow marine water. Sandy beaches are well represented along with some salt marsh and stony shoreline. The site includes goose-feeding fields of improved grassland at Ballygilgan and Ballintemple. Some mixed woodland is also included.

Site Code	Site Name	Documentation	Quality of Site	Other Site Characteristics
		Europe. ICBP Technical Publication No. 9. Cambridge. Merne O.J. and Walsh A. (1994). Barnacle Geese in Ireland spring 1993 and 1994. Irish Birds 5: 151-156.Merne O.J. and Walsh A. (2002). Barnacle Geese in Ireland spring 1999. Irish Birds 7: 53-56.Sheppard R. (1993). Ireland's Wetland Wealth. IWC Dublin.		
004234	Ballintemple and Ballygilgan SPA	Hunt J. Derwin J. Coveney J. and Newton S. (2000). Republic of Ireland. Pp. 365-416 in Heath M.F. and Evans M.I. (eds). Important Bird Areas in Europe: Priority Sites for Conservation 1: Northern Europe. Cambridge UK: BirdLife International (BirdLife Conservation Series No. 8). Merne O.J. (1989). Important Bird Areas in the Republic of Ireland. In: Grimmett R.F.A. and Jones T.A. (eds). Important Bird Areas in Europe. ICBP Technical Publication No. 9 Cambridge. Merne O.J. and Walsh A. (1994). Barnacle Geese in Ireland spring 1993 and 1994. Irish Birds 5: 151-156.Merne O.J. and Walsh A. (2002). Barnacle Geese in Ireland spring 1999. Irish Birds 7: 53-56.Merne O.J. and Walsh A. (2003). Barnacle Geese Branta leucopsis in Ireland spring 2003. Irish Birds 7: 173-176.Mitchell P.I. Walsh A. Hall. C. and Crowe O. (2008). Greenland Branacle Geese Branta leucopsis in Britain and Ireland: Results of the International Census Spring 2008. Wildfowl & Wetlands Trust Slimbridge.	The fields at Ballintemple and Ballygilgan support an internationally important population of Branta leucopsis (1838 - 4 year survey mean for the period 1993-2003). The population of Branta leucopsis at the site has increased in recent years (3930 in 2008 and c. 5000 in 2011) and is now the most important site in the country for this species. The geese feed for much of the winter on fields at Ballintemple and Ballygilgan which are their core feeding sites and roost on the nearby island of Inishmurray.	Ballintemple and Ballygilgan SPA comprises two separate areas of fields supporting agriculturally-improved grassland situated on the north side of Drumcliff Bay Co. Sligo.
000622	Ballysadare Bay SAC	Bowman J.J. Clabby K.J. Lucey J. Mc Garrigle M.L. and Toner P.H. (1996). Water Quality in Ireland 1991-1994. Environmental Protection Agency Wexford.Cawley M. (1996). Notes on some non-marine mollusca from Co Sligo and Co Leitrim including a new site for Vertigo geyeri Lindholm. Irish Naturalists? Journal 25: 183-185. Colhoun K. (1998). I-WeBS Report 1996-97. BirdWatch Ireland Dublin. Cronin M. Duck C. Ã‘ Cadhla O. Nairn R. Strong D. and O'Keeffe C. (2004). Harbour seal population assessment in the Republic of Ireland: August 2003. Irish Wildlife Manuals No. 11. National Parks & Wildlife Service Department of Environment Heritage and Local Government 7 Ely Place Dublin 2 Ireland. 34 pp.Cronin M. Duck C. Ã‘ Cadhla O. Nairn R. Strong D. and O'Keeffe C. (2007). An assessment of harbour seal population size and distribution in the Republic of Ireland	This large site displays an excellent diversity of coastal habitats. The estuarine and intertidal sand and mud flat habitats are typical of the region and are extensive in area and of good quality. The sand dune system is highly dynamic with the tip of the peninsula actively growing and displaying a good though limited example of embryonic shifting dunes. The shifting marram dunes are fairly extensive in area and are also displaying signs of growth. An area of fixed dunes of moderate size also occurs which has a flora typical of western dunes. A small area of humid dune slack remains. Actively developing dune systems are rare in western Ireland. Site is important for occurrence of the Annex II mollusc Vertigo angustior. A nationally important colony of Phoca vitulina also occurs. An excellent diversity of waterfowl winter at site including two Annex I Bird Directive species	Ballysadare Bay is the most southerly of the three inlets of Sligo Bay. It is the estuary of the Ballysadare River which receives the flows of the Unshin Owenboy and Owenbeg rivers. The Ballysadare River flows through the small town of Ballysadare before entering the bay. It is a large site extending along a 10 km south-east to west-north-west axis from Ballysadare town to the sea at Marley?s Point. The bay has an average width of c.2 km. A sand dune spit extends into the outer bay at Culleenamore restricting the outlet to the sea to a width of c.700 m. Other habitats present include salt marshes small saline lakes or ponds dry grassland wet grassland reedbeds and scrub. Recreation is a main landuse within the site.

Site Code	Site Name	Documentation	Quality of Site	Other Site Characteristics
		during the 2003 moult season. J. Zool. Lond. 273 Issue 2: 131-139.Curtis T.G.F. and Sheehy Skeffington M.J. (1998). The salt marshes of Ireland: an inventory and account of their geographical variation. Biology and the Environment Proceedings of the Royal Irish Academy 98B: 87-104. Curtis T.G.F. (1991a). A site inventory of the sandy coasts of Ireland. In Quigley M.B. (ed.) A Guide to the Sand Dunes of Ireland. E.U.C.C. Dublin. Curtis T.G.F. (1991b). The flora and vegetation of sand dunes in Ireland. In Quigley M.B. (ed.) A Guide to the Sand Dunes of Ireland. E.U.C.C. Dublin.Falvey J.P. Costello M.J. and Dempsey S. (1997). Survey of Intertidal Biotopes in Estuaries in Ireland. Unpublished report to the National Parks and Wildlife Service Dublin.Gaynor K. and Browne A. (1999). Survey of Irish Links Golf Courses. Unpublished report for DÃºchas the Heritage Service Dublin.Goodwillie R. (1972). A Preliminary Report on Areas of Scientific Interest in County Sligo. An Foras Forbartha Dublin.Goodwillie R. Buckley P. and Douglas C. (1992). Owenmore River. Proposed Arterial Drainage Environmental Impact Assessment. Botanical and Ornithological Surveys. Unpublished report for National Parks & Wildlife Service Dublin. Harrington R. (1990). 1989 survey of breeding herds of common seal Phoca vitulina with reference to previous surveys. Report to the National Parks & Wildlife Service. 10pp.Lyons D.O. (2004). Summary of National Parks & Wildlife Service surveys for common (harbour) seals (Phoca vitulina) and grey seals (Halichoerus grypus) 1978 to 2003. Irish Wildlife Manuals No. 13. National Parks & Wildlife Service Department of Environment Heritage and Local Government 7 Ely Place Dublin 2 Ireland. 67pp.Lockley R.M. (1966). The distribution of grey and common seals on the coasts of Ireland. Irish Naturalists? Journal 15: 136-143. Merne O.J. (1989). Important bird areas in the Republic of Ireland. In: Grimmett R.F.A. and Jones T.A. (eds) Important Bird Areas in Europe. ICBP Technical Publication No. 9. Cambridge. Moorkens E.A. (1997). An Inventory of Mollusca in Potential SAC Sites with Special Reference to Vertigo angustior V. moulinsiana and V. geyeri. Unpublished	(Pluvialis apricaria Limosa lapponica). Six other species winter in nationally important numbers and there is an internationally important population of Branta bernicla horta. A number of localised insect species are known from the site.	

Site Code	Site Name	Documentation	Quality of Site	Other Site Characteristics
		report National Parks & Wildlife Service Dublin. Praeger R.L. (1934). The Botanist in Ireland. Hodges Figgis and Co Dublin. Sheppard R. (1993). Ireland?s Wetland Wealth. IWC Dublin. Summers C.F. Warner P.J. Nairn R.G.W. Curry M.G. and Flynn J. (1980). An assessment of the status of the common seal (Phoca vitulina vitulina) in Ireland. Biological Conservation 17: 115-123. Warner P. (1983). An assessment of the breeding populations of common seal (Phoca vitulina vitulina L.) in the Republic of Ireland during 1979. Irish Naturalists? Journal 21: 24-26. Warner P. (1984). Report on the Census of Common Seals (Phoca vitulina vitulina) in the Republic of Ireland during 1984. Unpublished document to the Forest and Wildlife Service Dublin.		
000623	Ben Bulben Gleniff and Glenade Complex SAC	Goodwillie R.N. (1978). Areas of Scientific Interest in County Leitrim. Unpublished report to Leitrim County Council. An Foras Forbartha Dublin.Stelfox A.W. (1965). Salix hibernica Rechinger f. The Irish Naturalists' Journal 15:25-29.Barrington R.M. and Vowell R.P. (1885). Report on the flora of Ben Bulben and the adjoining mountain range in Sligo and Leitrim Proceedings of the Royal Irish Academy. 2nd series. 4: 493-517.Synnott D.M. (1984). Notes on Salix phylicifolia L. and related Irish willows Glasra 7: 1-10.Corry T.H. (1884). On the heights attained by plants on Ben Bulben Proceedings of the Royal Irish Academy. 2nd series. 4: 73-77.Kirby N. Lockhart N. and Synott D.M. (1980). Bryological observations at Gleniff County Sligo (H28) Bulletin of the Irish Biogeographical Society 4: 30-32.Curtis T.G.F. Goodwillie R.N. and Young R. (1978). Areas of Scientific Interest in County Sligo. Unpublished report to Sligo County Council An Foras Forbartha Dublin.	The site holds the finest examples of limestone cliffs in the country. These and the scree slopes below are home to extremely species-rich and diverse montane vascular plant bryophyte and lichen floras which include many Red Data Book species and species known only from this or one or two other sites in the country. The site holds a large number of pertifying springs an extensive area of dry heath and a small area of alpine heath; much of the blanket bog on the site is eroding and of rather low quality. Several populations of the rare mollusc Vertigo geyeri have recently been recorded from calcareous flushes within the site- these comprise the first records for Co. Leitrim. The occurrence of four pairs of Falco peregrinus breeding on the site is notable. The site is also utilised by Lutra lutra. The site has a little known but potentially interesting invertebrate fauna. The site is the type locality for the Ben Bulben shale the Glencar limestone and the Dartry limestone.	The site comprises a high plateau of carboniferous limestone capped by shale standing 300-650 metres above the surrounding country and sloping gently to the south-east. The edges of the plateau form steep high cliffs below which is found a skirt of scree. The cliffs and scree hold a rich diversity of arctic-alpine plants; the summit of the plateau is less diverse but does have extensive areas of blanket bog and heath with rock outcropping frequently. A large number of streams drain the site many of which form waterfalls. Glencar Lough a medium-sized lake is found on the southern side of the site. Wet and dry grassland scrub broad-leaved deciduous flushes swallow holes and small areas of fen and limestone pavement are also found on the site. Disused barytes workings occur above Gleniff valley.
004035	Cummeen Strand SPA	Colhoun K. (2001). I-WeBS Report 1998-99. BirdWatch Ireland Dublin. Curtis T.G.F. and Sheehy Skeffington M.J. (1998). The salt marshes of Ireland: an inventory and account of their geographical variation. Biology and Environment Proceedings of the Royal Irish Academy 98B: 87-104. Falvey J.P. Costello M.J. and Dempsey S. (1997). Survey of intertidal biotopes in estuaries in Ireland. Unpublished report to the National Parks and Wildlife Service Dublin.Goodwillie R. (1972). A	Cummeen Strand is of importance for the diversity of wintering waterfowl and is an integral part of the larger unit of Sligo Bay. The site has an internationally important population of Branta bernicla hrota and supports nationally important numbers of Haematopus ostralegus and Tringa totanus. Both Pluvialis apricaria and Limosa lapponica utilise the site though in relatively low numbers. The intertidal flats which have well-developed macro-invertebrate communities and	Cummeen Strand SPA comprises the greater part of Sligo Harbour the middle one of the three 'arms' forming Sligo Bay. The site extends for up to 7 km from east to west and has an average width of c.2.5 km. The site is the estuary of the Garavoge River a short slow-flowing river which flows from Lough Gill. The harbour is very enclosed with the mouth of the harbour being sheltered by two islands (Coney Island and Oyster Island). A large proportion of the estuary is intertidal (> 80%).

Site Code	Site Name	Documentation	Quality of Site	Other Site Characteristics
		Preliminary Report on Areas of Scientific Interest in County Sligo. An Foras Forbartha Dublin.Hunt J. Derwin J. Coveney J. and Newton S. (2000). Republic of Ireland. Pp. 365-416 in Heath M.F. and Evans M.I. (eds). Important Bird Areas in Europe: Priority Sites for Conservation 1: Northern Europe. Cambridge UK: BirdLife International (BirdLife Conservation Series No. 8). Irish Wetland Birds Survey (I-WeBS) Database 1994/95-2000/01. BirdWatch Ireland Dublin. Jennings O'Donovan and Partners (1998). Sligo Main Drainage Waste Water Treatment Works. Environmental Impact Statement Main Report Volumes 1 and 2. Report prepared for Sligo Corporation. McGarrigle M.L. Bowman J.J. Clabby K.J. Lucey J. Cunningham P. MacCarthaigh M. Keegan M. Cantrell B. Lehane M. Clenaghan C. and Toner P.F. (2002). Water Quality in Ireland 1998-2000. Environmental Protection Agency Wexford. Merne O.J. (1989). Important bird areas in the Republic of Ireland. In: Grimmett R.F.A. and Jones T.A. (eds). Important Bird Areas in Europe. ICBP Technical Publication No. 9. Cambridge. Sheppard R. (1993). Ireland's Wetland Wealth. IWC Dublin.	Zostera beds provide good feeding grounds for the wintering birds. Birds roost on the salt marshes and upper shoreline though on high tides some may leave the site to roost elsewhere.	Sediments are predominantly sands or coarser materials though muddy sands or muds also occur. Zostera beds are present. The intertidal sand and mud flats are fringed by salt marshes in places but mostly stony shoreline. Sligo Harbour is a regional port for the town of Sligo.
004187	Sligo/Leitrim Uplands SPA	Berrow S.D. Mackie K.I. O'Sullivan O. Shephard K.B. Mellon C. and Coveney J.A. (1992). The Second International Chough Survey Ireland. Irish Birds 5:1-10 Bullock I.D. Drewett D.R. and Mickleburgh S.P. (1983). The Chough in Britain and Ireland. British Birds 76: 377-401. Environment and Heritage Service (2000). Biodiversity in Northern Ireland. Northern Ireland Species Action Plan: Chough. Environment and Heritage Service Belfast. Gray N. Thomas G. Trewby M. and Newton S.F. (2003). The status and distribution of Chough Pyrrhocorax pyrrhocorax in the Republic of Ireland 2002/03. Irish Birds 7: 147-156. Madden B. (in prep.). Breeding Survey of Peregrine Falcons in the Republic of Ireland 2002. Unpublished Report to NPWS Dublin. Norriss D.W. (1995). The 1991 survey and weather impacts on the Peregrine Falco peregrinus breeding population in the Republic of Ireland. Bird Study 42: 20-30.	The cliffs hold nesting Chough a Red Data Book species that is listed on Annex I of the E.U. Birds Directive; 14 breeding pairs were recorded from the site in the 1992 survey and 15 in the 2002/03 survey. Chough forage mostly on unimproved closely grazed grassland and flocks of up to 29 have been seen. The land on the plateau is for the most part vegetated by heath and blanket bog which is largely unsuitable habitat for Chough. The extensive uplands on the plateau provide excellent habitat for Peregrine; the cliffs are ideal nesting sites and five pairs were recorded in 2002.	The Sligo/Leitirm Uplands SPA is located north-east of the town of Sligo in the mountain range of Ben Bulben Arroo and Cope's Mountain/Crockauns. The site straddles the Co. Sligo/Co. Leitrim border. The site includes six separate lengths of cliffs in these ranges including those of King's Mountain Benbulbin Benwiskin Gleniff Truskmore Tievebaun Glenade Glencar Arroo Mountain and Cope's Mountain/Crockauns. These uplands are formed of Carboniferous limestone capped in places with shales. They stand on a high plateau 300-450m above the surrounding countryside and the edges form lofty cliffs from 15 to 300m in height. Areas of scree occur below cliffs on slopes of 40-50 degrees.
004129	Ballysadare Bay SPA	Colhoun K. (2001). I-WeBS Report 1998-99. BirdWatch Ireland Dublin. Curtis T.G.F. and Sheehy	Ballysadare Bay is an important component of the larger Sligo Bay complex. It supports nationally	Ballysadare Bay extends for about 10 km westwards from the town of Ballysadare and is the

Site Code	Site Name	Documentation	Quality of Site	Other Site Characteristics
		Skeffington M.J. (1998). The salt marshes of Ireland: an inventory and account of their geographical variation. Biology and Environment Proceedings of the Royal Irish Academy 98B: 87-104. Falvey J.P. Costello M.J. and Dempsey S. (1997). Survey of Intertidal Biotopes in Estuaries in Ireland. Unpublished report to the National Parks and Wildlife Service Dublin.Hunt J. Derwin J. Coveney J. and Newton S. (2000). Republic of Ireland. Pp. 365-416 in Heath M.F. and Evans M.I. (eds). Important Bird Areas in Europe: Priority Sites for Conservation 1: Northern Europe. Cambridge UK: BirdLife International (BirdLife Conservation Series No. 8). Irish Wetland Birds Survey (I-WeBS) Database 1994/95-2000/01. BirdWatch Ireland Dublin. Sheppard R. (1993). Ireland's Wetland Wealth. IWC Dublin.	important populations of four species: Calidris alpina Limosa limosa Tringa totanus and Tringa nebularia. It also has a good diversity of other waterfowl species including Branta bernicla hrota Cygnus cygnus Mergus serrator Pluvialis apricaria and Charadrius hiaticula. The estuarine habitat is of good quality and the site provides both feeding and roost sites for the birds.	most southerly of three inlets comprising the larger Sligo Bay complex. The bay has an average width of c. 2 km. The estuarine channel of the Ballysadare River winds its way through the bay finally reaching the open sea near the sand spit at Culleenamore. The bay is underlain by sedimentary rocks of limestones sandstones and shales which are exposed as low cliffs and small sections of bedrock shore at several locations. The site contains extensive intertidal sand and mudflats which support good populations of macro-invertebrates. Zostera spp. and Ruppia maritima are present. Well-developed salt marshes occur at several locations around the bay. The site includes part of the Strandhill dune system and some areas of wet and dry grassland.
000627	Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	Bowman J.J. Clabby K.J. Lucey J. Mc Garrigle M.L. and Toner P.H. (1996). Water Quality in Ireland 1991-1994. Environmental Protection Agency Wexford.Cawley M. (1996). Notes on some non-marine mollusca from Co Sligo and Co Leitrim including a new site for Vertigo geyeri Lindholm. Irish Naturalists? Journal 25: 183-185. Colhoun K. (1998). I-WeBS Report 1996-97. BirdWatch Ireland Dublin. Curtis T.G.F. and Sheehy Skeffington M.J. (1998). The salt marshes of Ireland: an inventory and account of their geographical variation. Biology and the Environment Proceedings of the Royal Irish Academy 98B: 87-104. Curtis T.G.F. (1991a). A site inventory of the sandy coasts of Ireland. In Quigley M.B. (ed.) A Guide to the Sand Dunes of Ireland. E.U.C.C. Dublin. Curtis T.G.F. (1991b). The flora and vegetation of sand dunes in Ireland. In Quigley M.B. (ed.) A Guide to the Sand Dunes of Ireland. E.U.C.C. Dublin.Falvey J.P. Costello M.J. and Dempsey S. (1997). Survey of Intertidal Biotopes in Estuaries in Ireland. Unpublished report to the National Parks and Wildlife Service Dublin.Goodwillie R. (1972). A Preliminary Report on Areas of Scientific Interest in County Sligo. An Foras Forbartha Dublin.Jennings O?Donovan & Partners (1998). Sligo Main Drainage Waste Water Treatment Works. Environmental Impact Statement Main Report Volumes 1 and 2. Report prepared for Sligo	The estuarine and intertidal sand and mud flat habitats at this site are extensive in area generally of good quality and show a good diversity of species and biotopes. Zostera spp. occur. These habitats are considered typical for the north-west region. The fixed dunes and shifting Ammophila dunes are small in area and only of moderate quality though embryonic dunes are well represented. The site has a good example of petrifying springs with tufa formations with several species of bryophyte typical of the Cratoneurion. The springs occur along seepage zones in clay sea cliffs. The site supports an area of Juniper scrub. The site has a nationally important colony of Phoca vitulina. Site is important for occurrence of the Annex II mollusc Vertigo angustior and the lamprey species Petromyzon marinus and Lampetra fluviatilis. A good diversity of waterfowl winter at site notably internationally important populations of Branta leucopsis and Branta bernicla hrota. Site has regular populations of Pluvialis apricaria and Limosa lapponica both Annex I Bird Directive species and eight other species winter in nationally important numbers. Phalacrocorax carbo has a nationally important breeding colony and small numbers of other breeding seabirds occur.	This large coastal site is made up largely of two estuarine bays Sligo Harbour and Drumcliff Bay. These are the estuaries of the Garavoge and Drumcliff rivers respectively. The estuaries are well sheltered and have extensive intertidal sand and mud flats. Coney Island provides the main shelter for Sligo Harbour while a sandy/grassy spit protrudes from the Rosses peninsula and provides shelter for inner Drumcliff Bay. The site continues to the north-west of Drumcliff Bay to include the shallow marine waters of Brown?s Bay. A series of small islands notably Ardbolin occur here. Other coastal habitats are represented including sand dunes salt marshes sandy and boulder beaches and bedrock shoreline. In addition there is a scattering of dry grassland wet grassland swamp vegetation and broad-leaved woodland. Improved grassland is included for the benefit of wintering geese. The site is largely underlain by Carboniferous limestone but acidic rocks are also found at Rosses Point. An excellent series of fossilised corals occur at Serpent Rock in the north west of the site. The town of Sligo a substantial urban centre with a regional port is located along the eastern boundary of the Sligo Harbour section of the site. Agriculture is the dominant landuse in the surrounding catchments.

Site Code	Site Name	Documentation	Quality of Site	Other Site Characteristics
		Corporation. KurzI. and Costello M.J. (1999). An outline of the biology distribution and conservation of lampreys in Ireland. Irish Wildlife Manuals No.5. DÃºchas The Heritage Service Department of the Arts Heritage Gaeltacht and the Islands Dublin Ireland.Lockley R.M. (1966). The distribution of grey and common seals on the coasts of Ireland. Irish Naturalists? Journal 15: 136-143. Lloyd C. (1982). Inventory of Seabird Breeding Colonies in Republic of Ireland Unpublished report Forestry and Wildlife Service Dublin.Merne O.J. (1989). Important bird areas in the Republic of Ireland. In: Grimmett R.F.A. and Jones T.A. (eds) Important Bird Areas in Europe. ICBP Technical Publication No. 9. Cambridge. Moorkens E.A. (1997). An Inventory of Mollusca in Potential SAC Sites with Special Reference to Vertigo angustior V. moulinsiana and V. geyeri. Unpublished report National Parks & Wildlife Service Dublin. Praeger R.L. (1934). The Botanist in Ireland. Hodges Figgis & Co Dublin. Sheppard R. (1993). Ireland?s Wetland Wealth. IWC Dublin. Summers C.F. Warner P.J. Nairn R.G.W. Curry M.G. and Flynn J. (1980). An assessment of the status of the common seal (Phoca vitulina vitulina) in Ireland. Biological Conservation 17: 115-123. Warner P. (1983). An assessment of the breeding populations of common seal (Phoca vitulina vitulina L.) in the Republic of Ireland during 1979. Irish Naturalists? Journal 21: 24-26. Warner P. (1984). Report on the Census of Common Seals (Phoca vitulina vitulina) in the Republic of Ireland during 1984. Unpublished document to the Forest & Wildlife Service Dublin.Cronin M. Duck C. Ã‘ Cadhla O. Nairn R. Strong D. and O'Keeffe C. (2004). Harbour seal population assessment in the Republic of Ireland: August 2003. Irish Wildlife Manuals No. 11. National Parks & Wildlife Service Department of Environment Heritage and Local Government. 7 Ely Place Dublin 2 Ireland. 34 pp.Cronin M. Duck C. Ã‘ Cadhla O. Nairn R. Strong D. and O'Keeffe C. (2007). An assessment of harbour seal population size and distribution in the Republic of Ireland during the 2003 moult season. J. Zool. Lond. 273 Issue 2: 131-139.Harrington R. (1990). 1989 survey of breeding herds of common		

Site Code	Site Name	Documentation	Quality of Site	Other Site Characteristics
		seal Phoca vitulina with reference to previous surveys. Report to the National Parks & Wildlife Service. 10pp.Lyons D.O. (2004). Summary of National Parks & Wildlife Service surveys for common (harbour) seals (Phoca vitulina) and grey seals (Halichoerus grypus) 1978 to 2003. Irish Wildlife Manuals No. 13. National Parks & Wildlife Service Department of Environment Heritage and Local Government 7 Ely Place Dublin 2 Ireland. 67pp.Roderick T. (2009). Seal counts from Drumcliff Bay. Unpublished National Parks & Wildlife Service data June 2007 - May 2008		
001919	Glenade Lough SAC	Byrne C. O'Sullivan A. & MhicDaeid C. (1995). Rare Plant Survey 1995 - Glenade Lough Co. Donegal. Unpublished report to the National Parks & Wildlife Service Dublin. Clabby K.J. Lucey J. McGarrigle M.L. Bowman J.J. Flanagan P.J. & Toner P.F. (1992). Water Quality in Ireland 1987-1990. Environmental Research Unit Dublin. Heuff H. (1984). The Vegetation of Irish Lakes. Unpublished report to the Forest & Wildlife Service Dublin. Sheppard R. (1993). Ireland's Wetland Wealth. Irish Wildbird Conservancy Dublin. Lucey J.& McGarrigle M.L. (1987). The distribution of the freshwater crayfish in Ireland. Irish Fisheries Investigations 29A: 1-13.	An interesting system considered more mesotrophic in physical and chemical characters than eutrophic. Has a wide diversity of vegetation from well developed Potamogeton communities to species more associated with nutrient poor water such as Isoetes lacustris. Also has Najas flexilis. Quality of system is good with no evidence of artificial nutrient inputs. Has a good population of Austropotamobius pallipes and is a site for a genetic research programme on Irish crayfish. Although small an important site of high quality.	Glenade Lough is situated on the upper reaches of the Bonet River within a valley between the Arroo and Benbulben Mountain ranges. Site is underlain by carboniferous limestone which confers a calcareous nature to the lake. The water is clear well aerated and relatively nutrient poor. Lake shore is stony or sandy. Marginal vegetation is well developed with reed swamp calcareous fens and flushes and wet grassland. Broad-leaved woodland and dry grassland also occur. Surrounding areas are mainly of pasture though not intensively managed.
001976	Lough Gill SAC	Central Fisheries Board (2001). Irish Salmon Catches 2000. http://www.cfb.ie/:February 2001.Clabby K.J. Lucey J. McGarrigle M.L. Bowman J.J. Flanagan P.J. and Toner P.F. (1992). Water Quality in Ireland 1987-1990. Part One General Assessment. Environmental Research Unit Dublin. Cotton D.C.F. (1982). Coenagrion lunulatum (Charpentier) (Odonata: Coenagridae) new to the British Isles. Entomologists? Gazette 33: 213-214. Cotton D.C.F. (1993). Ecological Study of Lough Gill - to Predict the Effects of the Sligo and Environs Water Supply Scheme on the Flora and Fauna with Suggestions for Future Management. Report prepared in conjunction with Jennings O?Donovan and Partners for Sligo County Council. Cotton D.C.F. and Cawley M. (1993). New records for vascular plants from Cos. Sligo (H28) and Leitrim (H29). Irish Naturalists? Journal 24: 288-295. Colhoun K. (1998). I-WeBS Report 1996-97. BirdWatch Ireland Dublin.	An important example of a lake which appears to be naturally eutrophic. Quality generally good though blooms of blue-green algae in recent years indicate some artificial enrichment. Significant areas of alluvial forest occur along the Garvoge River (Osmunda - Salicetum atrocinerea type) and at the mouth of the River Bonet (Carici remotae - Fraxientum type). Old oak woodland of varying quality is well scattered along the shoreline and on some of the islands and is an important example of this habitat for western Ireland. At least six Red Data Book plant species have been recorded from site. Site has three species of lamprey and Austropotamobius pallipes. The lake and its associated rivers support an important population of Salmo salar. Lutra lutra has a good population within the site. Of minor importance for birds though the site has a small breeding colony of Sterna hirundo. A wide range of rare or scarce	Lough Gill is a moderate to large sized lake lying immediately east of Sligo town. It is fed by the River Bonet and drains into the sea via the Garvogue River a short wide and slow flowing river which passes through Sligo town. The lake lies along the junction between old metamorphic rocks to the south and limestone to the north. The water of the lake is thus influenced by both acidic and alkaline inputs although nearly all the basin lies over limestone. The lake is 8 km by 2-3 km and has an area of 1400 ha. It is a deep lake with maximum depth at 31 m. Islands are a feature of the lake. Much of the shoreline is wooded and there is also some swamp vegetation wet grassland and scrub along the shoreline. The lake is an important salmonid and coarse fishery and is used for a range of recreational activities. The site also includes the Shanvans and Owenmore rivers.

Site Code	Site Name	Documentation	Quality of Site	Other Site Characteristics
		Doris Y. McGarrigle M.L. Clabby K.J. Lucey J. Neill M. Flanagan M. Quinn M.B. Sugrue M. and Lehane M. (1999). Water Quality in Ireland 1995-1997. Statistical Compendium of River Quality Data. Electronic Publication on Disk. Environmental Protection Agency Wexford. Flanagan P.J. and Toner P.F. (1975). A preliminary survey of Irish lakes. An Foras Forbartha Water Resources Division.Goodwillie R. (1972). A Preliminary Report on Areas of Scientific Interest in County Sligo. An Foras Forbartha Dublin.Jennings O?Donovan and Partners (1994). Sligo and Environs Water Supply Scheme. Ecology Study. Report prepared for Sligo County Council. Kelly D.L. and Iremonger S.F. (1997). Irish wetland woods: the plant communities and their ecology. Biology and Environment - Proceedings of the Royal Irish Academy 97B: 1-32. Kurz I. and Costello M.J. (1998). An Outline of the Biology Distribution & Conservation of Lampreys in Ireland. Irish Wildlife Manual No. 5 DÃºchas The Heritage Service. O'Reilly P. (1991). Trout and Salmon Rivers of Ireland: an Anglers Guide. Merlin Unwin Books London. Praeger R.L. (1932). Some noteworthy plants found in or reported from Ireland. Proceedings of the Royal Irish Academy 41B (4): 95-124. Praeger R.L. (1934). The Botanist in Ireland. Hodges & Figgis Dublin.Round F.E. and Brook A.J. (1959). The phytoplankton of some Irish loughs and an assessment of their trophic status. Proceedings of the Royal Irish Academy 60B (4): 167-191.Thompson E. Ryan S. and Cotton D.C.F. (1998). Management Plan for the Lough Gill Catchment. Sligo County Council.Whilde A. (1985). The All Ireland Tern Survey 1984. Unpublished report for the Irish Wildbird Conservancy Dublin. Whilde A. Cotton D.C.F. and Sheppard R. (1993). A repeat survey of gulls breeding in Counties Donegal Sligo Mayo and Galway with recent counts from Leitrim and Fermanagh. Irish Birds 5: 67-72.	invertebrates are known from the site as well as several Red Data Book mammal species including Martes martes.	

Qualifying features and known threats and pressures for each of the European sites within 15km of the subject lands

Site Code	Site Name	Qualifying Feature	Pressures Codes	Known threats and pressures
000622	Ballysadare Bay SAC	Fixed coastal dunes with herbaceous vegetation *(""grey dunes"")*"" [2130], Shifting dunes along the shoreline with Ammophila arenaria *(""white dunes"")*"" [2120], Shifting dunes along the shoreline with Ammophila arenaria *("white dunes")* [2120], Mudflats and sandflats not covered by seawater at low tide [1140], Narrow-mouthed whorl snail *(Vertigo angustior)* [1014], Humid dune slacks [2190], Estuaries [1130], Common seal *(Phoca vitulina)* [1365], Shifting dunes *(Embryonic shifting dunes)* [2110], Embryonic shifting dunes [2110], Fixed coastal dunes with herbaceous vegetation *("grey dunes")* [2130], Freshwater Pearl Mussel (Margaritifera margaritifera [1029]	G02.01, G01.02, I01, J02.01.02, A04.03, J02.12.01, F02, F01.03, K01.01, E01.02, G05.01	Golf course, walking, horseriding and non-motorised vehicles, invasive non-native species, reclamation of land from sea, estuary or marsh, abandonment of pastoral systems lack of grazing, sea defense or coast protection works, tidal barrages, fishing and harvesting aquatic resources, bottom culture, erosion, discontinuous urbanisation, trampling, overuse
000623	Ben Bulben, Gleniff and Glenade Complex SAC	European dry heaths [4030], Juniperus communis formations on heaths or calcareous grasslands [5130], Siliceous scree of the montane to snow levels *(Androsacetalia alpinae and Galeopsietalia ladani)* [8110], Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260], Alpine and Boreal heaths [4060], Geyer`s whorl snail *(Vertigo geyeri)* [1013], Calcareous and calcshist screes of the montane to alpine levels *(Thlaspietea rotundifolii)* [8120], Petrifying springs with tufa formation *(Cratoneurion)* [7220], Otter *(Lutra lutra)* [1355], Semi-natural dry grasslands and scrubland facies on calcareous substrates *(Festuco-Brometalia) (* important orchid sites)* [6210], Alkaline fens [7230], Northern Atlantic wet heaths with Erica tetralix [4010], Transition mires and quaking bogs [7140], Freshwater Pearl Mussel *(Margaritifera margaritifera [1029], Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)* [6230], Calcareous rocky slopes with chasmophytic vegetation [8210], Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]	I01, G01.03.02, A04.03, K01.01, D01.01, L05, A04.01.02, C01.03.02	Invasive non-native species, off-road motorized driving, abandonment of pastoral systems lack of grazing, erosion, paths, tracks, cycling tracks, collapse of terrain, landslide, intensive sheep grazing, mechanical removal of peat
000627	Cummeen Strand/Drumcliff Bay (Sligo Bay) SAC	Fixed coastal dunes with herbaceous vegetation *(""grey dunes"")*"" [2130], Shifting dunes along the shoreline with Ammophila arenaria *("white dunes")* [2120], Estuaries [1130], Narrow-mouthed whorl snail *(Vertigo angustior)* [1014], Common seal *(Phoca vitulina)* [1365], Sea lamprey *(Petromyzon marinus)* [1095], Mudflats and sandflats not covered by seawater at low tide [1140], Fixed coastal dunes with herbaceous vegetation *("grey dunes")* [2130], Semi-natural dry grasslands and scrubland facies on calcareous substrates *(Festuco-Brometalia) (* important orchid sites)* [6210], Shifting dunes *(Embryonic shifting dunes)* [2110],	A02.01, G01.03.02, I01, E03.03, J02.11.01, G02.01, F01.01, G02.08, E01.03, G02.09, G05.01, J02.12.01, D03.01, J01.01, D03, G01.02	Agricultural intensification, off-road motorized driving, invasive non-native species, disposal of inert materials, dumping, depositing of dredged deposits, golf course, intensive fish farming, intensification, camping and caravans, dispersed habitation, wildlife watching, trampling, overuse, sea defense or coast protection works, tidal barrages, port areas, burning down, shipping lanes, ports, marine constructions, walking, horseriding and non-motorised vehicles

Site Code	Site Name	Qualifying Feature	Pressures Codes	Known threats and pressures
		Freshwater Pearl Mussel *(Margaritifera margaritifera [1029], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with Ammophila arenaria (""white dunes"")*"" [2120], River lamprey *(Lampetra fluviatilis)* [1099], Petrifying springs with tufa formation *(Cratoneurion)* [7220], Juniperus communis formations on heaths or calcareous grasslands [5130]		
000638	Union Wood SAC	Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0], Western acidic oak woodland *(Old sessile oak woods with Ilex and Blechnum in the British Isles)* [91A0]	G05.09, B02.01.01, I01, G01.02, B06, B02.02	Fences, fencing, forest replanting (native trees), invasive non-native species, walking, horseriding and non-motorised vehicles, grazing in forests or woodland, forestry clearance
001680	Streedagh Point Dunes SAC	Petalwort *(Petalophyllum ralfsii [1395], Shifting dunes along the shoreline with Ammophila arenaria (""white dunes"")*"" [2120], Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)* [1330], Atlantic salt meadows *(Atlantic salt meadows (Glauco-Puccinellietalia maritimae)*) [1330], Fixed coastal dunes with herbaceous vegetation *(""grey dunes"")*"" [2130], Mudflats and sandflats not covered by seawater at low tide [1140], Narrow-mouthed whorl snail *(Vertigo angustior)* [1014], Shifting dunes along the shoreline with Ammophila arenaria *("white dunes")* [2120], Perennial vegetation of stony banks [1220], Fixed coastal dunes with herbaceous vegetation *("grey dunes")* [2130], Mediterranean salt meadows *(Juncetalia maritimi)* [1410]	G01.01, G02.08, G01.02, G05.01, G01.03.02, C01.01.01	Nautical sports, camping and caravans, walking, horseriding and non-motorised vehicles, trampling, overuse, off-road motorized driving, sand and gravel quarries
001898	Unshin River SAC	Sea Lamprey *(Petromyzon marinus [1095], Atlantic salmon (Salmo salar)* [1106], Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0], Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinion caeruleae)* [6410], Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260], Otter *(Lutra lutra)* [1355], Semi-natural dry grasslands and scrubland facies on calcareous substrates *(Festuco-Brometalia) (* important orchid sites)* [6210]	J02.10, I01, A02.01, A04.02.02, B02	Management of aquatic and bank vegetation for drainage purposes, invasive non-native species, agricultural intensification, non-intensive sheep grazing, forest and plantation management & use
001919	Glenade Lough SAC	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150], Sea Lamprey *(Petromyzon marinus [1095], White-clawed (or Atlantic stream)* crayfish *(Austropotamobius pallipes)* [1092], Slender naiad *(Najas flexilis)* [1833]	B02.02, B04, I01	Forestry clearance, use of biocides, hormones and chemicals (forestry), invasive non-native species
001976	Lough Gill SAC	*Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150], Western acidic oak woodland (Old sessile oak woods with Ilex and Blechnum in the British Isles)* [91A0], Semi-natural dry grasslands and scrubland facies on calcareous substrates *(Festuco-Brometalia) (* important orchid sites)* [6210], Atlantic salmon *(Salmo salar)* [1106], Brook lamprey *(Lampetra planeri)* [1096], Alluvial forests with	B06, I01, E01.03, E03.03, J02.05.02, J02.10, B, A10.01, E01.01, D01.01, G01.01.01	Grazing in forests or woodland, invasive non-native species, dispersed habitation, disposal of inert materials, modifying structures of inland water courses, management of aquatic and bank vegetation for drainage purposes, sylviculture, forestry, removal of hedges and copses or scrub, continuous urbanisation, paths, tracks, cycling tracks, motorized nautical sports

Site Code	Site Name	Qualifying Feature	Pressures Codes	Known threats and pressures
		Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0], Otter *(Lutra lutra)* [1355], Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0], *River lamprey (Lampetra fluviatilis)* [1099], Sea lamprey *(Petromyzon marinus)* [1095], White-clawed *(or Atlantic stream)* crayfish *(Austropotamobius pallipes)* [1092]		
004013	Drumcliff Bay SPA	Whooper swan *(Cygnus cygnus)* [A038], Red knot *(Calidris canutus)* [A143], Ringed plover *(Charadrius hiaticula)* [A137], Sanderling *(Calidris alba)* [A144], Eurasian oystercatcher *(Haematopus ostralegus)* [A130], Ruddy turnstone *(Arenaria interpres)* [A169], Common shelduck *(Tadorna tadorna)* [A048], Bar-tailed godwit *(Limosa lapponica)* [A157], Common greenshank *(Tringa nebularia)* [A164], Northern lapwing *(Vanellus vanellus)* [A142], Eurasian wigeon *(Anas penelope)* [A050], Barnacle goose *(Branta leucopsis [Svalbard/Denmark/UK])* [A045], Eurasian curlew *(Numenius arquata)* [A160], Mallard *(Anas platyrhynchos)* [A053], Red-breasted merganser *(Mergus serrator)* [A069], Common redshank *(Tringa totanus)* [A162], Wetland and Waterbirds [A999], Barnacle goose *(Branta leucopsis)* [A045], Long-tailed duck *(Clangula hyemalis)* [A064], Barnacle goose *(Branta leucopsis [Eastern Greenland/Scotland/Ireland])* [A045]	A08, G01.02, F01, E01.03, A04	Fertilisation, walking, horseriding and non-motorised vehicles, marine and freshwater aquaculture, dispersed habitation, grazing
004035	Cummeen Strand SPA	Ringed plover *(Charadrius hiaticula)* [A137], Ruddy turnstone *(Arenaria interpres)* [A169], Mew gull *(Larus canus)* [A182], Eurasian wigeon *(Anas penelope)* [A050], Bar-tailed godwit *(Limosa lapponica)* [A157], Common redshank *(Tringa totanus)* [A162], Eurasian oystercatcher *(Haematopus ostralegus)* [A130], Wetland and Waterbirds [A999], Eurasian curlew *(Numenius arquata)* [A160], Red-breasted merganser *(Mergus serrator)* [A069], Common shelduck *(Tadorna tadorna)* [A048], Common greenshank *(Tringa nebularia)* [A164], Eurasian teal *(Anas crecca)* [A052], Mallard *(Anas platyrhynchos)* [A053], Northern lapwing *(Vanellus vanellus)* [A142], Black-headed gull *(Larus ridibundus)* [A179], Red knot *(Calidris canutus)* [A143], Sanderling *(Calidris alba)* [A144], European golden plover *(Pluvialis apricaria)* [A140]	F02.03, A08, E01, E02, D03.02, J02.01.02, D01.02, H, F01	Leisure fishing, fertilisation, urbanised areas, human habitation, industrial or commercial areas, shipping lanes, reclamation of land from sea, estuary or marsh, roads, motorways, pollution, marine and freshwater aquaculture
004129	Ballysadare Bay SPA	Mallard *(Anas platyrhynchos)* [A053], Common goldeneye *(Bucephala clangula)* [A067], Mew gull *(Larus canus)* [A182], Common shelduck *(Tadorna tadorna)* [A048], Red-breasted merganser *(Mergus serrator)* [A069], Northern lapwing *(Vanellus vanellus)* [A142], Eurasian oystercatcher *(Haematopus ostralegus)* [A130], Bar-tailed godwit *(Limosa lapponica)* [A157], Eurasian wigeon *(Anas penelope)* [A050], Grey plover *(Pluvialis squatarola)* [A141], Dunlin *(Calidris alpina)* [A149], Common redshank *(Tringa totanus)* [A162],	F01, A08, E01.01, F03.01	Marine and freshwater aquaculture, fertilisation, continuous urbanisation, hunting

Site Code	Site Name	Qualifying Feature	Pressures Codes	Known threats and pressures
		Ruddy turnstone *(Arenaria interpres)* [A169], Wetland and Waterbirds [A999], Eurasian curlew *(Numenius arquata)* [A160], Ringed plover *(Charadrius hiaticula)* [A137], European golden plover *(Pluvialis apricaria)* [A140], Eurasian teal *(Anas crecca)* [A052], Brent Goose *(Light-bellied) (Branta bernicla hrota)* [A046], Great cormorant *(Phalacrocorax carbo)* [A017], Black-headed gull *(Larus ridibundus)* [A179], Whooper swan *(Cygnus cygnus)* [A038], Common greenshank *(Tringa nebularia)* [A164]		
004187	Sligo/Leitrim Uplands SPA	Red-billed chough *(Pyrrhocorax pyrrhocorax)* [A346], Peregrine falcon *(Falco peregrinus)* [A103]	C01.03.02, G01.02, A04.03, C01.01.01, G01.04, I01, K01.01, C01.01, E01.01, A04, B01, G02.08	Mechanical removal of peat, walking, horseriding and non-motorised vehicles, abandonment of pastoral systems lack of grazing, sand and gravel quarries, mountaineering, rock climbing, speleology, invasive non-native species, erosion, sand and gravel extraction , continuous urbanisation, grazing, forest planting on open ground, camping and caravans
004234	Ballintemple and Ballygilgan SPA	Barnacle goose *(Branta leucopsis)* [A045], Barnacle goose *(Branta leucopsis [Eastern Greenland/Scotland/Ireland])* [A045], Barnacle goose *(Branta leucopsis [Svalbard/Denmark/UK])* [A045]	E01, D04.01	Urbanised areas, human habitation, airport

Known threats pressures and sensitivities of Qualifying Interests identified from the SACs within 15km of the subject lands

Qualifying Interests	EU Code	Current threats to Qualifying Interests	Sensitivity of Qualifying Interests
Alkaline fens	[7230]	Land reclamation, peat extraction; afforestation; erosion and landslides triggered by human activity; drainage; burning and infrastructural development.	Surface and groundwater dependent. Highly sensitive to hydrological changes. Inappropriate management.
Alpine and Boreal heaths	[4060]	Abandonment; overgrazing; burning; outdoor recreation; quarries; communication networks; and wind farm developments.	Changes in management. Changes in nutrient or base status. Moderately sensitive to hydrological change.
Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)*	[1330]	Overgrazing; erosion; invasive species, particularly common cordgrass *(Spartina anglica)*; infilling and reclamation.	Marine and groundwater dependent. Medium sensitivity to hydrological change. Changes in salinity and tidal regime. Overgrazing, erosion and accretion.
White-clawed Crayfish *(Austropotamobius pallipes)*	[1092]	Poor substrate quality due to increased growth of algal and macrophyte vegetation as a result of severe nutrient enrichment, as well as physical siltation.	Invasive species, disease, surface water dependent. Highly sensitive to hydrological change. Very highly sensitive to pollution.
Calcareous and calcshist screes of the montane to alpine levels *(Thlaspietea rotundifolii)*	[8120]	Overgrazing; extractive industries; recreational activities and improved access.	Erosion, overgrazing and recreation.
Calcareous rocky slopes with chasmophytic vegetation	[8210]	Overgrazing; extractive industries; recreational activities and improved access.	Erosion, overgrazing and recreation.
Embryonic shifting dunes	[2110]	Natural erosion processes exacerbated by recreation and sand extraction. Coastal protection interfering with natural processes.	Overgrazing, and erosion. Changes in management.
Estuaries	[1130]	Pollution, fishing /aquaculture and habitat quality.	Inappropriate development, changes in turbidity
European dry heaths	[4030]	Afforestation, overburning, over-grazing, under-grazing and bracken invasion.	Moderately sensitive to hydrological change. Changes in management. Changes in nutrient status.
Fixed coastal dunes with herbaceous vegetation *(grey dunes)*	[2130]	Recreation; overgrazing and inappropriate grazing: non-native plant species, particularly sea buckthorn *(Hippophae rhamnoides)*.	Overgrazing, and erosion. Changes in management.
Humid dune slacks	[2190]	Agricultural improvement; overgrazing and inappropriate grazing; forestry; recreational activity.	Overgrazing, and erosion. Changes in management. Sensitive to hydrological change.
Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	[6430]	Agricultural intensification; drainage; abandonment of pastoral systems.	Surface and groundwater dependent. Moderately sensitive to hydrological change. Changes in management. Changes in nutrient status.
Juniperus communis formations on heaths or calcareous grasslands	[5130]	Overgrazing, erosion, scrub clearance, inappropriate land use management, and succession processes.	Changes in management. Changes in nutrient or base status. Changes to vegetation composition. Introduction of alien species.
River Lamprey *(Lampetra fluviatilis)*	[1099]	Channel maintenance, barriers, passage obstruction, gross pollution and specific pollutants.	Surface water dependent Highly sensitive to hydrological change.
Brook Lamprey *(Lampetra planeri)*	[1096]	Channel maintenance, barriers, passage obstruction, gross pollution and specific pollutants.	Surface water dependent Highly sensitive to hydrological change.
Otter *(Lutra lutra)*	[1355]	Decrease in water quality: Use of pesticides; fertilization; vegetation removal; professional fishing *(including lobster pots and fyke nets)*; unting; poisoning; sand and gravel extraction; mechanical removal of peat; urbanised areas; human habitation; continuous urbanization; drainage; management of aquatic and bank vegetation for drainage purposes; and canalization or modifying structures of inland water course.	Surface and marine water dependent. Moderately sensitive to hydrological change. Sensitivity to pollution.

Qualifying Interests	EU Code	Current threats to Qualifying Interests	Sensitivity of Qualifying Interests
Freshwater Pearl Mussel *(Margaritifera margaritifera)*	[1029]	In stream works, hydrological and morphological alterations, sediment and enrichment, pollution due urbanisation etc. Poor substrate quality due to increased growth of algal and macrophyte vegetation as a result of severe nutrient enrichment, as well as physical siltation.	Surface water dependent. Highly sensitive to hydrological change. Very highly sensitive to pollution.
Mediterranean salt meadows *(Juncetalia maritimi)*	[1410]	Over-grazing by cattle or sheep; infilling and reclamation.	Marine and groundwater dependent. Medium sensitivity to hydrological change. Changes in salinity and tidal regime. Coastal development and reclamation.
Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinion caeruleae)*	[6410]	Agricultural intensification; drainage; abandonment of pastoral systems.	Surface and groundwater dependent. Moderately sensitive to hydrological change. Changes in management. Changes in nutrient status.
Mudflats and sandflats not covered by seawater at low tide	[1140]	Aquaculture, fishing, bait digging, removal of fauna, reclamation of land, coastal protection works and invasive species, particularly cord-grass; hard coastal defence structures; sea-level rise.	Surface and marine water dependent. Moderately sensitive to hydrological change. Moderate sensitivity to pollution. Changes to salinity and tidal regime. Coastal development.
Slender Naiad*(Najas flexilis)*	[1833]		
Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	[3150]	Hydrological changes, afforestation; waste water; invasive alien species; sport and leisure activities.	Surface and groundwater dependant. Highly sensitive to hydrological changes. Highly sensitive to pollution.
Northern Atlantic wet heaths with Erica tetralix	[4010]	Reclamation, afforestation and burning; overstocking; invasion by non-heath species; exposure of peat to severe erosion.	Surface and groundwater dependent. Highly sensitive to hydrological changes. Inappropriate management.
Old sessile oak woods with Ilex and Blechnum in the British Isles	[91A0]	The introduction of alien species; sub-optimal grazing patterns; general forestry management; increases in urbanisation and human habitation adjacent to oak woodlands; and the construction of communication networks through the woodland.	Changes in management. Changes in nutrient or base status. Introduction of alien species.
Perennial vegetation of stony banks	[1220]	Disruption of the sediment supply, owing to the interruption of the coastal processes, caused by developments such as car parks and coastal defence structures including rock armour and sea walls. The removal of gravel.	Marine water dependent. Low sensitivity to hydrological changes. Coastal development, trampling from recreational activity and gravel removal.
Petalwort*(Petalophyllum ralfsii)*	[1395]	There are no significant impacts affecting this species.	None identified.
Petrifying springs with tufa formation *(Cratoneurion)*	[7220]	Ground water interactions, on site management activities.	Surface and groundwater dependant. Highly sensitive to hydrological changes. Highly sensitive to pollution.
Sea Lamprey*(Petromyzon marinus)*	[1095]	Barriers to upstream migration *(e.g. weirs)*, which limit access to spawning beds and juvenile habitat are main threats to this species.	Marine water dependent. Low sensitivity to hydrological changes. Coastal development, trampling from recreational activity.
Harbour Seal *(Phoca vitulina)*	[1365]	Pressures acting on the species in Irish waters mainly involve commercial vessel-based activities such as impacts arising from geophysical seismic exploration or from local/regional prey removal from fisheries.	Sensitive to disturbance, prey availability and pollution.
Harbour Porpoise*(Phocoena phocoena)*	[1351]	Pressures acting on the species in Irish waters mainly involve commercial vessel-based activities such as impacts arising from geophysical seismic exploration or from local/regional prey removal from fisheries.	Sensitive to disturbance, prey availability and pollution.
Salmon *(Salmo salar)*	[1106]	Marine survival rates are of concern for the populations.	Disease, parasites and barriers to movement.
Semi-natural dry grasslands and scrubland facies on calcareous substrates *(Festuco-Brometalia)** important orchid sites	[6210]	Land reclamation, afforestation; drainage; and infrastructural development.	Surface and groundwater dependent. Highly sensitive to hydrological changes. Inappropriate management.

Qualifying Interests	EU Code	Current threats to Qualifying Interests	Sensitivity of Qualifying Interests
Shifting dunes along the shoreline with white dunes*(Ammophila arenaria)*	[2120]	Recreation and coastal defences, which may interfere with local sediment dynamics.	Overgrazing, and erosion. Changes in management.
Siliceous scree of the montane to snow levels *(Androsacetalia alpinae and Galeopsietalia ladani)*	[8110]	Overgrazing, undergrazing and succession were recorded as medium-importance pressures in this reporting period, and Structure and functions were again assessed as Inadequate, the trend is considered to be stable rather than improving. This change is due to improved knowledge and the habitat is considered to have been stable since before the last assessment.	Erosion, overgrazing and recreation.
Species-rich Nardus grasslands, on siliceous substrates in mountain areas *(and submountain areas, in Continental Europe)*	[6230]	Bracken encroachment, succession, inappropriate grazing, afforestation; drainage; and infrastructural development.	Erosion, overgrazing and recreation.
Transition mires and quaking bogs	[7140]	Drainage; burning; peat extraction; overgrazing; afforestation; erosion; and climate change.	Surface and groundwater dependent. Low sensitivity to hydrological changes. Erosion, land-use changes.
Narrow-mouthed Whorl Snail *(Vertigo angustior)*	[1014]	Loss of riverside and canalside habitat; exploitation of esker sites and drainage of wetlands, and sheep grazing and overexploitation of dune sites.	Changes to ground vegetation condition, groundwater dependent and is highly sensitive to hydrological changes.
Geyer's Whorl Snail *(Vertigo geyeri)*	[1013]	Loss of riverside and canalside habitat; exploitation of esker sites and drainage of wetlands, and sheep grazing and overexploitation of dune sites.	Changes to ground vegetation condition, groundwater dependent and is highly sensitive to hydrological changes.
Water courses of plain to montane levels with vegetation*(Ranunculion fluitantis and Callitricho-Batrachion)*	[3260]	Hydrological and morphological changes, water quality, enrichment, and surface water discharges from industrial site and/or agriculture.	Surface water dependent Highly sensitive to hydrological change and direct physical interactions.

SCI Species identified within from SPAs within 15km of the subject land area

Special Conservation Interests
Great cormorant *(Phalacrocorax carbo)* [A017]
Whooper swan *(Cygnus cygnus)* [A038]
Barnacle goose *(Branta leucopsis)* [A045]
Barnacle goose *(Branta leucopsis [Eastern Greenland/Scotland/Ireland])* [A045]
Barnacle goose *(Branta leucopsis [Svalbard/Denmark/UK])* [A045]
Common shelduck *(Tadorna tadorna)* [A048]
Eurasian wigeon *(Anas penelope)* [A050]
Eurasian teal *(Anas crecca)* [A052]
Mallard *(Anas platyrhynchos)* [A053]
Long-tailed duck *(Clangula hyemalis)* [A064]
Common goldeneye *(Bucephala clangula)* [A067]
Red-breasted merganser *(Mergus serrator)* [A069]
Peregrine falcon *(Falco peregrinus)* [A103]
Eurasian oystercatcher *(Haematopus ostralegus)* [A130]
Ringed plover *(Charadrius hiaticula)* [A137]
European golden plover *(Pluvialis apricaria)* [A140]
Grey plover *(Pluvialis squatarola)* [A141]
Northern lapwing *(Vanellus vanellus)* [A142]
Red knot *(Calidris canutus)* [A143]
Sanderling *(Calidris alba)* [A144]
Bar-tailed godwit *(Limosa lapponica)* [A157]
Eurasian curlew *(Numenius arquata)* [A160]
Common redshank *(Tringa totanus)* [A162]
Common greenshank *(Tringa nebularia)* [A164]
Ruddy turnstone *(Arenaria interpres)* [A169]
Black-headed gull *(Larus ridibundus)* [A179]
Mew gull *(Larus canus)* [A182]
Red-billed chough *(Pyrrhocorax pyrrhocorax)* [A346]

Vulnerabilities of Special Conservation Interests

- Bird species are particularly vulnerable to direct disturbance due to noise and/or vibration. These effects are localised, and disturbance effects are foreseen to be low at distances beyond 2km[18].
- Direct habitat loss is a serious concern for bird species, as well as the reduction in habitat quality. Habitat degradation could occur through effects such as local enrichment due to agricultural practices or damage to habitat through activities such as trampling.
- Prey species diversity and availability is a key element of species conservation. Community dynamics and ecosystem functionality are complex concepts and require site specific information. The site synopsis and conservation objectives for the SPAs identified within the ZOI were used to identify any specific prey sensitivities.
- Availability of nesting/roosting habitat. Particularly for the Hen Harrier.
- Vegetation composition, structure and functionality.

[18] SNH (2007) A Review of Disturbance Distances in Selected Bird Species: Scottish Natural Heritage; M. Ruddock & D.P. Whitfield

Wetland and Waterbirds [A999] Direct land take is a common vulnerability to all sites; as well as significant water quality effects. The conservation objective of all SPAs designated for Wetland and Waterbirds is to maintain the favourable conservation condition of the wetland habitat as a resource for the regularly occurring migratory waterbirds using it.