

CORRIB PIPELINE

OPERATION OF THE CORRIB GAS PIPELINE

under

Section 40 of the Gas Act, 1976 (as Amended)

NATURA IMPACT SCREENING STATEMENT

Screening for Appropriate Assessment

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1 INTRODUCTION

1.1 THE REPORT

This report has been prepared by *EACS* – Ecological Advisory & Consultancy Services with input by RSK Environment Ltd and Shell E & P Ireland Ltd (SEPIL). It relates to the operation of the Corrib Gas Pipeline (hereafter referred to as “the Corrib Pipeline”), including the Landfall Valve Installation (LVI). The purpose of the report is to ensure compliance with the European Communities (Birds and Natural Habitats) Regulations 2011 (SI No. 477 of 2011) and is a Screening Report for Appropriate Assessment. It provides the information required pursuant to the 2011 Regulations to establish whether or not the operation of the Corrib Pipeline is likely to have a significant effect on European Sites in view of best scientific knowledge and in view of the conservation objectives of the European sites and specifically on the habitats and species for which the sites have been designated.

By taking the ecological impact assessment in a step by step manner in relation to the habitats and species of these sites, together with their conservation objectives, the report informs the screening process required at the first stage of the process pursuant to Article 6(3) of the Habitats Directive (Council Directive 92/43/EC).

SEPIL was granted consent from the Minister of Communications, Energy and Natural Resources, dated 25 February 2011 for a natural gas pipeline from the Corrib sub-sea facilities to the gas terminal at Bellanaboy, Co. Mayo, pursuant to Section 40 of the Gas Act 1976 (as amended) (the “2011 Section 40 Consent”). This Screening Report for Appropriate Assessment forms part of SEPIL’s application to the Minister for Communications, Energy and Natural Resources (hereafter referred to as the “Minister”) for consent to operate the Pipeline under Section 40 of the Gas Act (as amended)

1.2 SCOPE

The Corrib natural gas field is located 83 kilometres offshore of County Mayo. This gas field has been developed as a subsea ‘tie-back’ facility, connected by a pipeline to an onshore processing terminal located approximately 9 kilometres inland.

The offshore development consists of a series of gas wells and seabed infrastructure (including a manifold that gathers the flow of gas from each of the wells) in the Corrib field and a pipeline to the onshore gas terminal located at Bellanaboy Bridge. The gas pipeline (the “Corrib Pipeline” as referred to above) comes ashore at Glengad in Broadhaven Bay, and runs underground to the Terminal.

As stated above, this Screening Report forms part of the application to the Minister for consent to operate the Corrib Pipeline. As such this Screening Report is concerned with both offshore and onshore elements of the Corrib Pipeline and includes:

- Offshore gas pipeline (between wellheads and landfall)

- Onshore gas pipeline between landfall and the Bellanaboy Bridge Gas Terminal, including the Landfall Valve Installation (LVI).

There have been no changes or modifications to the following elements:

- Offshore gas pipeline (between wellheads and landfall)
- Onshore gas pipeline (between landfall and the Bellanaboy Bridge Gas Terminal), including the Landfall Valve Installation (LVI).

since the 2011 Section 40 Consent which would have any impact on the operation of the Corrib Pipeline.

The Corrib Pipeline comprises offshore and onshore elements and will carry natural gas from the Corrib Field to the Terminal at Bellanaboy. The transmission of gas through the pipeline has no potential for impact on the surrounding environment, including European sites, owing to its being entirely enclosed within the pipeline. Inspections, surveys and maintenance of the pipeline and LVI will be required during operation of the pipeline. These operational activities are described in the following sections and are summarised in Table 3.1, which also sets out the frequency and scope of the activities together with relevant documentation where they were assessed as part of the 2011 Section 40 Consent.

Changes in relation to European site designations which have taken place since the 2011 Section 40 Consent include new site designations (eg. the West Connacht Coast SAC) and some changes to existing sites (boundaries and conservation objective changes). Such changes are referred to in Section 4 and listed in Appendix 1.2, and are taken into consideration in the assessment at Section 5.

Operational activities have been previously assessed in the documents submitted as part of the application leading to the 2011 Section 40 Consent. These documents are set out in Section 3 below and assessed in Section 5 in the light of the above referenced changes to European site designations that have taken place.

2 APPROPRIATE ASSESSMENT AND SCREENING

The EU Habitats Directive (92/43 EEC) sets out the obligation of Member States. Article 6(2) states that:

“Member States shall take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive.”

Article 6(3) 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’

The first stage of the Appropriate Assessment process involves undertaking a screening exercise, the outcome of which then determines whether it is necessary to proceed with further stages. This report forms a part of the screening exercise.

A number of documents relating to the appropriate assessment process have been referred to during the preparation of this screening report. These are:

- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (NPWS 2009, Revised February 2010);
- 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 (Nov. 2001 – published 2002);
- EU Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC (2007);
- European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011)
- Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (2000).

2.1 SCREENING

This report includes the impact assessment and testing required under the provisions of Article 6(3) by means of the first stage of Appropriate Assessment, the screening process (as set out in the EU Guidance documents).

The NPWS guidance (2009/2010) states:

“Screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3):

- whether a plan or project is directly connected to or necessary for the management of the site; and
- whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives.

If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA). Screening should be undertaken without the inclusion of mitigation, unless potential impacts clearly can be avoided through the modification or redesign of the plan or project, in which case the screening process is repeated on the altered plan. The greatest level of evidence and justification will be needed in circumstances when the process ends at screening stage on grounds of no impact.”

The following sections (3, 4 and 5) comprise the required assessment as laid out in the screening sections of the guidance documentation¹.

With regard to the screening process (Stage 1), EU Commission guidance² states:

“This stage examines the likely effects of a project or plan, either alone or in combination with other projects or plans, upon a Natura 2000 site and considers whether it can be objectively concluded that these effects will not be significant. This assessment comprises four steps:

- *determining whether the project or plan is directly connected with or necessary to the management of the site;*
- *describing the project or plan and the description and characterisation of other projects or plans that in combination have the potential for having significant effects on the Natura 2000 site;*
- *identifying the potential effects on the Natura 2000 site;*
- *assessing the significance of any effects on the Natura 2000 site”.*

Furthermore, Article 42 of S.I 477 of 2011 European Communities (Birds and Natural Habitats) Regulations 2011 (the “2011 Regulations”) stipulates that screening for Appropriate Assessment of a plan or project not directly connected with or necessary to the management of a European Site shall be carried out by the competent authority, which in this case is the Minister, to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European sites.

¹ EC (2001) *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.

² Paragraph 3.1 of *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* (Nov. 2001)

Article 42(21) of the Regulations states:-

“(a) Where a public authority, referred to in this paragraph as “the first authority”, has carried out a screening for Appropriate Assessment or an Appropriate Assessment in relation to a plan or project, any other public authority, referred to in this Regulation as “the second authority”, that is required to carry out a screening for Appropriate Assessment or an Appropriate Assessment of the same plan or project shall take account of the screening for Appropriate Assessment or Appropriate Assessment of the first authority in relation to that plan or project, and of any information, including a Natura Impact Statement that was prepared for consideration by the first authority or another second authority in relation to the plan or project.

“(b) In taking account of a screening for Appropriate Assessment or Appropriate Assessment in relation to a plan or project and of a Natura Impact Statement, the second authority shall consider the extent to which the scope of that screening for Appropriate Assessment or Appropriate Assessment or Natura Impact Statement covers the issues that would be required to be addressed by the second authority in a screening for Appropriate Assessment or Appropriate Assessment of the plan or project in view of the scope of the consent to be given by it, and shall identify any issues that have not, in that regard, been adequately addressed.”

The Minister in carrying out a screening exercise shall take account of a screening for Appropriate Assessment or Appropriate Assessment of the first authority in relation to that plan or project, and of any information, including a Natura Impact Statement that was prepared for consideration by the first authority or another second authority in relation to the plan or project. As such any assessments carried out by other competent authorities, including previously by the Minister, are relevant.

Previous assessments, consents and approvals in relation to the Corrib Gas Pipeline (hereafter referred to as the “Pipeline”) are set out in Tables 5.1 and 5.2 (Section 5).

3 ACTIVITIES COVERED BY SECTION 40 CONSENT TO OPERATE

3.1 OVERVIEW OF THE CORRIB GAS FIELD DEVELOPMENT

The Corrib Field was discovered in 1996 by Enterprise Energy Ireland Ltd, which was subsequently acquired by the Royal Dutch Shell Group in 2002. The Corrib Gas Partners are Shell E&P Ireland Limited (SEPI), Statoil Exploration (Ireland) Limited and Vermilion Energy Ireland Limited.

The Corrib natural gas field is located below the seabed in the Atlantic Ocean ca. 65km off the Mayo coastline and at ca. 350 metres water depth. This gas field is being developed as a subsea 'tie-back' facility, connected by a pipeline to an onshore processing terminal located approximately 9 kilometres inland.

The offshore development consists of a series of gas wells and seabed infrastructure (including a manifold that gathers the flow of gas from each of the wells) in the Corrib Field and a pipeline to the onshore gas terminal located at Bellanaboy Bridge. The gas pipeline comes ashore at Glengad in Broadhaven Bay, from where it runs underground to the Terminal.

The Terminal will receive and treat natural gas extracted from the Corrib Field (offshore) for export to the Irish national natural gas transmission network. The facilities at the Terminal will be used to monitor and control the operation of the entire Corrib Field facilities, including the onshore Terminal, the onshore and offshore pipeline as well as the offshore sub-sea facilities such that gas production meets demand and to ensure that operations are conducted in a safe and environmentally sound manner.

All of the statutory permits and consents necessary to develop the Corrib gas field and associated facilities and infrastructure were in place at the end of 2004 when construction commenced. By November 2009 the offshore production facilities had been installed and the 83km offshore section of the Corrib Pipeline between the field and the landfall had been laid. To allow the connection of the Corrib Development with the national gas distribution network the Gas Networks Ireland approximately 150km Galway to Mayo Pipeline was completed in 2006 and is now connected to the Terminal.

Challenges were encountered resulting in delays and necessary amendments to the routing of the onshore pipeline. Construction on the consented 8.3 km onshore section of the Corrib pipeline, the last major project element, commenced in July 2011, has now been completed and is now connected to the offshore pipeline and the Terminal.

Monitoring and maintenance activities will be required during the operational phase of the Corrib Pipeline.

3.2 OPERATIONAL ACTIVITIES PREVIOUSLY ASSESSED AND APPROVED

As set out in Section 1, operational activities include the following elements of the Development:

- Offshore gas pipeline (between wellheads and landfall)
- Onshore gas pipeline between landfall and the Bellanaboy Bridge Gas Terminal, including the Landfall Valve Installation (LVI).

The Corrib Pipeline comprises offshore and onshore elements and will carry natural gas from the Corrib Field to the Terminal at Bellanaboy. The transmission of gas through the pipeline has no potential for impact on the surrounding environment, including European sites, owing to its being entirely enclosed within the pipeline. Inspections, surveys and maintenance of the pipeline and LVI will be required during operation of the pipeline. As mentioned above, these operational activities are described in the following sections and are summarised in Table 3.1, which also sets out the frequency and scope of the activities together with relevant documentation which was submitted as part of the 2011 Section 40 Consent.

These planned and previously assessed activities are set out in 3.2.1 and 3.2.2 below, and then considered and assessed in the context of changes in European site designations in Section 5.

3.2.1 Offshore

Offshore pipeline activities are summarised in Table 3.1, together with reference to relevant documentation where previously assessed (EIS, 2011 Section 40 Consent, POD Approval, etc). They are described further, as follows:

3.2.1.1 Surveys

- Geophysical surveys will be undertaken from a dedicated survey vessel, using specialist Remotely Operated Vehicle (ROV) equipment in order to confirm the requirements of the protection works. Surveys will involve the investigation of seabed conditions, and the integrity of any material subsequently placed to protect the flowlines. The surveys will utilise geophysical survey equipment in the form of multibeam echosounder (MBES).
- A 3D imaging sonar will be utilised during rock removal, before installation of flowlines.
- Annual/biennial post start-up offshore pipeline and umbilical surveys will serve to inspect and assess the integrity of the offshore seabed infrastructure, and provide up-to-date data to determine requirements for any future maintenance work. A similar survey was undertaken during the summer of 2014, and the next scheduled survey will take place in summer/autumn 2015. The survey will comprise three interlinked aspects:
 - A pipeline and umbilical acoustic survey (using multibeam echosounder);
 - A pipeline depth of burial survey (using sub-bottom profiler); and,
 - A visual survey – via remotely operated vehicle (ROV) in offshore areas, and drop down video in inshore areas.
- A cathodic protection survey is necessary to monitor the integrity and effectiveness of the pipeline's cathodic protection system. In offshore areas where it is possible to obtain direct contact with the pipeline anodes the survey will be carried out by an ROV with an anode

stabbing tool. Inshore this survey will be carried out using a technique known as trailing wire, which is mainly used where it is not possible to obtain direct contact with the pipe at the point of measurement and the survey is likely to be undertaken every two years. It will be undertaken using a support vessel, a small ROV, and a tow fish. This activity is a relatively small piece of work and is expected to take no longer than one day, and will be completed within 2 km of the shore.

3.2.1.2 Rock placement

- The requirement for rock placement, including concrete mattresses, depends on the outcome of the pipeline and umbilical surveys. Flowline, pipeline, and umbilical protection works may be required to ensure the long term stability and safeguarding of subsea infrastructure, while also protecting sections of the main gas pipeline and control umbilical. Rock placement is typically undertaken using a single specialist vessel with a rock fall pipe to improve accuracy and reduce footprint and the suspension of sediments. It is envisaged that this approach to the rock-placement works will keep the number of vessels involved to a minimum, thus minimising the potential for disturbance. Marine mammal observers will be present during rock-placement works, and work will be undertaken using agreed and approved methodologies and Code of Practice.

Rock placement works are scheduled for August - September 2015 and are expected to take approximately one month to complete. It is considered likely that the majority of works will take place in Broadhaven Bay owing to the increased level of wave action and scouring.

3.2.1.3 Intelligent Pipeline Integrity Gauge (PIG) Run

- Intelligent pigs, also referred to as in-line inspection pigs or smart pigs, gather information about the pipeline from within. Once launched at the manifold, the pig will be entirely contained within the pipeline and therefore has no potential to impact on any European site so it is not considered further in this report.

3.2.2 Onshore

The Corrib Onshore Pipeline EIS (RPS, 2010) described normal operation of the pipeline at paragraph 4.5 as follows:

“Normal operation of the pipeline will involve periodic inspection of the pipeline route and visits to the LVI by maintenance personnel. Checks of the LVI will include periodic testing and maintenance in line with manufacturers’ recommendations, or on the basis of inspection results.....”

As shown in Table 3.1, most of these activities will be carried out at regular intervals, such as at least weekly inspections and routine corrective maintenance of the LVI, monthly and annual inspection walkovers of the pipeline wayleave and five-yearly maintenance of shut-down valves, however in the event of an emergency it may be necessary to shut down the LVI system. This will be done remotely from the Terminal but restarting the LVI will require approximately two operators, together with two security personnel, to visit the LVI to bring the pipeline back into operation.

Table 3.1 Summary of planned and previously approved pipeline operational activities

Location	Activity	Frequency	Scope	Reference Document(s) /Assessments	Note
Offshore / nearshore pipeline	Annual/Biennial post start-up offshore pipeline and umbilical surveys	At least every two years	Geophysical survey to assess the integrity of the pipeline. Inshore and offshore elements.	<ul style="list-style-type: none"> Offshore EIS (RSK, 2001) Offshore Supplementary Update Report (RSK, 2010) Corrib Ocean Bottom Cable Seismic Survey Natura Impact Statement (to support the AA Process for the proposed West Connacht Coast SAC) February 2013[†] Corrib Offshore Pipeline Inspection Survey 2014 – Screening for AA Corrib Offshore Protection Works -Geophysical Survey 2014 Screening for AA Corrib Nearshore Protection Works Surveys – 2015 Screening for AA 	[†] <i>West Connacht Coast SAC was first notified in 2012.</i>
	Cathodic protection survey	Every two years	Resistivity survey along the length of the pipeline undertaken by small inshore vessel and an ROV further offshore		
	Intelligent Pipeline Integrity Gauge (PIG) run	Once at initial operation, and as required thereafter dependent on initial results ³		<ul style="list-style-type: none"> Offshore EIS (RSK, 2001) Plan of Development 2001 Offshore Supplementary Update Report (RSK, 2010) 	<i>The PIG will be launched from the subsea manifold at the field and contained within the pipeline, so this activity has no potential to impact on any European site.</i>
	Rock placement	Currently estimated to be every two years	Placement of rock material ⁴ to protect seabed assets. Mitigation against scouring, free-spanning, pipeline exposure etc.	<ul style="list-style-type: none"> Offshore EIS (RSK, 2001) Plan of Development 2001 Offshore Supplementary Update Report (RSK, 2010) Corrib Water Outfall Line Remedial Works Screening for Appropriate Assessment (2015) 	<i>Also assessed separately prior to rock placement in 2009 in relation to Broadhaven Bay SAC, and marine mammals (See 5.3.1.3).</i>
Onshore					
Landfall Valve Installation (LVI)	Regular inspection and routine corrective maintenance	Minimum weekly visits	One work vehicle accessing the site, with two personnel	<ul style="list-style-type: none"> Corrib Onshore Pipeline EIS (RPS, 2010) 	
	Maintenance of safety shutdown valves	Once every 5 years	45 tonne crane, if deemed necessary, and up to six truck movements and personnel cars		
	Emergency shutdown of the LVI system	Unknown	Potentially 2 vehicles and 4 personnel		
Onshore pipeline wayleave	Geotechnical inspection	Annual	Two personnel - on foot	Corrib Onshore Pipeline EIS (RPS, 2010)	<i>Geotechnical instrumentation is installed along the wayleave that is monitored from the terminal so frequent access not required.</i>
Onshore pipeline wayleave	Pipeline inspection	Monthly	Two personnel - on foot	Landowner Liaison Strategy and Plan (Condition No 42, Section 40)	<i>As a base case, SEPIL in line with I.S. 328 intend to perform monthly walk downs /ground patrols of the complete onshore pipeline route</i>

³ Estimated to be no more frequent than once every 5 years

⁴ Impacts from concrete matting are as for rock placement.

4 EUROPEAN SITES

The European network of Natura sites comprises Special Protection Areas (SPAs) - designated under Directive 79/409/EEC of 2nd April 1979 on the conservation of wild birds (the Birds Directive); and Special Areas of Conservation (SACs) - designated under EU Directive 92/43/EEC of 21st May 1992, on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). The directives have been transposed into Irish law by means of statutory instrument. The relevant current regulations are the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011). A European site is defined in SI 477 of 2011 as “(a) a candidate site of Community importance, (b) a site of Community importance, (c) a candidate special area of conservation, (d) a special area of conservation, (e) a candidate special protection area, or (f) a special protection area,” and for the purposes of this screening report and compliance with the requirements of Article 6(2) of the Habitats Directive this definition of European site has been adopted.

In light of updated guidance documentation on Appropriate Assessment (NPWS, 2009 - revised February 2010) and the requirements of SI 477, the EU Habitats and Birds Regulations (2011), sites in the wider locality are considered for the purposes of this application in relation to the operation of the Corrib Pipeline. European sites in the wider area are shown in Figure 1 and listed - together with the approximate distances to elements of the Corrib Development - in the table at Appendix 1.1.

Conservation objectives for the European sites in the Natura 2000 network - as published on the website of the National Parks and Wildlife Service of the Department of Arts, Heritage and the Gaeltacht. (<http://www.npws.ie/>) are included below.

As stated above, some changes in relation to European site designations have taken place since the Corrib Onshore Pipeline EIS (RPS, 2010), the Offshore Supplementary Update Report (RSK, 2010) and the 2011 Section 40 Consent, namely (i) new site designations (West Connacht Coast SAC and Mullet Peninsula SPA) and (ii) changes to existing sites (boundaries and conservation objective changes), as summarised in Appendix 1.2. Generally such changes are in relation to SPAs in the context of migratory bird species and, as with the Blacksod Bay/Broadhaven SPA, an extension of boundaries to include areas of wetland habitats - such as fringe salt marsh. Also, in some cases, the site selection criteria (qualifying interests) as set out in the conservation objectives differ from those listed in earlier Natura Data Forms. These are also noted in the table at Appendix 1.2.

Sites with potential to be impacted by the operation of the Corrib Pipeline are summarised in section 4.1 below. Their site synopses have been downloaded from the NPWS website and are set out in Appendix 2.

The following conservation objectives apply to all sites⁵:

“The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats⁶ and

⁵ NPWS (2011) Conservation objectives Generic Version 4.0. Department of Arts, Heritage & the Gaeltacht.

Birds⁷ Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

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

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and*
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and*
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.”*

The site characteristics of European sites in the wider locality are summarised in the next two sections and are listed in Appendix 1.1, including those sites with potential to be impacted by the operation of the Corrib Pipeline, either directly or indirectly. Because of the nature of the operational activities there is no potential for direct impact on any European site other than during nearshore and intertidal surveys in Broadhaven Bay and at the location of the Landfall Valve Installation (LVI) at Glengad. However, all sites listed in Appendix 1.1, including those in the wider vicinity of the Development are also summarised here. Some sites, despite their long distance from the Corrib Development, are included because their conservation objectives include highly mobile species such as marine mammals and sea birds.

In addition to European sites in the Natura 2000 network a number of conservation sites are present in the wider locality that have been designated under national legislation (Wildlife Acts 1976 to 2012),

⁶ Directive 2009/147/EC on the conservation of wild birds and Council Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna

⁷ EU Directive 79/409/EEC of 2nd April 1979 *on the conservation of wild birds* (the Birds Directive)

including Natural Heritage Areas (NHAs) and internationally designated sites such as Ramsar and OSPAR sites. These sites are listed in Appendix 1.3. NHAs that are also SACs and SPAs are not listed separately in this report but are assessed under their European designation. Other conservation sites present in the wider area include the Ballycroy National Park, the Owenboy and Knockmoyle-Sheskin Nature Reserves (NR) and the Carrowmore Lake Wildfowl Sanctuary (WFS). There have been no known new designations, proposed designations or changes in respect of nationally designated sites (including NHAs, Nature Reserves and Wildlife/Wildfowl Sanctuaries) in the vicinity of the Corrib Pipeline, nor in relation to the Flora Protection Order (1999) since the 2011 Section 40 Consent.

Where an internationally designated site, nature reserve or Wildlife/Wildfowl sanctuary comprises part (or all) of a European site this is indicated in sections 4.1 and 4.2 below and in the table in Appendix 1.1. Where an Annex II species of protected flora, as listed on the Flora Protection Order (FPO 1999), occurs in a European site this is indicated after the species name as {FPO 1999} in section 4.1 below.

4.1 SPECIAL AREAS OF CONSERVATION (SACs)

4.1.1 Glenamoy Bog Complex SAC (site code: IE000500)

This is an extensive site on the north Mayo coast, underlain by metamorphic rocks mostly of schists and quartzites, and covers an area of 12,901.8 hectares. It is dominated by low-level, undulating blanket bog, rising to the high peaks of Maumkeogh (379m) and Benmore (343m) to the east, and a fringe of high sea-cliffs (up to 275m) on the northern fringe. The area is drained by four rivers: Muingnabo, Glenamoy, Belderg and Glenglasra. The site includes one medium sized lake. Owing to its exposed position, the site receives rainfall with high concentrations of magnesium and potassium. In addition to the qualifying annexed habitats, the site has marine and estuarine systems, salt marsh and various types of heath, grassland and exposed rock. Many of the areas surrounding the site are now planted with conifers.

The SAC includes Sruwaddacon Bay, and the small bay to the north of Rosspport both of which are also within the Blacksod Bay / Broadhaven SPA (site code 004037). Sruwaddacon Bay is a shallow tidal inlet which forms an integral part of the Glenamoy River salmonid fishery. The SAC includes the salmonid habitats of the Glenamoy and Muingnabo Rivers and many of their tributary streams.

There has been no change in the qualifying interests (conservation objectives) for this site, since the assessments carried out in relation to the Corrib Pipeline (Corrib Onshore Pipeline EIS (RPS, 2010); and the Offshore Supplementary Update Report (RSK, 2010)) leading to the 2011 Section 40 Consent.

Conservation objectives

The site specific conservation objective for the Glenamoy Bog Complex SAC is 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:

- [1106] *Salmo salar* (only in fresh water)

- [1230] Vegetated sea cliffs of the Atlantic and Baltic coasts
- [1393] *Drepanocladus (Hamatocaulis) vernicosus* {FPO 1999}
- [1395] *Petalophyllum ralfsii* {FPO 1999}
- [1528] *Saxifraga hirculus* {FPO 1999}
- [21A0] Machairs (* in Ireland)
- [3160] Natural dystrophic lakes and ponds
- [4010] Northern Atlantic wet heaths with *Erica tetralix*
- [5130] *Juniperus communis* formations on heaths or calcareous grasslands
- [7130] Blanket bogs (* if active only)
- [7140] Transition mires and quaking bogs
- [7150] Depressions on peat substrates of the *Rhynchosporion*

4.1.2 Broadhaven Bay SAC (Site Code IE 000472)

This site is of high conservation importance owing to the presence of several habitats that are listed on Annex I of the EU Habitats Directive. In addition, it has ornithological importance for breeding and wintering birds.

There has been no change in the qualifying interests (conservation objectives) for this site, since the assessments carried out in relation to the Corrib Pipeline (Corrib Onshore Pipeline EIS (RPS, 2010); and Offshore Supplementary Update Report (RSK, 2010)) leading to the 2011 Section 40 Consent.

Conservation objectives

The site specific conservation objective for the Broadhaven Bay SAC is 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:

- [1140] Mudflats and sandflats not covered by seawater at low tide
- [1160] Large shallow inlets and bays
- [1170] Reefs
- [1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- [8330] Submerged or partly submerged sea caves.

While neither qualifying species nor species listed as being of importance for the SAC, a number of Annex II and Annex IV species of marine mammal, including Harbour porpoise and dolphin species, also otter are known to occur regularly in the SAC. Annex IV species are afforded strict protection under Article 12 of the EU Habitats Directive.

4.1.3 Carrowmore Lake Complex SAC (Site Code IE 000476)

The site comprises Carrowmore Lake, a large, shallow oligotrophic/mesotrophic lake, and Largan More Bog. It is of considerable ecological value, primarily for its extensive, intact blanket bog, which has a typical range of good quality habitats, but also as a site for the very rare Marsh Saxifrage and the moss *Drepanocladus vernicosus*. The site supports a number of Greenland White-fronted Geese, and Birds Directive Annex I bird species.

There has been no change in the qualifying interests (conservation objectives) for this site, since the assessments carried out in relation to the Corrib Pipeline (Corrib Onshore Pipeline EIS (RPS, 2010); and Offshore Supplementary Update Report (RSK, 2010)) leading to the 2011 Section 40 Consent.

Conservation objectives

The site specific conservation objective for the Carrowmore Lake Complex SAC is: 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:

- [1393] *Drepanocladus (Hamatocaulis) vernicosus* {FPO 1999}
- [1528] *Saxifraga hirculus* {FPO 1999}
- [7130] Blanket bogs (* if active only)
- [7150] Depressions on peat substrates of the *Rhynchosporion*

4.1.4 Slieve Fyagh Bog SAC (Site Code 000542)

Slieve Fyagh is an upland plateau, underlain by a bedrock of shales and sandstones, supporting a range of blanket bog types including mountain, highland and lowland. A series of small oligotrophic lakes occur on the plateau (c.300m) and several streams descend from this area to the lowlands below. The steeply sloping plateau sides support acid grassland communities.

This site contains one of the few relatively intact mountain blanket bogs in this region and is of value for its size and diversity of blanket bog types.

There has been no change in the qualifying interests (conservation objectives) for this site, since the assessments carried out in relation to the Corrib Pipeline (Corrib Onshore Pipeline EIS (RPS, 2010); and Offshore Supplementary Update Report (RSK, 2010)) leading to the 2011 Section 40 Consent.

Conservation objectives

The site specific conservation objective for Slieve Fyagh Bog SAC is 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:

- [7130] Blanket bogs (* if active only).

4.1.5 Bellacorick Bog Complex SAC (Site Code 001922)

The site is one of the largest tracts of lowland blanket bog in the country, with the finest examples of intact pool systems. It is considered to be of international importance due to the extent of the individual areas of bog and the wide variety of habitats present and because of the presence of a number of rare and threatened plant and animal species. It includes the Owenboy and Knockmoyle-Sheskin Nature Reserves established by Ministerial Order and statutory instrument in 1986 and 1990 respectively.

There has been no change in the qualifying interests (conservation objectives) for this site, since the assessments carried out in relation to the Corrib Pipeline (Corrib Onshore Pipeline EIS (RPS, 2010); and Offshore Supplementary Update Report (RSK, 2010)) leading to the 2011 Section 40 Consent.

Conservation objectives

The site specific conservation objective for the Bellacorick Bog Complex SAC is to maintain or restore the favourable conservation condition of the Annex I habitats and the Annex II species for which the SAC has been selected:

- [1013] *Vertigo geyeri*
- [1528] *Saxifraga hirculus* {FPO 1999}
- [3160] Natural dystrophic lakes and ponds
- [4010] Northern Atlantic wet heaths with *Erica tetralix*
- [7130] Blanket bogs (* if active only)
- [7150] Depressions on peat substrates of the *Rhynchosporion*
- [7230] Alkaline fens.

4.1.6 Mullet/Blacksod Bay Complex SAC (Site Code IE 000470)

This site is of high importance for the range of marine and coastal habitats, many of which are listed on Annex I of the EU Habitats Directive, three having priority status. The Annex II species *Petalophyllum ralfsii* also occurs. The site is also of particular ornithological importance, having four wintering species with internationally important populations and also important concentrations of breeding waders.

There has been no change in the qualifying interests (conservation objectives) for this site, since the assessments carried out in relation to the Corrib Pipeline (Corrib Onshore Pipeline EIS (RPS, 2010); and Offshore Supplementary Update Report (RSK, 2010)) leading to the 2011 Section 40 Consent.

Conservation objectives

The site specific conservation objective for this SAC is 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:

- [1140] Mudflats and sandflats not covered by seawater at low tide
- [1160] Large shallow inlets and bays
- [1170] Reefs
- [1310] *Salicornia* and other annuals colonizing mud and sand
- [1355] *Lutra lutra*
- [1395] *Petalophyllum ralfsii* {FPO 1999}
- [2120] Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")
- [2130] * Fixed coastal dunes with herbaceous vegetation ("grey dunes")
- [2150] * Atlantic decalcified fixed dunes (*Calluno-Ulicetea*)
- [21A0] Machairs (* in Ireland)
- [3150] Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation
- [7230] Alkaline fens

4.1.6.1 International designation – OSPAR

The Mullet/Blacksod Bay Complex (Site No: O-IE-0002972) is a Marine Protected Area (MPA) under the OSPAR Convention to Protect the Marine Environment of the North East Atlantic, Ireland committed to establishing marine protected areas to protect biodiversity (i.e., OSPAR MPAs). No legislation is currently used in Ireland to legally underpin protected areas established to fulfil commitments under international conventions. Therefore, since the creation of OSPAR MPAs would not afford any legal protection to the relevant areas on their own, Ireland (like other OSPAR contracting Parties) established a number of its SACs as OSPAR MPAs for marine habitats. (<http://www.npws.ie/protectedsites/osparsites/>).

4.1.7 Erris Head SAC (Site Code 001501)

This site is of conservation importance primarily for the cliff and alpine heath habitats, both of which are listed on Annex I of the EU Habitats Directive. The presence of several Annex I Bird Directive species and some breeding seabirds adds to the interest of the site.

There has been no change in the qualifying interests (conservation objectives) for this site, since the assessments carried out in relation to the Corrib Pipeline (Corrib Onshore Pipeline EIS (RPS, 2010); and Offshore Supplementary Update Report (RSK, 2010)) leading to the 2011 Section 40 Consent.

Conservation objectives

The site specific conservation objective for the Erris Head SAC is: 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:

- [1230] Vegetated sea cliffs of the Atlantic and Baltic coasts
- [4060] Alpine and Boreal heaths.

4.1.8 Owenduff/Nephin Complex SAC (Site Code IE 000534)

The Owenduff/Nephin Complex is one of the best and largest examples of intact blanket bog in the country. The range and quality of habitats present is excellent, and a number of rare and protected plant and animal species occur. The Owenduff River system is the largest in the country which remains virtually free of conifer plantations. The site is of international ecological importance. It includes Ballycroy National Park.

There has been no change in the qualifying interests (conservation objectives) for this site, since the assessments carried out in relation to the Corrib Pipeline (Corrib Onshore Pipeline EIS (RPS, 2010); and Offshore Supplementary Update Report (RSK, 2010)) leading to the 2011 Section 40 Consent.

Conservation objectives

The site specific conservation objective for the Owenduff/Nephin Complex SAC is to maintain or restore the favourable conservation condition of the Annex I habitats and the Annex II species for which the SAC has been selected:

- [1106] *Salmo salar* (only in fresh water)
- [1355] *Lutra lutra*

- [1393] *Drepanocladus (Hamatocaulis) vernicosus* {FPO 1999}
- [1528] *Saxifraga hirculus* {FPO 1999}
- [3110] Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*)
- [3130] Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*
- [3160] Natural dystrophic lakes and ponds
- [3260] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation
- [4010] Northern Atlantic wet heaths with *Erica tetralix*
- [4060] Alpine and Boreal heaths
- [5130] *Juniperus communis* formations on heaths or calcareous grasslands
- [7130] Blanket bogs (* if active only)
- [7140] Transition mires and quaking bogs

4.1.9 West Connacht Coast SAC (Site Code IE 002998)

In December 2012, the Minister for the Department of Arts Heritage and the Gaeltacht (DAHG) declared the intention to designate this site as an SAC for the protection of the Bottlenose Dolphin.

This site consists of a substantial area of marine waters lying off the coasts of Counties Mayo and Galway in the west of Ireland. Comprising two parts, in its northern component the site extends from the coastal waters off Erris Head westwards beyond Eagle Island and the Mullet Peninsula in Co. Mayo. From there it extends southwards immediately off the coast as far as the entrance to Blacksod Bay. In its southern component, the site stretches from Clare Island and the outer reaches of Clew Bay at Old Head and continues southwards off the Mayo coast to the Connemara coast near Clifden and Ballyconneely, Co Galway. Predominantly coastal in nature, the site extends westwards into Atlantic continental shelf waters up to approximately 7-11 km from the mainland; although in its southern component it remains mostly inshore of the main islands: Clare Island, Inishturk, Inishbofin and Inishshark. Its area contains subtidal waters fringing these and other islands, as well as islets and rocky skerries off the Co. Mayo and Co. Galway coasts.

The waters of the West Connacht Coast represent an exceptional area of key conservation importance for Bottle-nosed Dolphin in Ireland.

This designation of this site post dates the Corrib Onshore Pipeline EIS (RPS, 2010) and the Offshore Supplementary Update Report (RSK, 2010) which were submitted to the Minister as part of the 2011 Section 40 Consent Application.

Conservation objectives

The site specific conservation objective for the West Connacht Coast SAC is 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:

- [1349] Bottle-nosed Dolphin (*Tursiops truncatus*)

4.1.10 Iniskea Islands SAC (Site Code IE 000507)

The Iniskea Islands site is important for machair, a habitat rare in Europe and given priority status under the E.U. Habitats Directive. The significance of the site is added to by the presence of a

population of the rare liverwort *Petalophyllum ralfsii*. It is also an important area for wintering and breeding populations of birds, particularly Barnacle Goose. The Inishkeas are part of a group of islands off the Mullet Peninsula that are an important breeding ground for Grey Seal.

Conservation objectives

The site specific conservation objective for this SAC is to maintain or restore the favourable conservation condition of the Annex I habitats and the Annex II species for which the SAC has been selected:

- [1364] *Halichoerus grypus*
- [1395] *Petalophyllum ralfsii* {FPO 1999}
- [21A0] Machairs (* in Ireland)

There has been no change in the qualifying interests (conservation objectives) for this site, since the assessments carried out in relation to the Corrib Pipeline (Corrib Onshore Pipeline EIS (RPS, 2010); and Offshore Supplementary Update Report (RSK, 2010)) leading to the 2011 Section 40 Consent.

4.1.11 Duvillaun Islands SAC (Site Code IE 000495)

The Duvillaun Islands comprise a group of marine islands, rocks and reefs 3 km off the southern tip of the Mullet Peninsula, Co. Mayo. The main islands included are Duvillaun More, Duvillaun Beg, Turduvillaun, Gaghta Island, Keely Island and Leamareha Island. The islands form part of a larger group of islands, together with the Inishkeas, Inishkeeragh and Inishglora, which hold an important breeding population of Grey Seal.

Conservation objectives

The site specific conservation objective for this SAC is to maintain or restore the favourable conservation condition of the Annex I habitats and the Annex II species for which the SAC has been selected:

- 1364 Grey seal *Halichoerus grypus*

It is noted that two Annex I habitats (1170 and 1230) listed on the Natura Form (dated 12/1995) are not included in the current conservation objectives for this site.

4.2 SPECIAL PROTECTION AREAS (SPAs)

4.2.1 Blacksod Bay / Broadhaven SPA (site code IE 004037)

This site is of high ornithological importance for its excellent diversity of wintering waterfowl and for the nationally important populations of five species that it supports. Of particular note is the usage of the site by over 3% of the national Ringed Plover population. It is also of importance as a breeding site for terns and gulls, especially the localised Sandwich Tern. It is of note that seven of the species that occur regularly are listed on Annex I of the EU Birds Directive (Directive 2009/147/EC on the conservation of wild birds), i.e. Great Northern Diver, Red-throated Diver, Golden Plover, Bar-tailed Godwit, Sandwich Tern, Common Tern and Arctic Tern.

Sruwaddacon Bay and the small bay to the north of Rossport are both included within the SPA. Sruwaddacon Bay is a shallow tidal inlet of special importance for its wintering wildfowl populations, which feed on the intertidal sand/mud flats.

The qualifying interests and boundaries of this site were reviewed and amended during the re-designation process. The conservation objectives now include three wintering species that were not previously included as qualifying interests, these are: Light-bellied Brent Goose (*Branta bernicla hrota*), Common Scoter (*Melanitta nigra*) and Red-breasted Merganser (*Mergus serrator*); and also include wetland habitat.

Conservation objectives

The site specific conservation objectives for the Blacksod Bay/Broadhaven SPA are: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

- *Gavia immer* [wintering]
- *Branta bernicla hrota* [wintering]
- *Melanitta nigra* [wintering]
- *Mergus serrator* [wintering]
- *Charadrius hiaticula* [wintering]
- *Calidris alba* [wintering]
- *Calidris alpina* [wintering]
- *Limosa lapponica* [wintering]
- *Numenius arquata* [wintering]
- *Sterna sandvicensis* [breeding]
- Wetlands

4.2.1.1 International designation – Ramsar

“Ramsar” refers to an international convention in relation to wetland sites which was ratified by Ireland in 1985. The Convention has its roots in the protection of wetland wildfowl and for many sites it is species-associated. More recently Ramsar has taken on the more all-encompassing wetland habitat approach which in the context of the EU falls in line with site protection under the Habitats Directive.

The Ramsar convention has no statutory basis itself, but it is operated through either EU or national legislation, in this case the EU Birds Directive and EU Habitats Directive through the Wildlife and Amendments Acts (1976 and 2000).

It must be noted therefore that part of the SPA 004037, including Sruwaddacon Bay, is designated under the Ramsar Convention as follows:

Blacksod Bay / Broadhaven (Ramsar Site Code 844)

Designated in 1996 the site covers 683 ha. and is a “composite of diverse marine and coastal habitats that includes vast dune systems and extensive areas of dune grassland with salt marshes occurring in sheltered bays and inlets. The grasslands are of considerable botanical importance. The site also includes several brackish lakes important to various species of breeding waders, large numbers of wintering waterbirds of various species, and internationally important numbers of Brent Geese” (www.ramsar.org).

4.2.2 Carrowmore Lake SPA (Site Code IE 004052)

Carrowmore Lake is a large (960ha), shallow lake, with a maximum depth of approximately 2.5m and a generally stony bottom. The lake water is almost neutral in terms of acidity (i.e. pH) and generally rather nutrient-poor. The shallow waters support species such as Common Spike-rush (*Eleocharis palustris*), Shoreweed (*Littorella uniflora*), Bulbous Rush (*Juncus bulbosus*) and Perfoliate Pondweed (*Potamogeton perfoliatus*). Soft Rush (*Juncus effusus*) and Yellow Iris (*Iris pseudacorus*) are frequent along the shore, with stands of Common Club-rush (*Scirpus lacustris*) and Common Reed (*Phragmites australis*). The lake has one substantial island, Derreens Island, and several small islands; these are dominated by a grassy sward.

Carrowmore Lake SPA was designated by means of statutory instrument European Communities Conservation of Wild Birds (Carrowmore Lake SPA 004052) Regulations 2005 (SI No. 713 of 2005). It is of high ornithological importance because of the nationally important nesting gull colony (Black-headed and Common Gull) and, in the past, nesting terns (EU Birds Directive Annex I species), though more recently the terns have nested on Inishderry in Broadhaven Bay.

The occurrence of overwintering Greenland White-fronted goose on the adjacent bogs of the Carrowmore Lake Complex SAC is of note because this species is listed on Annex I of the EU Birds Directive and uses the lake for roosting and/ or feeding.

The only change in the qualifying interests (conservation objectives) for this site is the addition of Common Gull (*Larus canus*), Schedule 3 of the statutory instrument (SI. 713 of 2005) for this site having only listed Sandwich tern (*Sterna sandvicensis*).

Conservation objectives

The site specific conservation objective for the Carrowmore Lake SPA is: to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

- *Larus canus* [breeding]
- *Sterna sandvicensis* [breeding]

Carrowmore Lake is also designated as a Wildfowl Sanctuary (WFS No 37) under the Wildlife Acts 1976 to 2012.

4.2.3 Owenduff/Nephin Complex SPA (Site Code IE 004098)

The Owenduff/Nephin Complex SPA provides one of the best examples of blanket bog and upland bird communities in the country. Of particular importance is that there are four regularly-occurring species that are listed on Annex I of the EU Birds Directive (Greenland White-fronted Goose, Merlin, Peregrine and Golden Plover), as well as a good population of Red Grouse. Much of the site comprises National Park.

There has been no change in the qualifying interests (conservation objectives) for this site, since the assessments carried out in relation to the Corrib Pipeline (Corrib Onshore Pipeline EIS (RPS, 2010); and Offshore Supplementary Update Report (RSK, 2010)) leading to the 2011 Section 40 Consent.

Conservation Objectives

The site specific conservation objective for the Owenduff/Nephin Complex SPA is to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

- *Falco columbarius* [breeding]
- *Pluvialis apricaria* [breeding]
- *Anser albifrons flavirostris* [wintering].

4.2.4 Stags of Broadhaven SPA (Site Code IE 004072)

The Stags of Broad Haven SPA is a site of ornithological importance owing to the presence of the only known colony of Leach's Petrel in Ireland, as well as important populations of Storm Petrel and Puffin. Both Leach's Petrel and Storm Petrel are listed on Annex I of the E.U. Birds Directive.

There has been no change in the qualifying interests (conservation objectives) for this site, since the assessments carried out in relation to the Corrib Pipeline (Corrib Onshore Pipeline EIS (RPS, 2010); and Offshore Supplementary Update Report (RSK, 2010)) leading to the 2011 Section 40 Consent.

Conservation objectives

The site specific conservation objective for the Stags of Broad Haven SPA is to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

- *Hydrobates pelagicus* [breeding]
- *Oceanodroma leucorhoa* [breeding]
- *Fratercula arctica* [breeding]

4.2.5 Illanmaster SPA (Site Code IE 004074)

Illanmaster is a steep, rocky island situated just off the north Mayo coast. It rises to 107 m and is topped with a maritime grassy sward. The surrounding seas to a distance of 500 m are included in the site.

The presence of Storm Petrel and Barnacle Goose is of particular note as these species are listed on Annex I of the E.U. Birds Directive.

There has been no change in the qualifying interests (conservation objectives) for this site, since the assessments carried out in relation to the Corrib Pipeline (Corrib Onshore Pipeline EIS (RPS, 2010); and Offshore Supplementary Update Report (RSK, 2010)) leading to the 2011 Section 40 Consent.

4.2.6 Mullet Peninsula SPA (Site Code IE 004227)

The Mullet Peninsula SPA is of high ornithological importance as it supports a nationally important population of Corncrake, a globally threatened species. Corncrake is also listed on Annex I of the E.U. Birds Directive. The site comprises three separate areas situated on the Mullet peninsula that make up the site. The main habitat present is grassland, which is managed in a relatively intensive manner.

Conservation objectives

The site specific conservation objective for this SPA is to maintain or restore the favourable conservation condition of the bird species listed as a Special Conservation Interests for this SPA, namely breeding Corncrake (*Crex crex*).

This site post dates the Corrib Onshore Pipeline EIS (RPS, 2010); and Offshore Supplementary Update Report (RSK, 2010) and the 2011 Section 40 Consent.

4.2.7 Termoncarragh and Annagh Machair SPA (Site Code IE 004093)

This site is of high importance for both wintering and breeding birds. It is part of the wintering ground for the largest Barnacle Goose population in the country, and regularly supports a flock of international importance. The marginal wetland habitats and the machair are prime habitats for breeding waders.

Conservation objectives

The site specific conservation objective for this SPA is to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

- *Crex crex* [breeding]
- *Anser albifrons flavirostris* [wintering]
- *Branta leucopsis* [wintering]

There has been no change in the qualifying interests (conservation objectives) for this site, since the assessments carried out in relation to the Corrib Pipeline (Corrib Onshore Pipeline EIS (RPS, 2010); and Offshore Supplementary Update Report (RSK, 2010)) leading to the 2011 Section 40 Consent.

4.2.8 Inishglora and Inishkeeragh SPA (Site Code IE Site Code 004084)

The site comprises the two islands, Inishglora and Inishkeeragh, as well as a number of smaller islets and rocks situated c. 1.5-3 km west of the Mullet Peninsula, Co. Mayo. This site is one of the most important seabird sites in the region, with nationally important populations of Storm Petrel, Arctic Tern, Cormorant, Shag, Lesser Blackbacked Gull and Herring Gull. The main islands regularly support nationally important numbers of wintering Barnacle Geese. The occurrence of Storm Petrel,

Arctic Tern and Barnacle Goose are of particular note as these are listed on Annex I of the E.U. Birds Directive. The presence of breeding Grey Seal is also of note as this species is listed on Annex II of the E.U. Habitats Directive.

Conservation objectives

The site specific conservation objective for this SPA is to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

- *Hydrobates pelagicus* [breeding]
- *Phalacrocorax carbo* [breeding]
- *Phalacrocorax aristotelis* [breeding]
- *Larus fuscus* [breeding]
- *Larus argentatus* [breeding]
- *Sterna paradisaea* [breeding]
- *Branta leucopsis* [wintering]

There has been no change in the qualifying interests (conservation objectives) for this site, since the assessments carried out in relation to the Corrib Pipeline (Corrib Onshore Pipeline EIS (RPS, 2010); and Offshore Supplementary Update Report (RSK, 2010)) leading to the 2011 Section 40 Consent.

4.2.9 Iniskea Islands SPA (Site Code IE 004004)

The Inishkea Islands are the two largest islands off the west coast of the Mullet Peninsula. As well as Inishkea North and Inishkea South, this site includes Carrickawilt, Carrigee, Carrickmoylenacurhoga, Pluddany Rocks, Carrickfad, Carrickgormal, Carricklaur, Carrickalaveen and several smaller rocks and reefs. The surrounding seas are included in the site.

Conservation objectives

The site specific conservation objective for this SPA is to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

- *Phalacrocorax aristotelis* [breeding]
- *Charadrius hiaticula* [wintering]
- *Calidris alba* [wintering]
- *Calidris maritima* [wintering]
- *Arenaria interpres* [wintering]
- *Larus canus* [breeding]
- *Larus argentatus* [breeding]
- *Sterna paradisaea* [breeding]
- *Sterna albifrons* [breeding]
- *Branta leucopsis* [wintering]
- *Calidris alpina schinzii* [breeding]

Effectively no change, as the species listed as conservation objectives for this site in 2012 were also listed on the Natura Data Form dated 2003.

4.2.10 Duvillaun Islands SPA (Site Code IE 004111)

This site is of high ornithological importance as the islands comprise part of the range of an internationally important population of Barnacle Goose, a Birds Directive Annex I species. Storm Petrel, another Annex I species, breeds in significant numbers and there are nationally important populations of several other seabirds. Peregrine Falcon and Chough, both Annex I species, also breed.

Conservation objectives

The site specific conservation objective for this SPA is to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

- *Fulmarus glacialis* [breeding]
- *Hydrobates pelagicus* [breeding]
- *Branta leucopsis* [wintering]

Species listed as conservation objectives for this site in 2012 were also listed on the Natura Data Form dated 2003, so there is effectively no change.

5 ASSESSMENT

5.1 CONSIDERATION OF SIGNIFICANCE

5.1.1 Guidance Documents

In considering whether or not a plan or project individually or in combination with other plans or projects is likely to have a significant effect on a European site, the NPWS Guidance (2010 Rev) uses an EC definition as follows:..." *any element of a plan or project that has the potential to affect the conservation objectives of a Natura 2000 site, including its structure and function, should be considered significant (EC, 2006)*". Other guidance documents also discuss significance criteria, some in more detail than others. The Dutch Guidance⁸ (translated, Neumann, 2004) discusses a number of criteria in relation to habitats and species population.

In general, significance indicators might include:

- impact on Annex I habitat (including loss or reduction in size; impairment of function);
- fragmentation of habitat or population (depending upon the duration or permanence);
- disturbance (noise, light etc. - distance, duration);
- effect on species populations (direct or indirect damage to size, breeding patterns etc);
- changes in water quality.

To summarise the significance issue, it is useful to quote from Morris (2008) who describes significance in the context of the Habitats Directive as follows:

"...Within the Habitats Regulations, significance is quite different. It is used as a coarse filter and the test is a question over the possibility that there will be a significant effect on a key receptor that determines the conservation status of a European site. Thus, determining whether there will be a 'likely significant effect' does not imply that there will be such an effect or even that such an effect is more likely than not; it simply flags the need to test the issues and then make a judgement of the pathways and mechanisms imposed by a project on the designated wildlife interest. This test best equates to the screening and scoping opinions sought for an EIA but is confined to the Natura 2000 and Ramsar interest rather than wider environmental or nature conservation issues".

5.1.2 Obligation of Member States under Article 6(2) and Article 6(3) of the Habitats Directive

Article 6(2) of the Habitats Directive, which is described in Section 2 above sets out the obligations of Member States in relation to the protection of habitats and species. Article 6(3) sets out the assessment procedure to assess whether or not there are any likely significant effects on a European site.

⁸ Translated from Publication of Dutch State Printers in book: 'Praktijkboek Habitattoets', 2004 (F. Neumann en H. Woldendorp, SDU)

In order to assess the likely impacts and ascertain whether an adverse effect on the integrity of the Natura site(s) is likely to occur as a result of the proposed development, should the appropriate assessment process deemed to be required, it is necessary to consider what constitutes the integrity of a Site as referred to in Article 6(3). The document *Managing Natura 2000 Sites, The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (2000)* gives clear guidance in this regard and states: *"The integrity of the site involves its ecological functions. The decision as to whether it is adversely affected should focus on and be limited to the site's conservation objectives"*.

Integrity has been discussed and defined in various ways in guidance documentation and the literature. For example, Treweek (1999) discusses biological integrity and ecosystem health, and refers to three generally accepted criteria: systematic indicators of ecosystem functional and structural integrity; ecological sustainability or resilience (relating to the ability of a system to withstand "natural" or anthropogenic stresses); and absence of detectable symptoms of ecosystem disease or stress. A similar, but less academic, approach is adopted by the various guidance documents with a number of definitions proposed. The essence of the concept of ecological integrity is distilled in the following definition from *Planning Policy Statement 9* (UK Department of Environment, 1994 – now superseded by PP9, 2005):

"coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is or will be classified".

It is further noted that the decision in the European Court of Justice (ECJ) ruling in relation to the Galway Outer Bypass (ECJ Case C-258/11) concerns the interpretation of the requirements under Article 6(3) and Article 6(4) of the Habitats Directive where an Appropriate Assessment of a plan or project has been carried out and how a competent authority should determine (based on the Appropriate Assessment that has been carried out) whether a proposed development will adversely affect the integrity of a European Site. While Case-C-258/11 helpfully clarifies the position in relation to Article 6(3) and Article 6(4) of the Habitats Directive in this regard, based on the conclusions set out in Section 6 below it is considered that the findings in Case C-258/11 are not relevant to this particular application in circumstances where no Stage 2 Appropriate Assessment is required.

5.2 PREVIOUS ASSESSMENTS

Permits, consents and approvals relating to the Corrib Gas Pipeline since 2001 are set out in Table 5.1.

The likely significant effects of the operations of the Corrib Pipeline on European sites were considered in the documents submitted as part of the 2011 Section 40 Consent. Documentation relevant to certain planned activities for the offshore and onshore pipeline elements of the Development is also listed in Table 3.1 above.

As stated above (Sections 1 and 4) some changes in relation to European site designations have taken place including new site designations and some changes to existing sites (boundaries and conservation objective). These are set out in Appendix 1.2. There have been no known new designations, proposed designations or changes in respect of nationally designated sites under the Wildlife Acts 1976 to 2012 since the 2011 Section 40 Consent.

The following sections deal with operational activities (as set out in 1.2 and described in 3.2 above) and consider the previous assessments in the light of the changes in European site designations or proposed designations that have taken place.

Table 5.1 Corrib Gas Pipeline - Consents, Permits and Approvals

Consent / Permission / Approval	Awarding Body	Date of Grant	EIS	NIS / Screening Report
Plan of Development Approval (POD Approval)	DCENR	15 April 2002	Yes	(as part of EIS)
Amended Plan of Development (2011 Amended POD)	DCENR	25 Feb 2011	Yes	Yes
Foreshore Licence (Foreshore Licence of 17 May 2002 revoked)	DECLG	22 July 2011	Yes	Yes
Authorisation under Section 40 of the Gas Act (Consent to Construct) (2011 Section 40 Consent)	DCENR	25 February 2011	Yes	Yes
Section 182D Approval - An Bord Pleanála Ref. PL 16.GA0004	ABP	19 January 2011	Yes	Yes

For completeness a list of all consents, permissions and approvals obtained by SEPIL are contained in Appendix 3.

5.3 PREVIOUSLY APPROVED ACTIVITIES IN THE LIGHT OF CHANGES IN EUROPEAN SITE DESIGNATIONS

5.3.1 Offshore

In addition to the permissions, consents and approvals set out in Table 5.1, NIS/Screening reports for Appropriate Assessment were submitted in relation to offshore surveys / activities. These were assessed by the DCENR with the assistance of external consultants and following submissions from prescribed bodies, including the Department of Arts, Heritage and the Gaeltacht (DAHG), were approved by the Minister (DCENR), and are listed in Table 5.2.

The following sections consider previously assessed offshore and near shore surveys and rock placement - as described in Section 3.2 above - in the context of changes in designations to the European sites in the locality. As stated above, some changes in relation to European site designations have taken place including new site designations and changes to existing sites (boundaries and conservation objective changes).

Table 5.2: Consented offshore surveys / activities - NIS/ Screening reports

NIS/Screening Report		Report Date	Consenting Body	Date of approval
i	Corrib Ocean Bottom Cable Seismic Survey Natura Impact Statement (to support the Appropriate Assessment Process for the proposed West Connacht Coast SAC)	February 2013	DCENR	04 March 2013
ii	Corrib Field Rig Site Survey and Well Intervention Works Screening for Appropriate Assessment	February 2014	DCENR	28 February 2014
iii	Corrib Offshore Pipeline Inspection Survey 2014 Screening for Appropriate Assessment	June 2014	DCENR	30 July 2014
iv	Corrib Offshore Protection Works - Geophysical Survey 2014 Screening for Appropriate Assessment	July 2014	DCENR	30 July 2014
v	Corrib Water Outfall Line Remedial Works Screening for Appropriate Assessment <i>(Note: this included an assessment of acoustic and visual surveys)</i>	April 2015	DCENR	<ul style="list-style-type: none"> • Surveys: 15 April 2015 • Protection Works Method Statement: 04 June 2015 • Remedial Works: 04 June 2015 • Protection Works Method Statement Addendum: 09 July 2015
vi	Corrib Nearshore Protection Works Surveys – 2015 Screening for Appropriate Assessment	July 2015	DCENR	<ul style="list-style-type: none"> • 22 July 2015

5.3.1.1 Surveys

As described at 3.2.1.1 above, offshore and nearshore pipeline surveys have been assessed previously in the Offshore Supplementary Update Report (2010) and they will be carried out as assessed and approved under the 2011 Section 40 Consent (see Table 3.1).

In addition, in 2013 and 2014 NIS/screening reports were submitted to the Department of Communications, Energy and Natural resources (DCNER) for the approval of offshore surveys (report numbers (i), (ii), (iii), (iv), (v), and (vi) in Table 5.2 above). These NIS/ screening reports took into consideration the potential impacts on the West Connacht Coast SAC, the designation of which was notified (2012) subsequent to the 2011 Section 40 Consent, as well as other the European sites in the wider locality. The conclusions concurred with those of previous assessments and approval was given by the Minister following his Department's consultations with prescribed bodies and assessment by external consultants.

It is considered therefore that the offshore surveys have been thoroughly assessed in relation to European sites, including in the light of recent changes to designations, that the previous

assessments remain valid and no significant impact will ensue as a result of these planned activities on the conservation objectives or key structure and functions of any European site.

5.3.1.2 Rock placement

Rock placement is described at 3.2.1.2 above, and was assessed in the Corrib Offshore EIS (RSK, 2001), for the Plan of Development 2001 and again in the Offshore Supplementary Update Report (RSK, 2010) followed by statutory approvals (Table 5.1). In 2015 concrete mattresses were assessed in the context of remedial works on the water outfall line (report number (v) in Table 5.2 above).

Potential effects on marine mammals from rock-placement works within the Broadhaven Bay SAC were also assessed in 2009 prior to commencement of rock placement works, at which time the National Parks and Wildlife Service, (NPWS) in an email to DCENR (dated 02 October 2009), following a review of documents, advised as follows:

"NPWS have reviewed the documents received from DCENR this morning and have the following comments to make:

1) There is a risk of some relocation of the deposited filter layer during inclement weather conditions, however, it is felt that resident currents and the design slope will minimise the likelihood of significant effect. There may also be a loss of reef habitat; however it is considered that this will not be significant in area or nature. The post construction surveys to be undertaken should include rock deposition areas and sediments in these areas.

2) The rock lay vessel may cause disturbance of cetaceans. Therefore the Broadhaven Bay Marine Mammal Code of Practice should be adhered to during rock laying operations.

3) Having reviewed the appropriate assessment, NPWS is of the view that the proposed works may proceed according to the mitigation and monitoring outlined."

With regard to potential impacts on the West Connacht Coast SAC and its conservation objectives for the Bottlenose dolphin; in addition to the assessment in 2009 referred to above, rock placement was further assessed in the Offshore Supplementary Report (RSK, 2010) with conclusions in relation to habitats and marine mammals in Broadhaven Bay SAC, and is encompassed by the Marine Works EMP, as amended and approved. Whilst the West Connacht Coast SAC had not been designated at the time and was therefore not assessed, it would seem reasonable to assume that the same potential impacts might arise and that the mitigation measures set out for rock placement works in Broadhaven Bay in relation to the protection of marine mammals - as agreed with and approved by NPWS - and permitted by DCENR should also apply to similar works in the vicinity of the West Connacht Coast SAC. The 2015 assessment for the remedial works on the water outfall line, as referenced above and in Table 5.2 (v), confirmed the conclusions of previous assessments in this regard.

Marine mammal monitoring carried out in relation to offshore activities subsequent to the Offshore Supplementary Report (RSK, 2010) and the 2011 Section 40 Consent is described in the four marine mammal monitoring reports which are appended to this Screening Report (Appendices 4.1 to 4.4).

SEPIL is committed to the reduction of environmental impacts throughout the Corrib Project and will implement the same mitigation measures to protect marine mammals throughout any rock-placement (including concrete mattresses) work along the offshore pipeline route (including in the vicinity of the West Connacht Coast SAC).

It is considered therefore that the previous assessments carried out in relation to rock placement in the Broadhaven Bay SAC and marine mammals, and for which approvals were granted remain valid, and are similarly applicable to the West Connacht Coast SAC and its conservation objectives. No significant impact on this or any other European site, the conservation objectives for which they are designated or their key structure and functions will arise from rock placement activities, including concrete mattresses.

5.3.2 Onshore

As described in Section 3 above, and set out in Table 3.1, activities associated with the operation of the LVI were previously assessed in the Corrib Onshore Pipeline EIS (RPS, 2010) and formed part of the application documents leading to the 2011 Section 40 Consent. They include at least weekly inspections, routine corrective maintenance and five yearly maintenance of shut down valves.

Activities associated with an emergency shutdown of the LVI will require the presence of personnel and vehicles on site at the LVI.

The Blacksod Bay/Broadhaven SPA which is adjacent to the landfall and the LVI has been monitored intensively during the overwintering seasons since 2002 - as assessed in the Corrib Onshore Pipeline EIS (RPS, 2010). Overwintering monitoring has continued annually in the wider Sruwaddacon Bay area, with weekly survey visits, the last pre-construction survey taking place in 2010/2011. A large body of baseline data had been accumulated over twelve years of intense monitoring prior to and during construction, leading to a greater understanding of the dynamics and fluctuations associated with the bird populations in Sruwaddacon Bay area. During construction monitoring has been carried out, with weekly visits, in accordance with the Environmental Management Plan (EMP) Monitoring Programme. With the exception of the Common Scoter, an offshore (pelagic) species, the species which were added as conservation objectives (qualifying species) for the SPA pursuant to the site review (see 4.2.1 above) had been recorded previously and therefore included in the 2010 assessment leading to the 2011 Section 40 Consent. Monitoring since 2011 has shown no construction-related disturbance to birds. There was no obvious change in the gross distribution of birds across the study area attributable to attraction to, or avoidance of, certain areas. Winter bird monitoring reports for 2010/2011, 2011/2012, 2012/2013 and 2013/2014 are appended to this Screening Report (Appendices 4.5 to 4.8).

Thus in respect of changes to the qualifying bird species that are listed conservation objectives for the Blacksod Bay/Broadhaven SPA, in particular the addition of the overwintering Brent Goose which is generally present in the locality between September to April, it is considered that the low level and frequency of activities associated with routine weekly inspections, routine corrective maintenance and five yearly shutdown valve maintenance at the LVI, together with the fact that it is dished and

effectively out of sight from feeding birds on the foreshore, any impact is considered to be neutral or negligible and transient - being no different from the effect of normal human land based coastal activities such as agricultural / land management practices / recreational activities – walking etc.

Similarly in relation to the potential for activities to disturb protected non-avian faunal species, in particular the otter - an annexed species - albeit not a qualifying interest for any European site in the immediate vicinity, regular monitoring in the Sruwaddacon Bay area has shown this species to have maintained its presence and range throughout. The non-avian fauna during construction monitoring report for 2012 to 2013 is appended to this Screening Report for reference (Appendix 4.9).

In terms of the onshore pipeline, there is no potential for impact arising from the routine monthly pipeline inspections and annual walkover geotechnical inspections on European sites in the vicinity of the onshore pipeline or their conservation objectives.

Similarly, because of spatial separation, there is no potential for activities associated with the LVI and the onshore pipeline (geotechnical walkover inspections) to have any impact on the West Connacht Coast SAC and its conservation objective.

5.4 LIKELY EFFECTS ON EUROPEAN SITES IN THE LIGHT OF CHANGES IN DESIGNATIONS OR ANY PROPOSED DESIGNATIONS

Taking into account best scientific knowledge and the conservation objectives of the European sites (as defined under SI 477 of 2011), including any changes in designation (or any proposed designation), and the West Connacht Coast SAC which has been designated since the 2011 Section 40 Consent - as referred to in Section 4 above and summarised in Appendix 1.2 - together with the outcome of assessments already undertaken, the conclusions of previous assessments are considered to remain valid and accurate and it can be concluded that the operation of the Corrib Pipeline will not have any effect on any European sites.

In respect of the Mullet Peninsula SPA, also designated since the assessment of 2010 and the 2011 Section 40 Consent (site synopsis and Standard Natura Data Form are dated February and May 2011 respectively), the site is designated for breeding Corncrake (*Crex crex*), is terrestrial and comprises intensively managed grassland in three areas of the Mullet Peninsula. Because of its conservation objectives and location there is no potential for impact on this site from the operation of the Corrib Pipeline.

5.5 CUMULATIVE EFFECTS

The likely significant impacts of the construction and the operation of the Corrib Pipeline from the offshore facilities to the Bellanaboy Bridge Gas Terminal were fully considered and assessed prior to the grant of the 2011 Section 40 Consent - as were all direct and indirect effects, cumulative impacts and interactions between plans and projects when either taken alone or in combination with other

plans and projects, which include other elements of the Corrib Development, the Gas Networks Ireland Mayo to Galway Pipeline and other plans and projects as discussed below.

5.5.1 Other plans and projects

Other relevant proposed/permitted developments (“plans and projects”) in the wider locality arising since the 2011 Section 40 Consent with potential for cumulative effects and interactions resulting from the operation of the Corrib Pipeline, other elements of the Corrib Development, the operation of the Mayo to Galway Pipeline and other plans and projects are considered in the Cumulative Impacts Update Report and are set out below.

Oweninny Wind Farm

Planning permission was sought (ABP Ref. PL16.PA0029) in July 2013 for the Oweninny Wind Farm (approximately 11 km from the Corrib Pipeline) on the site of the former Bellacorick Peat Fired Power Station, a site comprising approximately 50km² formerly utilised for commercial peat harvesting by Bord na Móna. An Bord Pleanála has issued a request for Further Information in relation to this application.

The Oweninny site supports an important diversity of bird species that is characteristic of western blanket bog, wetland habitats and forest/scrub habitats. The development of the wind farm will result in some changes to the habitats within the site but these changes can be considered as being consistent with the rehabilitation of the site since commercial peat extraction ceased in the early 2000s.

The Oweninny Natura Impact Statement (NIS) concluded that “While two SAC sites (Lough Dahybaun and Bellacorick Bog complex) partly overlap with the Oweninny development site, and a third (Bellacorick Iron Flush) is located entirely within but is not part of the development property, there will be no direct impacts by the project on any of these SAC sites. Similarly, the project will not have any direct impacts on the various European sites which lie outside of the development site. It can be concluded that the proposed project will not result in any loss of habitat or physical disturbance to habitats in any of the identified European sites.”

Most bird species, including wintering Hen Harriers, will not be affected by the project. Some bird collisions may occur but species particularly prone to collision, especially swans and geese, occur within the site area only on an occasional basis and even then only in small numbers. With regard to SPAs within 15 km of the Oweninny site, the NIS concluded, “with a high degree of certainty” that “activities associated with the proposed project either during the construction and/or operation phases could not have any impacts, direct or indirect, on the conservation objectives of the SPAs”.

Protected species of non-avian fauna, such as otters, bats and common frog, are unlikely to be affected by the project.

Cluddaun Wind Farm

Coillte Enterprise proposed to build a wind farm in Cluddaun, North Western County Mayo with a capacity to generate up to 150 MW. The site comprises 2,434 ha and is located north of and

adjacent to the proposed Oweninny wind farm. The proposed project lies approximately 13km from the Corrib Pipeline. A planning application was lodged with An Bord Pleanála in October 2013 (ABP Ref. PL16.PA0031) however permission was refused by An Bord Pleanála in May 2015. Given this outcome, it is not necessary to consider this project further.

Corrib Gas Field Development (and Mayo to Galway Pipeline)

The remaining impacts on Flora and Fauna are deemed to be negligible or minor in terms of effects on species and habitats, with likely slight positive impacts as a result of biodiversity enhancement and habitat creation in the long term in relation to the interaction of the Corrib Pipeline, Corrib Development and the Gas Networks Ireland Mayo to Galway Pipeline. Habitat creation and enhancement include the provision of created wetlands and the planting of deciduous woodland along the Corrib Pipeline wayleave and at the Terminal. Tree planting at the AGIs (above ground installations - Block Valve Stations) along the Mayo to Galway Pipeline has also provided a slight net gain in terms of biodiversity, with some 678m² having been planted at Moneynierin, the nearest AGI to the Bellanaboy Bridge Gas Terminal.

Belmullet Wave Energy Test Site

The Sustainable Energy Authority of Ireland plans to develop a National Wave Energy Test Site, off Annagh Head, on the western shore of the Mullet Peninsula in County Mayo. The proposed project lies approximately 6 km from the Corrib Pipeline. The project commenced in 2008 and the initial wave climate testing phase was completed. A Foreshore Lease application for the development was lodged in December 2011 (DECLG Ref. MS 51/13/426), and a decision is pending. The relatively benign nature of the operational impacts of this project ensures that there will be no potential for a cumulative impact on the operation of the Corrib Pipeline and operation of the Test Site.

Mayo Renewables

Mayo Renewable Power (MRP) comprises a 50 MW (net) biomass High Efficiency CHP plant located on the former Asahi site in Killala, Co. Mayo. The proposed project lies approximately 35 km from the Corrib Pipeline. The project was granted planning permission in May 2011 and construction is due to commence shortly.

The spatial separation between the Corrib Pipeline, other elements of the Corrib Development, the Gas Networks Ireland Mayo to Galway Pipeline and Killala ensures that there will be no potential for a cumulative impact of the operation of the Corrib Pipeline and operation of the MRP plant when taken alone or in combination with other plans and projects.

Grid West Project

EIRGrid are developing a new high capacity power line, known as the Grid West project, which will link the North Mayo area to the existing Flagford substation near Carrick-on-Shannon.

Both the overhead and underground route corridors are more than 25 km away from the Corrib Pipeline and therefore no cumulative impacts between the two projects are anticipated when taken alone or in combination with other plans and projects.

Organic Power – Glinsk

The location of this proposed hydro-electricity pumped storage project is on the North Mayo coast, approximately 11 km from the Corrib Pipeline. The project has been at Pre-Application Consultation stage with An Bord Pleanála (Ref. PL16.PC0093) since April 2010 and that process has yet to be concluded. Given that the project is at an early stage of development and that no planning application has been lodged for it, no further consideration is necessary to be given here in the context of consideration of cumulative impact of this project either when taken alone or in combination with other plans or projects as it cannot be said to be a reasonably foreseeable action.

MAREX Initiative

Organic Power Ltd are intending to apply for planning permission for a proposed 2000MW wind farm (450 wind turbines) across north Mayo which would be connected to a water storage energy hub at Glinsk. At its closest this proposed project lies approximately 5 km from the Corrib Pipeline. Known as the MAREX initiative (Method for Atlantic Renewable Energy Export), the project is at Pre-Application Consultation with An Bord Pleanála. Given that the project is at an early stage of development and that no planning application has been lodged for it, no further consideration is necessary to be given here in the context of consideration of cumulative impact of this project either when taken alone or in combination with other plans or projects as it cannot be said to be a reasonably foreseeable action.

5.5.2 Conclusions

Given the current planning status and uncertainty surrounding the majority of the other developments identified, it is considered that the Oweninny Wind Farm and the Corrib Gas Field Development (and the Mayo to Galway Pipeline) should be considered here. However, the nature of the predicted impacts, together with the spatial and temporal separation of other projects, and the activities associated with the operation of the Corrib Pipeline, including the LVI; and other elements of the Corrib Development and the Gas Networks Ireland Mayo to Galway Pipeline, are such that when taken alone or in combination with other plans or projects there is no potential for any cumulative impact on European sites. Having also considered any possible interaction, it is considered that there are no likely significant effects whatsoever on any European site.

It can be concluded therefore that the operation of the Pipeline either individually or when taken in combination with other elements of the Corrib Development, the Gas Networks Ireland Mayo to Galway Pipeline and plans or projects in the wider locality, is not likely to have a significant effect on the European sites under consideration.

6 CONCLUSIONS

Taking into account the best scientific knowledge and the conservation objectives of the European sites, including any changes in their designation - as set out in Section 4 above and summarised in Appendix 1.2 - together with the outcome of assessments already undertaken in relation to pipeline operational activities discussed in Section 1.2 above, the conclusions of previous assessments having been reconsidered remain valid and accurate and it can be concluded with reasonable certainty that the operation of the Corrib Pipeline and the activities associated with the operation of the Corrib Pipeline will not have any effect whatsoever on any European sites when taken alone or in combination with any other plans or projects.

Further, having considered the planned and previously assessed pipeline operational activities as described and assessed at Section 5 above in the context of any changes in site designations - as set out in Section 4 above and summarised in Appendix 1.2 - and taking into account the best scientific knowledge and the conservation objectives of the European sites of the Natura network, their key structure and function, it is concluded with reasonable certainty that these sites will not be affected as a result of the operation of the Corrib Pipeline either when taken alone or in combination with other plans and or projects.

Therefore, as set out in this Screening Report and taking account of the best scientific knowledge and the conservation objectives of each European Site, the operation of the Corrib Pipeline when taken either individually or in combination with other plans or projects is not likely to have any significant effect on any European Site. It can be concluded with reasonable certainty that it will not have any effects on any European site or any nationally or indeed any internationally designated site.

Furthermore, no impacts, indirect or otherwise, will affect any European site in the Natura network or nationally designated site in the wider locality when taken alone or in combination with any other plan or project, nor will there be any residual effects. For the avoidance of doubt there will be no significant disturbance to nor any likely significant effect to any protected or proposed protected species for which a European site has been designated.

It is the considered opinion of the author of this Screening Report that, based on best scientific knowledge and the conservation objectives of the European sites, including any changes in designations - as set out in Section 4 above and summarised in Appendix 1.2 - together with the outcome of assessments already undertaken in relation to the operation of the Corrib Pipeline and its associated monitoring and maintenance activities discussed in Section 1.2 above, the conclusions of previous assessments having been reconsidered remain valid and accurate, and it can be concluded with reasonable certainty that it should not be necessary to go to beyond Stage 1 of the Appropriate Assessment process.

7 REFERENCES

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- ix. NPWS 2009 *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities* Revised February 2010 Department of Environment, Heritage and Local Government
- x. Shell E&P Ireland Ltd (2014). Corrib Vessel Code of Conduct for Inspection and Maintenance Survey. Pipeline Inspection and Maintenance Survey EMP (Appendix 2) COR-14-SH-0179 Rev 0.
- xi. *Wildlife Acts 1976 to 2012*. The Stationery Office, Government of Ireland.

FIGURE 1

**MAP TO SHOW EUROPEAN SITES IN RELATION TO THE CORRIB
DEVELOPMENT**

APPENDICES

APPENDIX 1.1 APPROXIMATE DISTANCES FROM EUROPEAN SITES TO THE CORRIB PIPELINE (km)

Designation	Site Name	Site Code	Nearest point to offshore pipeline	Nearest point to the onshore pipeline
Special Area of Conservation (SAC)	Glenamoy Bog Complex	0000500	0	0
	Broadhaven Bay	0000472	0	0.2
	Carrowmore Lake Complex	0000476	7.7	1.7
	Slieve Fyagh Bog	0000542	9	2.7
	Bellacorick Bog Complex*	0001922	18	11
	Mullet/Blacksod Bay Complex †	0000470	10	13.5
	Erris Head	0001501	2	10
	Owenduff/Nephin Complex	0000534	17	10.2
	West Connacht Coast	0002998	1	12
	Inishkea Islands	000507	19	30
Duvillaun Islands	000495	22	30	
Special Protection Area (SPA)	Blacksod Bay/ Broadhaven§	004037	0	0
	Carrowmore Lake ‡	004052	8	3
	Owenduff/Nephin Complex	004098	17	10.2
	Stags of Broadhaven	004072	10	8.8
	Illanmaster	004074	11.5	10.5
	Mullet Peninsula	004227	10	17.8
	Termoncarragh Lake & Annagh Machair	004093	10	14
	Inishglora and Iniskeeragh Islands	004084	13	24
	Inishkea Islands	004004	19	30
	Duvillaun Islands	004111	22	30

* Includes the Owenboy and Knockmoyle-Sheskin Nature Reserves

† Also designated as an OSPAR site - Marine Protected Area (MAP) No. O-IE-0002972

§ Carrowmore Lake is a designated Wildfowl Sanctuary under the Wildlife Acts 1976 to 2012.

‡ Sections of SPA 4037 coincide with Ramsar site No. 844.

APPENDIX 1.2 EUROPEAN SITES – KNOWN CHANGES IN DESIGNATIONS SINCE 2010

European site	Site Name	Site Code	Nature of change
Special Area of Conservation (SAC)	Glenamoy Bog Complex	0000500	-
	Broadhaven Bay	0000472	-
	Carrowmore Lake Complex	0000476	-
	Slieve Fyagh Bog	0000542	-
	Mullet/Blacksod Bay Complex	0000470	-
	Erris Head	0001501	-
	Owenduff/Nephin Complex	0000534	-
	Bellacorick Bog Complex	0001922	-
	West Connacht Coast	0002998	Intention to designate notification: 2012 <i>Site synopsis dated 2014</i>
	Inishkea Islands	000507	-
Duvillaun Islands	000495	-	
Special Protection Area (SPA)	Blacksod Bay/Broadhaven	004037	Boundaries adjusted and the following species were added to the list of qualifying species (conservation objectives): Great Northern Diver; Red Breasted Merganser; Sanderling; Dunlin; Light-bellied Brent Goose; Curlew and Common Scoter
	Carrowmore Lake	004052	Addition of Common Gull
	Owenduff/Nephin Complex	004098	-
	Stags of Broad Haven	004072	-
	Illanmaster	004074	-
	Mullet Peninsula	004227	Designated for breeding Corncrake. <i>Site synopsis dated 02/11 and Natura Data Form dated 05/11</i>
	Termoncarragh Lake & Annagh Machair	004093	-
	Inishglora and Iniskeeragh Islands	004084	-
	Inishkea Islands	004004	-
	Duvillaun Islands	004111	-

APPENDIX 1.3 APPROXIMATE DISTANCES (KM) FROM OTHER CONSERVATION SITES TO THE CORRIB PIPELINE

Designation	Site Name	Site Code	Distance (km) to the Pipeline
Natural Heritage Area (NHA)	Pollatomish Bog	1548	1.4 (Onshore)
	Glenturk More Bog	2419	3.0 (Onshore)
	Ederglen Bog	2446	4.0 (Onshore)
	Tristia Bog	1566	6.0 (Onshore)
	Tullaghan Bay and Bog	1567	10.0 (Onshore)
	Bangor Erris Bog	1473	12.5 (Onshore)
	Inagh Bog	2391	13.3 (Onshore)
International Designations			
OSPAR	Mullet/Blacksod Bay Complex (MAP)	O-IE-0002972	10.0 (Offshore)
Ramsar Site	Blacksod Bay / Broadhaven	844	0 km (Offshore and Onshore)

APPENDIX 2 EUROPEAN SITES - SITE SYNOPSES

APPENDIX 2.1 SPECIAL AREAS OF CONSERVATION

SITE NAME: GLENAMOY BOG COMPLEX SAC

Site Code: 000500 (Version date: 26.08.2013 Rev13)

This large site is situated in the extreme north-west of Co. Mayo, where the climate is wet oceanic, and gales from the Atlantic are frequent. This area is underlain by metamorphic rocks, comprising mainly schists and quartzites of Moinian age. From sea-level, the site reaches 379 m O.D. at Maumakeogh. The soils are predominantly peats, with underlying glacial tills usually only visible along water channels and roads. Four main river systems drain the site: the Glenamoy, the Muingnabo, the Belderg and the Glenglassra Rivers. One medium-sized lake, Lougherglass, occurs on the site.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

- [1230] Vegetated Sea Cliffs
- [21A0] Machairs*
- [3160] Dystrophic Lakes
- [4010] Wet Heath
- [5130] Juniper Scrub
- [7130] Blanket Bogs (Active)*
- [7140] Transition Mires
- [7150] Rhynchosporion Vegetation
- [1106] Atlantic Salmon (*Salmo salar*)
- [1393] Slender Green Feather-moss (*Drepanocladus vernicosus*)
- [1395] Petalwort (*Petalophyllum ralfsii*)
- [1528] Marsh Saxifrage (*Saxifraga hirculus*)

Blanket bog, a priority habitat under Annex I of the E.U. Habitats Directive, dominates the site. Glenamoy Bog is a prime example of the extreme oceanic form of lowland blanket bog and is one of the most extensive tracts of bog in the country. The bog occupies a gently undulating plain, but extends uphill to cover the slopes of Maumakeogh and Benmore in the eastern sector of the site, and northward, out toward the sea cliffs of the north-west Mayo coastline. Peat depth reaches 6 m in the low-lying areas. A large flush occurs at Rathavisteen, which supports species-rich vegetation, including Cranberry (*Vaccinium oxycoccos*) and the moss *Tomentypnum nitens* which is nationally rare. Marsh Saxifrage (*Saxifraga hirculus*), listed under Annex II of the Habitats Directive and also on the Flora (Protection) Order, 1999, is found in another flush area in Barroosky and at a flush near Ballycastle. This is an extremely rare plant in Ireland, only known from Co. Mayo. Five other Annexed habitats occur in close association with the blanket bog - dystrophic lakes, wet heath, Juniper heath, Rhynchosporion depressions and transition mires.

Dystrophic lakes and pools, which lie in peaty basins and have peat-stained water, are a common feature of lowland blanket bog. Some larger lakes also occur, the largest being Lougherglass. At Glenamoy, the lakes/pools are particularly well-developed. The pools vary in size, some up to 150m², and range from 0.3 to 2 m deep. The larger pools contain Lesser Bladderwort (*Utricularia minor*), Pipewort (*Eriocaulon aquaticum*), Bogbean (*Menyanthes trifoliata*), and sometimes Floating Bur-reed (*Sparganium angustifolium*) and the bog mosses *S. auriculatum* and *S. cuspidatum*.

Juniper (*Juniperus communis* subsp. *nana*) occurs scattered over the blanket bog, often on islands in pools or lakes, and often in association with Crowberry (*Empetrum nigrum*) and hummocks formed of the moss *Racomitrium lanuginosum*. On steep slopes where the peat is shallow, the blanket bog grades into wet heath. Here, Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), Tormentil (*Potentilla erecta*) and Purple Moor-grass (*Molinia caerulea*) are found. Where the heath is drier, and especially towards the northern coastal zone of the site, scattered Bearberry (*Arctostaphylos uva-ursi*) occurs with Heather and Juniper.

Transition mires or quaking bogs occur where the bog vegetation merges with flush type vegetation influenced by base enrichment, and also at the interface between large pools/small lakes and adjacent blanket bog. The vegetation is characterised by lawns of bog mosses (*Sphagnum* spp.), with abundant small sedges (especially *Carex limosa*, *C. paniculata*, *C. rostrata* and *C. lepidocarpa*), Bogbean and White Beak-sedge (*Rhynchospora alba*). Diagnostic bryophytes (other than *Sphagnum*) include *Aneura pinguis*, *Scorpidium revolvens* and *Calliergon giganteum*.

Rhynchosporion vegetation is best represented around pool margins and in wet hollows, and is often a component of transition mires. *Sphagnum cuspidatum* and *S. auriculatum* are the principal moss species associated with this habitat, with a relatively low diversity of vascular plants: White Beak-sedge, Bogbean, Common Cottongrass (*Eriophorum angustifolium*), Purple Moor-grass and sundews (*Drosera* spp.). The rare Brown Beak-sedge (*Rhynchospora fusca*) is found in some of the pools and lawns.

A rare moss, *Drepanocladus vernicosus*, has been recorded from an area of poor fen habitat within the blanket bog complex. This is only one of 11 known sites for the plant in Ireland. This species is listed on Annex II of the E.U. Habitats Directive. As mentioned above, two populations of another Annex II species, Marsh Saxifrage, occur within the site.

The coastal habitats at Glenamoy are extensive and varied. Sea cliffs extend for about 20 km along the north coast and achieve a height of 253 m, at Benwee Head. They vary in physical character from sheer cliff-face to slopes of varying gradients. Typical cliff-face vegetation includes Thrift (*Armeria maritima*), Sea Campion (*Silene vulgaris* subsp. *maritima*) and Red Fescue (*Festuca rubra*). Sea stacks and several islands occur, of which Illaunmaistir is the most notable. A feature of the cliffs is the well-developed cliff-top vegetation, which ranges from typical Plantain-dominated vegetation (*Plantago* sward) to coastal heath. South of Benwee Head, the rocky coastline grades into an estuarine system, Sruwaddacon Bay, which contains sand dunes and a machair system. Machair is a form of sandy, flat, coastal grassland, and this particular machair is unusual in that it extends upslope at Garter Hill. It is, however, now very degraded owing mainly to over-grazing by sheep, and there is widespread erosion. Petalwort (*Petallophyllum ralfsii*), a rare bryophyte, listed on Annex II of the E.U. Habitats Directive, occurs abundantly on the machair habitat. This is thought to be the second largest colony (after Slyne Head in Co. Galway) of this species in Ireland.

The sea cliffs and islands provide excellent habitat for breeding seabirds. An internationally important population of Storm Petrel (7,500 - 10,000 pairs, pre-1987) occurs on Illaunmaistir. A large Puffin colony (approx. 2,000 pairs, pre-1987) and a small colony of Manx Shearwaters (c. 100 pairs) also occurs on Illaunmaistir. The mainland cliff was the first breeding site in Ireland for Fulmar, and now has a very substantial colony (approx. 2,000 pairs, pre-1987). There is a sizeable Kittiwake colony (approx. 400 pairs pre-1987), and small colonies of Guillemots and Razorbills (less than 100 individuals of each). Peregrine and Chough, both Annex I E.U. Bird Directive species, breed on the cliffs. Another Annex I species, Merlin, breeds on the blanket bog, as does Golden Plover. In winter, a small flock (less than 50 individuals) of Barnacle Goose visit Illaunmaistir and Kid Island.

Otter, an E.U. Habitats Directive Annex II species, occurs on the site, as well as two other Red Data Book mammal species: Badger and Irish Hare. The Glenamoy River is predominantly a western, acidic, spate river which has a valuable late run of salmon (*Salmo salar*) in July, with good spawning habitats and good water quality. Sea Trout are also found.

A number of land use practices have damaged parts of this site. Grazing by sheep and cattle is widespread, and over-grazing, which leads to soil erosion, has caused damage to parts of the blanket bog, heath and machair habitats. Peat cutting, by hand and to a lesser extent by mechanised means, is widespread throughout, though mostly confined to near roads and tracks. The region in general has been heavily afforested with conifers and much of the site is bounded by plantations.

This site is of immense ecological importance because of the presence of a number of E.U. Annex I habitats, including two priority habitats - blanket bog and machair. It supports populations of Habitats Directive –listed plant and animal species, as well as six Annex I Birds Directive species. It also has nationally important populations of other seabirds. Despite serious damage to parts of the site in recent years, large areas remain in good condition. Considerable archaeological interest is contained within the site, including the renowned Céide Fields. Furthermore, the site is of outstanding scenic value.

SITE NAME: BROADHAVEN BAY SAC

Site Code: 000472 (Version date: 01.04.2014 _Rev14_01)

Broadhaven Bay is a large, north facing bay situated on the north-west Mayo coast. The site extends from the innermost part of the bay at Belmullet to the outer marine area between Erris Head and Benwee Head. At its outermost part, the site is 10 km wide. Exposure to prevailing winds and wave action diminishes from the mouth toward the head of the bay. Subsidiary inlets along the length of the bay provide further areas of additional shelter.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[1140] Tidal Mudflats and Sandflats
[1160] Large Shallow Inlets and Bays
[1170] Reefs
[1330] Atlantic Salt Meadows
[8330] Sea Caves

Broadhaven Bay encompasses a range of marine and coastal habitats, from extremely exposed bedrock at Benwee Head to sheltered sediments in the inner bay. There are good examples of wave-surged cave communities in shallow water with the anemone *Phellia gausapata* typically found in areas very exposed to wave action. A cave in deeper water supports colonies of the rare anemone *Parazoanthus anguicomus* and the soft coral *Alcyonium glomeratum*. The subtidal reef communities in the outer part of the bay are good examples of the zonation from kelp forest in shallow water, to kelp park with an understudy of foliose brown algae, to the sponge communities in deeper water. Species richness can be high (up to 72 species) and the widely distributed but uncommon crab *Pirimela denticulata*, and hydroid *Tamarisca tamarisca*, were both found at one site. In deeper water the reef communities are characterised by the Axinellid sponge community, communities tolerant of sand scour and communities typical of vertical or steeply sloping bedrock.

A range of sublittoral sediments occurs within the site with sediment in the outer part of the bay characterised by bivalves or the burrowing urchin *Echinocardium cordatum*. Eelgrass (*Zostera marina*) occurs in more sheltered areas and the oyster *Ostrea edulis* may be present. The inner part of the bay has extensive areas of intertidal mud characterised by polychaete communities or muddy sand which support communities of polychaetes and bivalves, typical for these substrates.

Saltmarshes occur in the very sheltered areas at Tallagh and Barnatra. These are fringe marshes on peat, and typical of the Atlantic salt meadow type. Species present include Thrift (*Armeria maritima*), Sea Arrowgrass (*Triglochin maritima*), Sea Plantain (*Plantago maritima*), Common Saltmarsh-grass (*Puccinellia maritima*), and the rushes *Juncus gerardi* and *J. maritimus*. Turf fucoids occur.

Inishderry, a small island in the inner bay, supports important numbers of breeding terns, with Sandwich Tern (81 pairs in 1995) and Common and Arctic Terns (42 pairs in 1995). The rare Little Tern has bred in the past. The island also has breeding Black-headed Gulls (100 individuals in 1995).

Broadhaven Bay is an important area for wintering waterfowl, being part of a large complex that includes the Mullet and Blacksod Bay. Based on average peak counts over the five winters 1994/95 to 1998/99 the following species have nationally important populations: Red-breasted Merganser (38), Ringed Plover (484), Grey Plover (52), Sanderling (74), Dunlin (2,108) and Bar-tailed Godwit (484). In some winters Brent Goose numbers exceed the threshold of 200 for national and international importance. Regionally important numbers of a number of other species occur: Oystercatcher, Golden Plover, Lapwing, Knot, Curlew, Redshank and Turnstone.

This site is of high conservation importance owing to the presence of several habitats that are listed on Annex I of the E.U. Habitats Directive: large shallow bays; intertidal sandflats, reefs, marine caves and saltmarshes. In addition it has ornithological importance for breeding and wintering birds.

SITE NAME: CARROWMORE LAKE COMPLEX

Site Code 000476 (Date: 28.1.1997)

This site is located north and east of Bangor Erris, in County Mayo. There are two main parts to the site: Carrowmore Lake, a large, shallow oligotrophic/mesotrophic lake, and Largan More Bog, an impressive tract of blanket bog. From an altitude of 6 m at the lake, the site grades upwards in a general south-easterly direction, reaching 199m on Largan More Bog.

Three areas of blanket bog are incorporated into the site: Glenturk, Carrowmore (or Glencullin) and Largan More. Glenturk Bog has a relatively uniform vegetation and Carrowmore Bog is more diverse, with quaking lawns formed by bog mosses (*Sphagnum* spp.), hummocks (including some formed by *Sphagnum fuscum*), bog pools and an interconnecting pool system. Largan More is the most extensive and interesting, with a fine interconnecting pool system and large areas of typical, intact blanket bog vegetation. Bog pools are a feature of the bog surface, and these are colonised by a range of mosses and higher plants including Lesser Bladderwort (*Utricularia minor*), White Water-lily (*Nymphaea alba*), Water Lobelia (*Lobelia dortmanna*) and Pipewort (*Eriocaulon aquaticum*). Species-rich flush communities occur on streamsides and stream-heads. Sedges (including *Carex limosa*, *C. rostrata*, *C. lepidocarpa*) are abundant in flushes, with a rich variety of calcicole herbs and mosses. Cranberry (*Vaccinium oxycoccos*) occurs in some flushes - this species is uncommon outside the centre of Ireland.

Carrowmore Lake is a large (960ha), shallow lake, with a maximum depth of approximately 2.5m and a generally stony bottom. The lake water is almost neutral in terms of acidity (i.e. pH) and generally rather nutrient-poor. The shallow waters support species such as Common Spike-rush (*Eleocharis palustris*), Shoreweed (*Littorella uniflora*), Bulbous Rush (*Juncus bulbosus*), Marsh Pennywort (*Hydrocotyle vulgaris*) and Perfoliate Pondweed (*Potamogeton perfoliatus*). The shoreline is dominated by Soft Rush (*Juncus effusus*), Yellow Iris (*Iris pseudacorus*) and stands of Common Club-rush (*Scirpus lacustris*) or Common Reed (*Phragmites australis*). This emergent vegetation grades landward into freshwater marsh and acid wet grassland, backed by blanket bog. Along this transition zone, bushes of Mediterranean Heath (*Erica erigena*) are prominent. This species is frequent in parts of west Mayo, but rare in west Galway and unknown elsewhere in Ireland.

The rare Marsh Saxifrage (*Saxifraga hirculus*) occurs at the site. This species is protected under The Flora Protection Act (1987) and is listed under Annex II of the European Habitats Directive. It is confined in its distribution to north-west County Mayo.

The site supports a number of bird species which are of international conservation significance and which are listed on Annex I of the European Birds Directive. In winter, Greenland White-fronted Geese arrive to feed around the lake and in some nearby fields. These birds are a sub-flock of the nationally important Bog of Erris flock. In summer, Merlin and Golden Plover breed on the boglands within the site. An Irish Tern Survey (1984) revealed that Sandwich Tern (164 pairs) and Arctic Tern (18 pairs) formerly bred within the site, and although the terns have not bred in recent years, Derreen's Island still supports a large and important colony of Common Gulls (600 individuals, 1993).

A variety of wildfowl also occur, including Tufted Duck, Pochard and Wigeon. Goosander, a very rare species in Ireland, has been recorded.

Blanket bog in the site is used for grazing cattle and sheep and for turf-cutting, which is largely done by machine. Angling and water abstraction are the main landuses at Carrowmore Lake.

This site is of considerable ecological value, primarily for its extensive, intact blanket bog, which has a typical range of good quality habitats, but also as a site for the very rare Marsh Saxifrage. The north-western part of the site supports a number of Greenland White-fronted Geese, while other important bird species which occur are Golden Plover, Merlin, Sandwich Tern and Arctic Tern.

SITE NAME: SLIEVE FYAGH BOG SAC

Site Code: 000542 (Version date: 29-08-13 Rev13)

Slieve Fyagh Bog is located about 6 km north-east of Bangor in Co. Mayo. It is bounded on the north by the Glenamoy River, on the east and west by forestry plantations, and on the south by the Glencullin River. Slieve Fyagh itself is a plateau of shales and sandstone rocks, reaching an elevation of approximately 300 m.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[7130] Blanket Bogs (Active)*

The plateau supports mountain blanket bog vegetation, unusual for this part of Mayo, where most of the mountains are covered by heath or acid-grassland vegetation. The flatter parts of the plateau have numerous lakes and blanket bog pools, inter-connected by quaking areas dominated by bog mosses (*Sphagnum* spp.). The largest lake, Lough Naguroge, is colonised by Bottle Sedge (*Carex rostrata*) and Water Lobelia (*Lobelia dortmanna*). The scarce orchid, Lesser Twayblade (*Listera cordata*), occurs along its rocky shores.

Several streams descend from the plateau to the lower-lying ground below. These provide suitable habitat for aquatic lichen and moss species, such as *Dermatocarpon fluviatile* and *Fontinalis squamosa*. The stream banks are grassy, with species such as Sweet Vernal-grass (*Anthoxanthum odoratum*), Yorkshire-fog (*Holcus lanatus*) and Great Wood-rush (*Luzula sylvatica*). The mosses *Campyllum stellatum* and *Philonotis fontana* occur where flushes seep from mineral soils.

Extensive areas of lowland blanket bog occur on the sloping terrain below the plateau, typified by the occurrence of Black Bog-rush (*Schoenus nigricans*), Common Cottongrass (*Eriophorum angustifolium*), Purple Moor-grass (*Molinia caerulea*), Cross-leaved Heath (*Erica tetralix*), White Beak-sedge, (*Rhynchospora alba*) and Deergrass

(*Scirpus cespitosus*). Pool systems occur below the northern slopes of Slieve Fyagh, the best examples being found at Bellagelly Bog. The pools support aquatic plants such as Bogbean (*Menyanthes trifoliata*), Pipewort (*Eriocaulon aquaticum*) and Lesser Bladderwort (*Utricularia minor*).

Further downslope, particularly in the vicinity of farmland, the blanket bog is heavily grazed by sheep, and peripheral areas are cut for turf. Serious peat erosion is occurring over much of the low-lying areas, where the peat is criss-crossed by erosion channels.

Slieve Fyagh Bog is important for the occurrence of mountain blanket bog, a habitat that is uncommon in this region. The extensive lowland blanket bog that surrounds the plateau is damaged and under threat from over-grazing and peat erosion.

SITE NAME: BELLACORICK BOG COMPLEX SAC

Site Code: 001922 (Version dated 14-11-2013 – Rev13)

Bellacorick Bog Complex is a large peatland site in Co. Mayo, situated on a low-lying undulating plain and consisting of two large areas separated by an area of forestry. The larger of the two areas extends from south of Bellacorick eastwards, south-eastwards and then north to Doobehy. The smaller area is situated 6 km south-east of Glenamoy and extends south to 3 km north of Bellacorick and east towards Doobehy.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[3160] Dystrophic Lakes
[4010] Wet Heath
[7130] Blanket Bogs (Active)*
[7150] Rhynchosporion Vegetation
[7230] Alkaline Fens

[1013] Geyer's Whorl Snail (*Vertigo geyeri*)
[1528] Marsh Saxifrage (*Saxifraga hirculus*)

This site contains some of the most extensive areas of lowland blanket bog remaining in Ireland, with outstanding pool development. As well as typical lowland blanket bog vegetation, areas with intermediate bog characteristics are particularly well represented. These areas are typified by domes with raised bog species such as the bog mosses *Sphagnum imbricatum*, *S. magellanicum* and *S. fuscum*, and without Purple Moor-grass (*Molinia caerulea*). Excellent examples of transitions to minerotrophic flushes and fens are also a feature of the site.

The site includes some excellent examples of dystrophic lakes. Included here are the numerous sizeable lakes and large inter-connecting pool systems which characterise the blanket bog plateaux. This habitat type is particularly well represented at this site, with some of the finest remaining examples in the country. They are typically species-poor, and many are completely devoid of macrophyte vegetation. Those with vegetation contain species such as Bog-sedge (*Carex limosa*), Bogbean, Many-stalked Spike-rush (*Eleocharis multicaulis*) and bladderworts (*Utricularia* spp.). Pool size and pattern is diverse, ranging from concentric strings of pools to large, irregularly shaped lakes with eroding peaty margins. Many contain vegetated and ungrazed islands.

Rhynchosporion vegetation is a feature of many of the pool areas at the site and also of areas of wet, quaking peat where White Beak-sedge (*Rhynchospora alba*) is typically dominant. In such areas there is often a luxuriant growth of the bog mosses *Sphagnum cuspidatum* and/or *S. auriculatum*. Other characteristic species of the pools and moss lawns include Bogbean (*Menyanthes trifoliata*), Common Cottongrass (*Eriophorum angustifolium*) and sundews (*Drosera anglica* and *D. intermedia*).

Spring-fed species-rich flushes are a significant feature of this site and occur throughout the bog complex. Many of these flushes are very large. Some of these are iron- flushed, notably those at Brackloon Lough on the eastern margin of the site. The vegetation supported by these flushes include poor fen, rich fen and swamp carr communities. The site contains the largest assemblage of intact fen vegetation in Ireland. Some of the flushes are dominated by sedges (*Carex* spp.), with Common Reed (*Phragmites australis*) and Great Fen-sedge (*Cladium mariscus*) or Soft Rush (*Juncus effusus*) with a thick *Sphagnum* layer underneath. Black Bog-rush (*Schoenus nigricans*) and Purple Moor-grass have been recorded from the iron-rich flushes. Occasional clumps of willow (*Salix* spp.) also occur.

The flushes are also notable for the presence of several boreal relict mosses and liverworts, particularly *Homalothecium nitens*, *Leicolea rutheana* and *Paludella squarrosa*. The moss *Sphagnum warnstorffii* has been reported from a fen south-west of Brackloon Lough. A rare vascular plant species, Marsh Saxifrage (*Saxifraga hirculus*), occurs here at one of only very few known locations in Ireland. This species is listed on Annex II of the E.U. Habitats Directive, as well as on the Flora (Protection) Order, 1999.

Many of the bogland areas are traversed by river and stream channels with diverse associated vegetation. An extensive collapsed swallow-hole system is found at Shralahy with mature Rusty Willow (*Salix cinerea* subsp. *oleifolia*) and Rowan (*Sorbus aucuparia*) occurring.

The site also contains rushy fields, cut-away bog and small areas of scrub and wet woodland. Good examples of wet heath vegetation occur occasionally on sloping ground and on elevated mounds of mineral soil that are scattered throughout the lowland blanket bog-covered plains. These are particularly evident in the Owenboy Nature Reserve and along some of the steeper stream valley sides. These areas are typically dominated by Heather (*Calluna vulgaris*), with Cross-leaved Heath (*Erica tetralix*) and the bog moss *Sphagnum capillifolium* also present.

The site supports a population of the rare snail, *Vertigo geyeri*, a species that is listed on Annex II of the E.U. Habitats Directive.

The main threats to the integrity of the site are turf-cutting and afforestation. Over-grazing has impacted negatively on the quality of the site in some places.

The site includes several well-documented sites of considerable conservation significance, e.g. Formoyle, Brackloon and Cloonoragh flushes and the Owenboy and Knockmoyle-Sheskin Nature Reserves. These areas are still intact and remain of unique scientific and conservation interest. The site complex also includes important peatland sites: Tawnaghs Bog, Eskeragh Bog, Sranacally Bog, Derry Upper Bog, Derry Lower Bog, Bellacorick Bog and Dooleeg Beg Bog. Some recent afforestation has occurred on Eskeragh and Sranacally Bogs. In general, these bogs have a good range of blanket bog habitats and occasional rare plant species.

The site is one of the largest tracts of lowland blanket bog in the country, with the finest examples of intact pool systems. It is considered to be of international importance due to the extent of the individual areas of bog and the wide variety of habitats present and because of the presence of a number of rare and threatened plant and animal species.

SITE NAME: MULLET/BLACKSOD BAY COMPLEX SAC

Site Code: 000470 (Version date: 26.08.2013 Rev13)

This large coastal site, located in north-west Co. Mayo, comprises much of the Mullet Peninsula, the sheltered waters of Blacksod Bay and the low-lying sandy coastline from Belmullet to Kinrovar. The character of the site is strongly influenced by the Atlantic Ocean and the exposed location of much of the site results in a terrestrial landscape dominated by blown sand and largely devoid of trees. The underlying bedrock is principally metamorphic schist and gneiss. The site displays an excellent range of coastal and marine habitats.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

- [1140] Tidal Mudflats and Sandflats
- [1160] Large Shallow Inlets and Bays
- [1170] Reefs
- [1310] *Salicornia* Mud
- [2120] Marram Dunes (White Dunes)
- [2130] Fixed Dunes (Grey Dunes)*
- [2150] Decalcified Dune Heath*
- [21A0] Machairs*
- [3150] Natural Eutrophic Lakes
- [7230] Alkaline Fens
- [1355] Otter (*Lutra lutra*)
- [1395] Petalwort (*Petalophyllum ralfsii*)

Blacksod Bay is 16 km in length and 8 km wide at the mouth. It is a shallow bay, reaching a maximum depth of 19 m and with weak tidal streams. The bay has a good range of representative littoral and sublittoral sediment communities, and also infralittoral reefs.

The littoral sediments of the bay consist of areas that are moderately exposed to, or very sheltered from, wave action. Characteristically, exposed to moderately exposed sediment communities are composed of coarse to fine sand and have a polychaete fauna with crustaceans. Species richness increases as conditions become more sheltered. Talitrid amphipods occur in decomposing seaweed on the strand line. Polychaete worms (*Arenicola*

marina), bivalves (*Cerastoderma edule*) and crustaceans such as *Urothoe brevicornis*, *Ampelisca brevicornis* and *Bathyporeia pilosa*, are common in the middle shore.

The sublittoral sediment towards the entrance of the bay is comprised of rather barren medium sand, with the occasional bivalve molluscs *Glycymeris glycymeris* and *Ensis* spp. Much of the sediment in the centre of the bay is composed of firm, muddy sand with the brittle stars *Amphiura* spp. and the razor shells *Ensis* spp. Towards the head of the bay the sediment is composed of muddy sand with *Turritella communis*, *Amphiura brachiata* and *Philine aperta*, and soft sandy mud with *Anthopleura balli* and decaying algae. In some areas Eelgrass (*Zostera marina*) and the reef-forming polychaete *Serpula vermiculata* are frequent. Notable species included Oyster (*Ostrea edulis*), which occurs at head of the bay, and the sea anemone *Phellia gausapata*, which is present in the middle of the bay.

Infralittoral reefs within Blacksod Bay are sheltered or very sheltered from wave action and subject to weak or moderate tidal streams. In sheltered areas that are composed of bedrock, occasional *Saccorhiza polyschides* overlie a rich assemblage of red algal species such as *Dudresnaya verticillata*, *Heterosiphonia plumosa* and *Chondria tenuissima*. Very sheltered bedrock reef communities are also characterized by foliose red algae. The sea anemone, *Metridium senile*, is abundant on the tops of the reefs and *Antedon bifida* on the steeper surfaces. Much of the infralittoral reef in Blacksod Bay is composed of boulders, cobbles and pebbles. The red algae in these areas are sand-tolerant species such as *Chondria dasphylla* and *Gracilaria gracilis*. Characterizing faunal species are the anthozoans *Metridium senile* and *Alcyonium digitatum*, the hydroid *Nemertesia ramosa* and the sponge *Dysidea fragilis*. The purple sea urchin, *Paracentrotus lividus*, occurs at two sites at the head of the bay.

Large areas of machair, a priority habitat on Annex I of the E.U. Habitats Directive, are found within this extensive coastal site. On the Mullet peninsula the habitat is best developed to the west of Termoncarragh lake, Tonamace/Macecrump and to the west of Cross Lough. On the eastern shores of Blacksod Bay, extensive areas of machair occur at Doolough, Srah and Dooyork. The vegetation of the habitat is dominated by plant species of dry dune grassland which include Red Fescue (*Festuca rubra*), Wild Thyme (*Thymus praecox*), Daisy (*Bellis perennis*), Ribwort Plantain (*Plantago lanceolata*), Selfheal (*Prunella vulgaris*), Sand Sedge (*Carex arenaria*) and Lady's Bedstraw (*Galium verum*). The main moss species are *Brachythecium albicans*, *Calliergonella cuspidata* and *Bryum* species. In damper areas of machair the vegetation is transitional to fen and contains, in addition to the typical dry machair species, such species as Fairy Flax (*Linum catharticum*), Cuckooflower (*Cardamine pratensis*) and Grass-of-parnassus (*Parnassia palustris*).

Fixed dunes with herbaceous vegetation, another Annex I priority habitat, have an extensive distribution throughout the site and are particularly well developed in the middle and south of the Mullet peninsula, e.g. at Emlybeg, Newtown and Agleam. Areas of fixed dunes are typically at their highest approximately 500 m back from the sea, and at Emlybeg and Newtown they attain a height of approximately 33 m. The fixed dune areas present within the site often form a complex mosaic with other dune habitats such as shifting dunes and machair. Frequent plant species recorded in the habitat include Marram (*Ammophila arenaria*), Smooth Meadow-grass (*Poa pratensis*), Wild Carrot (*Daucus carota*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Harebell (*Campanula rotundifolia*) and Kidney Vetch (*Anthyllis vulneraria*). The moss cover is well developed and includes the species *Rhytidiadelphus squarrosus*, *Hypnum cupressiforme*, *Tortula ruralis* and *Homalothecium lutescens*. The conspicuous lichen *Peltigera canina* is also occasionally encountered in the vegetation. At Nakil, on the southern tip of the peninsula, there is a fine example of decalcified fixed dunes. In this habitat, there is a range of heath species such as Heather (*Calluna vulgaris*), Bell Heather (*Erica cinerea*), Sheep's-fescue (*Festuca ovina*), Tormentil (*Potentilla erecta*) and Devil's-bit Scabious (*Succisa pratensis*), along with dune species such as Sand Sedge, Lady's Bedstraw and Wild Thyme.

Smaller areas of shifting dunes with Marram are found in most of the dune areas within the site and typically occur along the most exposed ridges of sand dune systems. The vegetation is species-poor and generally sparse. Along with Marram, typical plant species include Sea Mayweed (*Matricaria maritima*), Sea-holly (*Eryngium maritimum*), Colt's-foot (*Tussilago farfara*) and the locally rare Sea Bindweed (*Calystegia soldanella*).

Saltmarshes occur in a number of places, notably at Elly Bay, Salleen Harbour, Bunnahowen, Doolough and Gweesalia. Typical species include Thrift (*Armeria maritima*), Common Saltmarsh-grass (*Puccinellia maritima*), Sea Aster (*Aster trifolium*), Sea Milkwort (*Glauca maritima*), Sea Rush (*Juncus maritimus*) and Saltmarsh Rush (*Juncus gerardi*). At the lower levels of the marshes, and in places extending onto the open sandflats, Glasswort (*Salicornia europaea* agg.) and Annual Sea-blite (*Suaeda maritima*) occur.

The site also includes shallow freshwater lakes, Termoncarragh Lough, Cross Lough and Leam Lough. Cross Lough is a good example of a naturally eutrophic lake. The water of the lake appears to have a permanent turbid, yellow-brown colour and is unusual in that the phytoplankton is dominated by *Spirulina* spp. and other unusual cyanobacteria. The waters of the lake have a high chloride content (118 mg/l) and a relatively high calcium content (16 mg/l). The western shore of the lake is sandy and tends to be dominated by the stonewort *Chara aspera*, with some Shoreweed (*Littorella uniflora*). Other aquatic plant species which have been recorded from the lake include Spiked Water-milfoil (*Myriophyllum spicatum*), Long-stalked Pondweed (*Potamogeton*

praelongus), Slender-leaved Pondweed (*Potamogeton filiformis*) and Fennel Pondweed (*Potamogeton pectinatus*).

Marsh and swamp vegetation is well developed around Termoncarragh Lough, and of particular note is a fine example of alkaline fen. This is species-rich, with such fen plants as Jointed Rush (*Juncus articulatus*), Glaucous Sedge (*Carex flacca*), Grass-of-parnassus, Knotted Pearlwort (*Sagina nodosa*), Marsh Arrowgrass (*Triglochin palustris*), Common Butterwort (*Pinguicula vulgaris*) and Lesser Clubmoss (*Selaginella selaginoides*). The scarce Marsh Helleborine (*Epipactis palustris*) also occurs here. A feature of the fen is a strong maritime influence, with the presence of a number of saltmarsh species such as Sea Milkwort, Buck's-horn Plantain (*Plantago coronopus*), and Sea Arrowgrass (*Triglochin maritima*).

The Annex II liverwort species *Petalophyllum ralfsii* has been recorded from damp areas of machair at Doolough and Dooyork. The Red Data Book plant species Narrow-leaved Marsh-orchid (*Dactylorhiza traunsteineri*) also occurs. Otter, a species also listed under Annex II of the Habitats Directive, is well distributed throughout the site.

This site has high ornithological importance, with seven Annex I E.U. Birds Directive species occurring regularly in winter, and a further two as rare breeders. Blacksod Bay provides ideal habitat for divers (all given counts are average maxima over the three winters 1994/95 to 1996/97), with Great Northern Diver (64) occurring in numbers of international importance and Red-throated Divers (45) in significant numbers. The site is an important wintering area for an internationally important population of Barnacle Goose (400-500), and also populations of Greenland White-fronted Goose (56) and Whooper Swans (95). Golden Plover are regular in small numbers (c. 700), while a nationally important population of Bar-tailed Godwits (552) occur. Little Tern has bred in small numbers in the past, while the site is well-known for one of Ireland's rarest breeding birds, the Red-necked Phalarope. Unfortunately this species may now be extinct as a breeding species.

A wide range of other wintering birds occur. Of particular note are Brent Goose (212) and Ringed Plover (524), both of which have internationally important populations. A further six species have populations of national importance: Common Scoter (642), Red-breasted Merganser (50), Grey Plover (60), Knot (342), Sanderling (58) and Dunlin (2,601). The site is also notable for its breeding waders, with very important concentrations of Dunlin (26 pairs in 1996) and Lapwing (43 pairs in 1996), and significant numbers of Snipe (12 pairs) and Ringed Plover (5 pairs).

High levels of grazing and associated agricultural practices, e.g. feeding of stock and fertilisation, have resulted in locally severe damage to areas of dune and machair. The damage has been intensified by the division of dune and machair commonage, which is particularly evident on the Mullet. These agricultural activities remain serious threats. Benthic communities are very vulnerable to bottom-fishing gear such as that used for fishing oysters, and this is thought to be the most damaging activity in the marine area. Bait digging is potentially damaging to littoral sediment communities if the areas are over-fished.

This site is of high importance for the range of marine and coastal habitats, many of which are listed on Annex I of the E.U. Habitats Directive, three having priority status. The Annex II species *Petalophyllum ralfsii* and Otter also occur. The site is also of particular ornithological importance, having four wintering species with internationally important populations and also important concentrations of breeding waders.

SITE NAME: ERRIS HEAD SAC

Site Code: 001501 (Version date:11.10.2013 Rev13)

Erris Head SAC is situated on the northern part of the Mullet Peninsula in north Co. Mayo. It comprises approximately 15 km of cliff, plus adjoining habitats. The geology of the region consists of acid rocks, such as quartzite, gneiss and Silurian schists and slates.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

- [1230] Vegetated Sea Cliffs
- [4060] Alpine and Subalpine Heaths

The sea cliffs at Erris Head are very exposed and subject to very high rainfall. They are of moderate height, reaching a maximum of about 90 m in the north-east. Aspect is predominantly north-facing. There is little information available on the vegetation of the cliffs but the known presence of species such as Roseroot (*Rhodiola rosea*) and Rock Sea-spurrey (*Spergularia rupicola*) suggest that there is a fairly typical cliff vegetation for such an exposed site. An area of sea, which extends 200 m from the base of the cliffs, forms part of the site. This is included mainly to provide added protection for the cliff-nesting seabirds.

A notable habitat found at this site is alpine heath, which occurs inland from the tops of the sea cliffs. Typical heath species present include Bearberry (*Arctostaphylos uva-ursi*), Juniper (*Juniperus communis*) and Crowberry (*Empetrum nigrum*). The alpine heath is considered to be of good quality.

The alpine heath grades into a coastal grassland in places, and this forms the main terrestrial habitat at the southern part of the site. Other habitats present include wet heath and flushes. Here, plant species present include Blunt-flowered Rush (*Juncus subnodulosus*), the uncommon orchid Marsh Helleborine (*Epipactis palustris*) and three species of sundew (*Drosera* spp.).

The site is of ornithological importance for a number of species. Chough frequents the site, and in 1992 nine pairs were recorded breeding. Peregrine also breed, while small numbers (<20) of Barnacle Goose utilise the grasslands in winter. These three species are of note as they are listed on Annex I of the E.U. Birds Directive. There is a scattering of breeding seabirds, though no major colonies. The main seabirds which breed are Fulmar (50-100 pairs, 1970) and Great Black-backed Gull (38 pairs, 1970).

Grey Seals may be seen feeding below the cliffs, while on land two Red Data Book species, the Irish Hare and the Common Frog, are among the more notable animals which occur.

Land use at the site consists mainly of sheep grazing, which appears not to be excessive. The area is also a popular location for tourists, especially those interested in walking.

This site is of conservation importance primarily for the cliff and alpine heath habitats, both of which are listed on Annex I of the E.U. Habitats Directive. The presence of several Annex I E.U. Birds Directive species and some breeding seabirds adds to the interest of the site.

SITE NAME: OWENDUFF/NEPHIN COMPLEX SAC

Site Code: 000534 (Version dated 27-8-13 Rev13)

This large area of relatively intact blanket bog and mountains incorporates the catchment of the Owenduff River and much of the Nephin Beg Mountain range, and is situated in Co. Mayo. Lough Feeagh, which is located approximately 5 km north-west of Newport Town, lies in the south-east corner of the site. From here, the site extends northwards to the Owenmore River and almost to the town of Bangor Erris, and westwards to the townland of Ballycrocy.

Within the site, the terrain varies enormously from the peaks of the Nephin Beg Mountains, which reach a maximum altitude of 717 m, to areas where the land slopes westwards to the floodplain of the Owenduff River. The upper slopes of the mountains in the Owenduff/Nephin complex carry wet heath and cliff vegetation, and patches of upland grassland are frequent. The presence of small corrie lakes and rock basin lakes adds to the habitat diversity of the mountains. Along its southern and eastern limits the site is bounded by coniferous plantations and/or the high mountain slopes of the Nephin Bogs. Along its northern and western margins the site is fringed by agricultural land reclaimed from bog or from wet floodplain vegetation.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

- [3110] Oligotrophic Waters containing very few minerals
- [3130] Oligotrophic to Mesotrophic Standing Waters
- [3160] Dystrophic Lakes
- [3260] Floating River Vegetation
- [4010] Wet Heath
- [4060] Alpine and Subalpine Heaths
- [5130] Juniper Scrub
- [7130] Blanket Bogs (Active)*
- [7140] Transition Mires
- [1106] Atlantic Salmon (*Salmo salar*)
- [1355] Otter (*Lutra lutra*)
- [1393] Slender Green Feather-moss (*Drepanocladus vernicosus*)
- [1528] Marsh Saxifrage (*Saxifraga hirculus*)

The lower mountain slopes of this site are covered with blanket bog, with a broad representation of good quality bog habitats occurring. There are continuous tracts of vegetation dominated by Purple Moor-grass (*Molinia caerulea*), Black Bog-rush (*Schoenus nigricans*) and Deergass (*Scirpus cespitosus*). In places, the flat surface is differentiated into an undulating micro-topography of hummocks and wet hollows, formed by a variety of bog moss species, including *Sphagnum imbricatum* and *S. fuscum*. Extensive pool systems occur, where large peaty

ponds are scattered over the bog. Typically, Bogbean (*Menyanthes trifoliata*) and spike-rush (*Eleocharis* sp.) colonise the pools, and frequently also Water Lobelia (*Lobelia dortmanna*), Pipewort (*Eriocaulon aquaticum*) and Yellow Water-lily (*Nuphar lutea*). Large hummocks lie between the pools, colonised by Heather (*Calluna vulgaris*), Hare's-tail Cottongrass (*Eriophorum vaginatum*), and occasionally, Crowberry (*Empetrum nigrum*).

Around the many small streams and flushes which cross the bog, the vegetation is quite different. There is frequently a wet quaking mat of *Sphagnum* moss (including *S. recurvum* var. *tenue*), which is colonised by a range of higher plants, including Bog-sedge (*Carex limosa*), Marsh Cinquefoil (*Potentilla palustris*), Ragged-Robin (*Lychnis flos-cuculi*) and Cranberry (*Vaccinium oxycoccos*). These minerotrophic flushes also contain a rich and varied moss and liverwort flora. The rare moss *Homalothecium nitens* was been recorded in two flushes on this site. Areas such as these, some of which can be classified as transition mire (a habitat listed on Annex I of the E.U. Habitats Directive), occur in several parts of the site.

It is sometimes difficult to distinguish between small examples of lowland oligotrophic lakes and dystrophic lakes, which by their nature are generally smaller, do not have a rocky bottom and have a more sparse marginal flora. The greatest concentration of lowland oligotrophic lakes at this site occurs in the townland of Lettera near the centre of the site. The largest lake is approximately 7 ha, and most have a mixed rocky/peaty bottom. Typical plant species are Water Lobelia, Pipewort, Shoreweed (*Littorella uniflora*), spike-rush and Bulbous Rush (*Juncus bulbosus*).

The remote upland areas along the eastern and southern fringes of this site contain approximately 15 oligotrophic to mesotrophic lakes, many of which lie above an altitude of 200 m. Most of these lakes are fine examples of corrie lakes, backed by precipitous mountain cliffs (for example, Lough Anaffrin, Lough Adanacleeveen and Corryloughnaphuil Lough). The lakes vary greatly in size, ranging from a couple of hectares to approximately 25 ha. Most of these lakes are base-poor, and have little emergent vegetation.

Dystrophic lakes of various sizes are found in areas of low-lying blanket bog. These are extremely base-poor, have a peaty bottom and as a result, the water is often highly coloured by humic acids. A feature of these lakes is that there is usually an abrupt transition from blanket bog to open water, with little in the way of shallow lake margin present. The vegetation of these nutrient-poor lakes is typically limited and sparse. Marginal vegetation may include narrow floating rafts of Bulbous Rush, White Beak-sedge (*Rhynchospora alba*) and *Sphagnum cuspidatum*. Small peaty islands in these lakes may support Crowberry and Juniper (*Juniperus communis*), both species which are generally uncommon in lowland blanket bogs. The Juniper often forms scrub, but this is relatively rare, and is confined to the larger and ungrazed islands.

The Owenduff River and its tributaries flow through this site, and this system is one of the best examples in the country of a large, base-poor river catchment which is largely intact (i.e. not afforested). The vegetation of the river itself is quite limited in most places, with Bulbous Rush being the dominant vascular plant, with some Broad-leaved Pondweed (*Potamogeton natans*) present also. Riverbank and streamside flora often consists of acid wet grassland. Common species here include Bog Pimpernel (*Anagallis tenella*), Self-heal (*Prunella vulgaris*) and Common Sedge (*Carex nigra*). Ivy-leaved Bellflower (*Wahlenbergia hederacea*) occurs along the banks of the Owenduff River. This species is scarce in Ireland and mostly found in south-eastern and south-western counties.

Wet heath is likely to be widespread throughout this site, and is found in mosaic and transition with the lowland blanket bog. It is mainly found where peat is shallower, and Cross-leaved Heath (*Erica tetralix*) is characteristic.

The mountain tops, cliffs and crags support a high-level rocky vegetation. Quartzites prevail and typically support species-poor vegetation communities. Where outcrops of mica schist occur, a more diverse flora is found. The following arctic-alpine plant species have been recorded from the site: Starry Saxifrage (*Saxifraga stellaris*), Roseroot (*Rhodiola rosea*), Mountain Sorrel (*Oxyria digyna*), Brittle Bladder-fern (*Cystopteris fragilis*), Purple Saxifrage (*Saxifraga oppositifolia*), Alpine Meadow-rue (*Thalictrum alpinum*), Alpine Saw-wort (*Saussurea alpina*), Bearberry (*Arctostaphylos uva-ursi*) and Dwarf Willow (*Salix herbacea*). Alpine and subalpine heath typically occurs at high altitudes on thin, peaty soils with bare rock often evident. As well as the specialist species listed above, typical dominant species are Heather, Bilberry (*Vaccinium myrtillus*), Heath Rush (*Juncus squarrosus*), Crowberry, Tormentil (*Potentilla erecta*) and the moss *Racomitrium lanuginosum*.

Marsh Saxifrage (*Saxifraga hirculus*) has been recorded in two flushes on this site. This species is legally protected under the Flora (Protection) Order, 1999, and is one of the rarest flowering plants in Ireland. It is listed in Annexes II and IV of the E.U. Habitats Directive. Its decline in Ireland is due to the drainage and exploitation of its peatland habitat. Two other legally protected species have been recorded at the site: Bog Orchid (*Hammarbya paludosa*) and Marsh Clubmoss (*Lycopodiella inundata*). Slender Green Feather-moss (*Drepanocladus vernicosus*), a rare moss listed on Annex II of the E.U. Habitats Directive, also occurs on the site (last recorded in 1995).

Greenland White-fronted Goose regularly visit this site in winter. Up until 1990/91 numbers of around 50 geese were recorded. Since that time the flock has been partially displaced to an adjacent sub-flock's range (on the

Mullet Peninsula), largely due to winter shooting and increased human disturbance. Currently numbers of 12-17 birds are recorded, mostly confined to the area of Lough Feeagh and neighbouring Altaconey Bog. Golden Plover breed here in summer, and the area is used as feeding grounds by Merlin which nest in the nearby conifer plantations. These three species are listed in the Red Data Book and are included on Annex I of the E.U. Birds Directive.

The site provides extensive areas of habitat for Otter, a species that is listed on Annexes II and IV of the E.U. Habitats Directive. The Owenduff River system holds an important population of Atlantic Salmon, another species listed on Annex II. Spawning occurs on the Owenduff, the Tarsaghaun River to the east, the Glenadeeghan and the Baunduff/Scardaun, mainly in the upper reaches.

The site is heavily stocked with sheep. Cattle graze the riversides, but sheep penetrate into the uninhabited valleys and mountain slopes. Blanket bogs are sensitive to damage from over-grazing - the cover of *Sphagnum* mosses can be depleted and peat erosion can occur. Damage is currently severe on the slopes west of Lough Feeagh, where it has contributed to a recent decline in the numbers of Greenland White-fronted Goose which feed there. Peat erosion also threatens water quality in the rivers, which may in turn affect the fish population. Currently, fishing (Brown Trout and Atlantic Salmon) is a popular activity on the site and, together with game-shooting, attracts significant numbers of tourists to the region.

The Owenduff/Nephrin Complex is one of the best and largest examples of intact blanket bog in the country. The range and quality of habitats present here is excellent, and a number of rare and protected plant and animal species occur. The Owenduff River system is the largest in the country which remains virtually free of conifer plantations. The site is a striking wilderness of bog and mountain, a unique landscape which is of international ecological importance.

SITE NAME: WEST CONNACHT COAST SAC

Site Code: 002998 (Version date 10-02-2014 Rev 13)

This site consists of a substantial area of marine waters lying off the coasts of Counties Mayo and Galway in the west of Ireland. Comprising two parts, in its northern component the site extends from the coastal waters off Erris Head westwards beyond Eagle Island and the Mullet Peninsula in Co. Mayo. From there it extends southwards immediately off the coast as far as the entrance to Blacksod Bay. In its southern component, the site stretches from Clare Island and the outer reaches of Clew Bay at Old Head and continues southwards off the Mayo coast to the Connemara coast near Clifden and Ballyconneely, Co Galway. Predominantly coastal in nature, the site extends westwards into Atlantic continental shelf waters up to approximately 7-11 km from the mainland, although in its southern component it remains mostly inshore of the main islands: Clare Island, Inishturk, Inishbofin and Inishshark. Its area contains subtidal waters fringing these and other islands, as well as islets and rocky skerries off the Co. Mayo and Co. Galway coasts.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[1349] Bottle-nosed Dolphin (*Tursiops truncatus*)

The site encompasses a diverse range of shallow marine habitats occurring in waters less than 100 m deep. These include a variety of seabed structures including reefs, islets and sedimentary basins. The site contains physical and hydrographic features believed to be important for Bottle-nosed Dolphin, one of two cetacean species listed on Annex II of the E.U. Habitats Directive. These features include shallow coastal bays, areas of steep seafloor topography and complex areas of strong current flow adjacent to estuaries, coastal headlands and islands, sandbanks, shoals and reefs. Its area borders existing designated sites for protected species and habitats, and lies adjacent to a wide array of coastal features including sheltered bays, estuaries, coastal cliffs and sea caves, several of which are located within protected sites.

Bottle-nosed Dolphin occurs within the site in all seasons and the area comprises a key habitat for the species both regionally and within Irish waters as a whole. Survey data show that Bottle-nosed Dolphin occurrence within the site compares favourably with another designated site in Ireland, the Lower River Shannon. Local population estimates off south-west Co. Mayo and Connemara, Co. Galway describe a minimum of 123 dolphins, with possibly up to 150-200 individuals or more, occurring within the site as a whole, exceeding estimates for the Shannon Estuary population. Significant structural linkages have been established between groups of dolphins utilising various coastal habitats within the site, while a high proportion of individuals within this Bottle-nosed Dolphin community have been shown to range freely within its coastal waters. Analyses of genetic structure also show a fine scale distinction between dolphins sampled within the site and animals sampled at the Shannon Estuary or nationally.

Sighting records of Bottle-nosed Dolphins via coastal and boat-based observations from the Mullet Peninsula and outlying islands, outer Clew Bay, Clare Island, Roonagh, outer Killary Harbour, Ballynakill Harbour and west Connemara are significant for the west coast of Ireland and indicate widespread use of the area by individual groups of dolphins. Groups are known to alter their composition or to aggregate together within the site and comparatively high group sizes of up to 50-65 individual dolphins or more have been recorded in the site's northern and southern components. Adults closely accompanying calves are commonly observed in summer and autumn months at a number of locations within the site, and group foraging, resting or social behaviour are also regularly recorded. Individual dolphins are also known to recur within and between years at key locations within the site (e.g., outer Killary Harbour, off the Mullet Peninsula), indicating a degree of site fidelity to its coastal waters.

The waters of the West Connacht Coast represent an exceptional area of key conservation importance for Bottle-nosed Dolphin in Ireland.

SITE NAME: INISHKEA ISLANDS SAC

Site Code: 000507 (Version dated 26-08-13 Rev13)

The Inishkea Islands are the two largest islands off the west coast of the Mullet Peninsula in north-west Co. Mayo. As well as Inishkea North and Inishkea South, this site includes Carrickawilt, Carrigee, Carrickmoylenacurhoga, Pluddany Rocks, Carrickfad, Carrickgormal, Carricklaur, Carrickalaveen and several smaller rocks and reefs.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

- [21A0] Machairs*
- [1364] Grey Seal (*Halichoerus grypus*)
- [1395] Petalwort (*Petalophyllum ralfsii*)

The north island is low-lying and dominated by machair vegetation, typified by a Plantain sward (*Plantago* spp.), with Red Fescue (*Festuca rubra*), Smooth Meadow-grass (*Poa pratensis*), White Clover (*Trifolium repens*) and Daisy (*Bellis perennis*). A small lake, Doon Lough, which occurs at the northern end of the island, supports a vigorous growth of Mare's-tail (*Hippuris vulgaris*) and is bounded by a bed of Common Reed (*Phragmites australis*). The south island has a low-lying cover of machair vegetation in the northern part, but is characterised by a heath-covered ridge and hill (70 m O.D.) to the south. The dominant heath plants are Heather (*Calluna vulgaris*), Heath-grass (*Danthonia decumbens*), Devil's-bit Scabious (*Succisa pratensis*), Sheep's-bit (*Jasione montana*) and Creeping Willow (*Salix repens*). The outlying rocks and reefs are largely unvegetated.

The Inishkeas, together with a group of neighbouring islands, including Inishglora, Inishkeeragh and the Duvillauns, are an important breeding site for Grey Seal, a species listed on Annex II of the E.U. Habitats Directive. The breeding population is estimated at 665-855 individuals (in 2005). A one-off moult count in 2007 gave a figure of 1,742 seals.

A population of the liverwort Petalwort (*Petalophyllum ralfsii*) occurs on North Inishkea. This species is listed on Annex II of the E.U. Habitats Directive. It is a species typically associated with machair habitat.

The Inishkeas are of ornithological interest for breeding seabirds. The following figures are derived from the 1984 and 1995 Tern Surveys, respectively, and refer to number of pairs recorded. Arctic Tern (220; 73), Common Tern (20; 1), Little Tern (41; 4). All three species are listed on Annex I of the E.U. Birds Directive. Numbers for other seabirds from 1984 are as follows: Great Black-backed Gull (c. 558 individuals), Herring Gull (c. 304 individuals), Lesser Black-backed Gull (5 individuals), Common Gull (15 individuals), Black-headed Gull (15 individuals), Black Guillemot (10 pairs pre-1988). Important concentrations of breeding Oystercatcher (136 pairs), Lapwing (14 pairs), Ringed Plover (31 pairs), Redshank (5 pairs), Snipe (5 pairs) and Dunlin (5 pairs) also occur.

SITE NAME: DUVILLAUN ISLANDS SAC

Site Code: 000495 (Version dated: 01-04-14 Rev 14-01)

The Duvillaun Islands comprise a group of marine islands, rocks and reefs 3 km off the southern tip of the Mullet Peninsula, Co. Mayo. The main islands included are Duvillaun More, Duvillaun Beg, Turduvillaun, Gaghta Island, Keely Island and Leamareha Island.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[1364] Grey Seal (*Halichoerus grypus*)

The Duvillaun Islands form part of a larger group of islands, together with the Inishkeas, Inishkeeragh and Inishglora, which hold an important breeding population of Grey Seal. The breeding population is estimated at 648-833 individuals (in 2005).

The Duvillaun Islands are also of ornithological interest for their colonies of breeding seabirds and wintering geese. They hold the second largest colony of Great Black-backed Gull in Ireland (217 pairs during 1985-87). Other nationally important colonies include Cormorant (185 pairs), Shag (30-50 pairs), Fulmar (500 pairs), Common Gull (20-50 pairs) and Black Guillemot (80 individuals). Large numbers of Herring Gull are also found (300-400 pairs) (all figures are from 1981). Storm Petrel occur on Duvillaun More (14 colonies in 1966, total numbers are unknown, but probably at least 100 pairs).

The islands are also used as a wintering ground for internationally important numbers of Barnacle Goose (420-450 individuals in 1988), which interchange with the largest Irish population on the nearby Inishkea Islands.

Approximately two-thirds of Duvillaun More is covered by grass, and the island is grazed by sheep and rabbits. The other islands support little or no vegetation. The main threat to the Grey Seal population at this site is from illegal culling; nesting birds would be vulnerable to disturbance during breeding.

APPENDIX 2.2 SPECIAL PROTECTION AREAS

SITE NAME: BLACKSOD BAY/BROADHAVEN SPA

Site Code: 004037 (Site synopsis dated: 30.3.2005)

Situated in the extreme north-west of Co. Mayo, this site comprises all of the inner part of Broadhaven Bay and the various sheltered bays and inlets in Blacksod Bay, including Trawmore Bay, Saleen Harbour, Elly Harbour and Tullaghan Bay. At low tide extensive areas of intertidal sand and mudflats are exposed. These support a well-developed macro-invertebrate fauna. Talitrid amphipods occur in decomposing seaweed on the strand line, whilst polychaete worms (*Arenicola marina*), bivalves (*Cerastoderma edule*) and crustaceans, such as *Urothoe brevicornis*, *Ampelisca brevicornis* and *Bathyporeia pilosa*, are common in the middle shore. Eelgrass (*Zostera marina*) occurs at several localities. Salt marshes, which are often on a peat substrate, fringe parts of the site and provide useful roosts for the wintering waterfowl. Species typically present include Thrift (*Armeria maritima*), Common saltmarsh-grass (*Puccinellia maritima*), Sea Aster (*Aster trifolium*), Sea Milkwort (*Glaux maritima*), Sea Rush (*Juncus maritimus*) and Saltmarsh Rush (*Juncus gerardi*). At the lower levels of the marshes, and in places extending onto the open sand flats, are found Glasswort (*Salicornia europaea* agg.) and Seablite (*Suaeda maritima*). Sandy and shingle beaches are well represented. A small island, Inishderry, situated in the inner part of the bay, is used by nesting terns and gulls. The underlying bedrock consists mainly of schists and gneiss.

The site supports an excellent diversity of wintering waterfowl species and is one of the most important wetland complexes in the west. It has nationally important populations of Great Northern Diver (31), Red-breasted Merganser (48), Bar-tailed Godwit (441), Ringed Plover (332) and Dunlin (1,709) - figures are average peaks for the 5 seasons 1995/96-1999/00. It also supports Red-throated Diver (15), Brent Goose (149), Oystercatcher (262), Golden Plover (267), Grey Plover (53), Knot (234), Sanderling (53), Curlew (330), Redshank (96), Turnstone (38), Shelduck (26), Mallard (55), Cormorant (29), Black-headed Gull (183) and Common Gull (161). It provides both feeding and roosting areas for the birds though some species may also utilise marginal habitats above the shoreline for feeding and/or roosting, as well as the shallow marine waters elsewhere in Blacksod Bay.

Inishderry Island has a nationally important breeding colony of Sandwich Tern, with 160-170 pairs present in 1994 and 81 pairs in 1995. The terns at this site are considered to be the same population that nested at Carrowmore Lake in the past. It also has nesting Common Tern and Arctic Tern (total for the two species of 42 pairs), and a colony of Black-headed Gull (100 individuals in 1995). Little Tern has also bred in small numbers in the past.

There are no serious imminent threats to the various bird populations. Aquaculture occurs and intensification could cause disturbance to the birds and their habitats. Some of the salt marshes have suffered damage due to heavy grazing by sheep, and remain vulnerable.

This site is of high ornithological importance for its excellent diversity of wintering waterfowl and for the nationally important populations of five species that it supports. Of particular note is the usage of the site by over 3% of the national Ringed Plover population. It is also of importance as a breeding site for terns and gulls, especially the localised Sandwich Tern. It is of note that seven of the species that occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Great Northern Diver, Red-throated Diver, Golden Plover, Bar-tailed Godwit, Sandwich Tern, Common Tern and Arctic Tern.

SITE NAME: CARROWMORE LAKE SPA

Site Code 004052 (Date: 6.10.2004)

Carrowmore Lake is a large, fairly shallow, oligotrophic/mesotrophic lake, which overlies Dalradian schists and quartzite. The lake generally has a stony bottom and shoreline. Stands of emergent, swamp vegetation occur, especially in sheltered areas. The shallow waters support species such as Common Spike-rush (*Eleocharis palustris*), Shoreweed (*Littorella uniflora*), Bulbous Rush (*Juncus bulbosus*) and Perfoliate Pondweed (*Potamogeton perfoliatus*). Soft Rush (*Juncus effusus*) and Yellow Iris (*Iris pseudacorus*) are frequent along the shore, with stands of Common Club-rush (*Scirpus lacustris*) and Common Reed (*Phragmites australis*). The lake has one substantial island, Derreens Island, and several small islands; these are dominated by a grassy sward. Carrowmore Lake is set in a landscape dominated by blanket bogs.

There is a long established breeding colony of gulls and terns on Derreens Island. Black-headed Gull and Common Gull both nest in numbers of national importance (37 and 59 pairs respectively in 2000), with the latter representing over 5% of the national total. Considerably higher numbers of both of these species have nested in the past. Sandwich Tern formerly had a large nesting population (164 pairs in 1984) but has not nested in at least the last 5 years. The colony is thought to have moved to an island in Broadhaven Bay but birds still regularly visit the lake and nesting may occur again in the future. Arctic Tern has also nested in the past. Mink predation is considered a problem for the nesting gulls and terns.

A population of Greenland White-fronted Goose winters on the surrounding bogs and at times uses the lake for roosting and/or feeding. The number of birds using the site is fairly small, with an average peak of 34 for the five winters 1998/99-2002/03. Small numbers of wildfowl, mostly diving duck such as Pochard (72) and Tufted Duck (90), as well as Mallard (38), Scaup (5), Goldeneye (10), Red-breasted Merganser (4) and Cormorant (12) occur in winter.

Research is required to determine the reason for the declining gull and tern numbers at Derreens Island. The island may need to be managed to optimise the potential nesting habitat. The lake is a Wildfowl Sanctuary so shooting is not an issue.

Carrowmore Lake is of high ornithological importance on account of the nationally important gull colony and, in the past, the nesting terns. The occurrence of Greenland White-fronted Goose is of note as this species is listed on Annex I of the E.U. Birds Directive (as are the tern species).

SITE NAME: OWENDUFF/NEPHIN COMPLEX SPA

Site Code: 004098 (Dated: 06-10-2004)

This large area of relatively intact blanket bog and mountains incorporates the catchment of the Owenduff River and much of the Nephin Beg Mountain range. Lough Feeagh, which is located approximately 5 km north-northwest of Newport, lies at the south-east corner of the site. From here, the site extends northwards to the Owenmore River and almost to the town of Bangor Erris, and westwards to the townland of Ballycroy. Within the site the terrain varies enormously, from the peaks of the Nephin Beg Mountains, which reach a maximum altitude of 717 m, to the low-lying floodplain of the Owenduff River in the western sector. Along its southern and easterly limits, the site is bounded by coniferous plantations and/or the high mountain slopes of the Nephin Bogs. Along its northern and western margins, the site is fringed by agricultural land reclaimed from bog or from wet floodplain vegetation.

The upper slopes of the mountains support wet heath, upland grassland and cliff vegetation. The lower mountain slopes are covered with blanket bog, with a broad representation of good quality bog habitats occurring. There are continuous tracts of vegetation dominated by Purple Moor-grass (*Molinia caerulea*), Black Bog-rush (*Schoenus nigricans*) and Deergrass (*Scirpus cespitosus*). In places, the flat surface is differentiated into an undulating microtopography of hummocks and wet hollows, formed by a variety of *Sphagnum* moss species. Extensive pool systems occur, where large peaty ponds are scattered over the bog. Typically, Bogbean (*Menyanthes trifoliata*) and Common Spike-rush (*Eleocharis multicaulis*) colonise the pools, as well as such

species as Water Lobelia (*Lobelia dortmanna*) and Yellow Water-lily (*Nuphar lutea*). Large hummocks lie between the pools, colonised by Heather (*Calluna vulgaris*), Hare's-tail Cottongrass (*Eriophorum vaginatum*) and occasionally Crowberry (*Empetrum nigrum*). Around the many small streams and flushes which cross the bog, the vegetation is frequently a wet quaking mat of *Sphagnum* moss, which is colonised by a range of higher plants, including Bog-sedge (*Carex limosa*) and Cranberry (*Vaccinium oxycoccos*). These minerotrophic flushes also contain a rich and varied moss and liverwort flora. Areas of transition mire occur in parts of the site.

The Owenduff/Nephin Complex SPA supports an excellent diversity of bird species characteristic of blanket bog and mountain habitats. In particular, there are four regularly occurring species that are listed on Annex I of the E.U. Birds Directive, i.e. Greenland White-fronted Goose, Merlin, Peregrine and Golden Plover.

Greenland White-fronted Geese regularly visit the site in winter though numbers nowadays are relatively low (average peak of 27 in the winters 1998/99-2002/03; range 17-42). The population is a sub-flock of the main Bog of Erris population (4 other sub-flocks). Eighteen bogland feeding areas, scattered over 200 km, are known as well as some wet grassland and lake sites. The birds utilise the many small lakes and the open bogland for roosting.

Merlin nests within the site (population conservatively estimated at between 4 and 8 pairs). This small falcon has a preference for heather bog areas, particularly marginal zones between blanket bog and heath/upland grassland. The Merlins hunt small birds, especially Meadow Pipits. The site provides prime habitat for Peregrine (three known breeding territories). The high cliffs and crags provide good nesting sites for the birds whilst the extensive boglands provide foraging terrain. Golden Plover breed on the bogs (14 pairs recorded from the site in 2004).

Red Grouse occurs on the bogs throughout the site, particularly where there is a good cover of Heather (*Calluna vulgaris*), which provides the principal food for the bird. A recent study showed that the species occurs at low densities though the overall population for the SPA is estimated at between 149 and 213 pairs. Red Grouse is considered to be a declining species in Ireland and is a Red List species.

Widespread bird species which occur within the site include Meadow Pipit, Skylark, Wheatear, Raven, Hooded Crow and Kestrel.

Otter occurs frequently within the site, while the Owenduff River holds an important population of Atlantic Salmon - both species are listed on Annex II of the E.U. Habitats Directive. Irish Hare and Common Frog, both Red Data Book species, are widespread within the site.

The site supports a number of rare plants, notably Marsh Saxifrage (*Saxifraga hirculus*), Bog Orchid (*Hammarbya paludosa*) and Marsh Clubmoss (*Lycopodiella inundata*), all of which are listed in the Red Data Book. Shining Sickle-moss (*Drepanocladus vernicosus*), a rare moss also occurs. Both Marsh Saxifrage and Shining Sickle-moss are listed on Annex II of the E.U. Habitats Directive. A good diversity of rare or localised arctic-alpine plant species are found in the rocky vegetation of the mountains, including Starry Saxifrage (*Saxifraga stellaris*), Roseroot (*Rhodiola rosea*), Alpine Meadow-rue (*Thalictrum alpinum*), Bearberry (*Arctostaphylos uva-ursi*) and Dwarf Willow (*Salix herbacea*).

The site is heavily stocked with sheep and in places the bog habitats have been damaged from overgrazing. In the most severe cases, peat erosion occurs and threatens water quality in the rivers. The Greenland White-fronted Goose and Red Grouse populations are particularly sensitive to deterioration in habitat quality.

The Owenduff/Nephin Complex SPA provides one of the best examples of blanket bog and upland bird communities in the country. Of particular importance is that there are four regularly-occurring species that are listed on Annex I of the E.U. Birds Directive (Greenland White-fronted Goose, Merlin, Peregrine and Golden Plover), as well as a good population of Red Grouse. Much of the site is a National Park.

SITE NAME: STAGS OF BROAD HAVEN SPA

Site Code: 004072 (Date: 6.10.2004)

The Stags of Broad haven are a group of four precipitous rocky islets, totalling 4 ha, rising to almost 100 m, located about 2 km north of Benwee Head. The surrounding seas to a distance of 500 m are included in the site. The islets are of ornithological interest, although their relative inaccessibility has made population counts difficult. However, they were visited in 2001 for the Seabird 2000 project.

The Stags are of particular note as they comprise the only site in Ireland where Leach's Petrel has been proved breeding in recent times. Breeding was first suspected but not proved on Chakbeg during expeditions in 1946 and 1947. No further attempts were made to census Leach's Petrel until 1982, when the Stags were visited by

two ornithologists. Using nets and tapes, breeding was considered to be still taking place on Chakbeg, with an estimate of 200 + pairs. A further expedition to the Stags in 2001 used the tape playback method to prove breeding and estimate population size. An estimate of 310 apparently occupied sites was made. The Stags also support a Nationally important colony of Storm Petrel, with 1,905 apparently occupied sites estimated in 2001. Puffin has always bred in large numbers (estimate of c. 1000 apparently occupied burrows in 2001), representing almost 4% of the national total. Other seabirds which breed are Fulmar (275 pairs), Kittiwake (110 pairs), Herring Gull (4 pairs) and Great Black-backed Gull (10 pairs).

The Stags of Broad Haven SPA is a site of ornithological importance owing to the presence of the only known colony of Leach's Petrel in Ireland, as well as important populations of Storm Petrel and Puffin. Both Leach's Petrel and Storm Petrel are listed on Annex I of the E.U. Birds Directive.

SITE NAME: ILLANMASTER SPA

Site Code: 004074 (Date: 6.10.2004)

Illanmaster is a steep, rocky island situated just off the north Mayo coast. It rises to 107 m and is topped with a maritime grassy sward. The surrounding seas to a distance of 500 m are included in the site. The southern boundary of the site adjoins the mainland shoreline. While close to the mainland, access to the island is difficult.

The site supports an internationally important population of Storm Petrel, which is one of the largest in the region. While it was not surveyed during the Seabird 2000 census, an estimate of 7,500 pairs was made prior to 1980. Illanmaster also supports a nationally important population of Puffin, with 1,367 pairs estimated in 1999. Small numbers of other seabirds breed, including Fulmar (8 pairs in 1999), Great Blackbacked Gull (13 pairs in 1999) and Black Guillemot (5 pairs). Illanmaster is visited at times by wintering Barnacle Geese, though numbers apparently are less than 50.

Illanmaster has been owned by BirdWatch Ireland since 1970 and is strictly protected. There are no known threats to the breeding seabirds.

The presence of Storm Petrel and Barnacle Goose is of particular note as these species are listed on Annex I of the E.U. Birds Directive.

SITE NAME: MULLET PENINSULA SPA

Site Code: 004227 (Dated 18-02-2011)

The Mullet Peninsula SPA comprises three separate areas situated on the Mullet peninsula in Co. Mayo. The peninsula is low-lying and exposed (rarely rising above 20 m) and is mostly underlain by metamorphic schist and gneiss, although the southern tip is granite and rises to 103 m. The three areas that make up the site are located, respectively, 5 km north-west, 2 km west and 15 km south-west of the town of Belmullet. The main habitat present is grassland, which is managed in a relatively intensive manner.

The site is selected as a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Corncrake.

The Mullet Peninsula SPA supports a breeding population of Corncrake (4 pairs - five year mean peak between 2003 and 2007, based on records of calling males). The Mullet Peninsula SPA is one of a suite of sites along the western seaboard that is regularly utilised by nationally important numbers of breeding Corncrake.

Corncrake winter in southern and eastern Africa, migrating northwards to arrive on their breeding grounds from early April onwards, departing again in August and September. They require the cover of tall vegetation throughout their breeding cycle and are strongly associated with meadows which are harvested annually, where they nest and feed. Annual cutting of these meadows creates a sward with an open structure, which is easy for the birds to move through. Other habitats, which can provide cover for Corncrake in the early and late stages of the breeding season, are also important for this species.

Corncrake is listed on the 2010 International Union for Conservation of Nature (IUCN) Red List of Threatened Species. This is due to population and range declines of more than 50% in the last 25 years across significant parts of its range.

The Mullet Peninsula SPA is of high ornithological importance as it supports a nationally important population of Corncrake, a globally threatened species. Corncrake is also listed on Annex I of the E.U. Birds Directive.

SITE NAME: TERMONCARRAGH LAKE AND ANNAGH MACHAIR SPA

Site Code: 004093 (Date: 7.9.2006)

Termoncarragh Lake is a shallow, coastal lake situated on the north-west side of the Mullet peninsula, Co. Mayo. It is fringed by swamp vegetation and edged in parts by freshwater marsh and fen. The fen is species-rich and includes such species as Jointed Rush (*Juncus articulatus*), Glaucous Sedge (*Carex flacca*), Grass-of-Parnassus (*Parnassia palustris*), Knotted Pearlwort (*Sagina nodosa*), Marsh Arrowgrass (*Triglochin palustris*), Common Butterwort (*Pinguicula vulgaris*) and Lesser Clubmoss (*Selaginella selaginoides*). The scarce Marsh Helleborine (*Epipactis palustris*) also occurs. The lake habitats merge into a machair plain which is now mostly divided into strip fields. The vegetation of the machair is typified by such species as Red Fescue (*Festuca rubra*), Wild Thyme (*Thymus praecox*), Daisy (*Bellis perennis*), Ribwort Plantain (*Plantago lanceolata*), Selfheal (*Prunella vulgaris*), Sand Sedge (*Carex arenaria*) and Lady's Bedstraw (*Galium verum*). Some low sand hills occur between the machair and the sea. The innermost part of Portnafrankagh Bay is included in the site. The site is underlain by Moinian schists.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Barnacle Goose, Whooper Swan, Greenland White-fronted Goose, Corncrake, Chough, Lapwing and Dunlin. The E.U. Birds Directive pays particular attention to wetlands, and as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Termoncarragh Lake and Annagh machair is of high importance for both wintering and breeding birds. It is part of the wintering ground for the largest Barnacle Goose population in the country, and regularly supports a flock of international importance (the average peak for 4 of the 5 seasons in the 1995/96-1999/00 period was 394 individuals). The centre of the population is the Inishkea Islands and, as well as the Mullet, the birds use Duvillaun More and Inishkerragh/Inishglora. The site is important for passage Whooper Swan, with up to 300 individuals visiting the site in autumn and spring. The site supports a range of other wintering species, including Greenland White-fronted Goose (11), Golden Plover (405), Teal (38), Mallard (47) and Ringed Plover (20), as well as the resident Mute Swan (39).

The marginal wetland habitats and the machair are prime habitats for breeding waders. A survey in 1996 recorded the following: Lapwing (22 pairs), Dunlin (14 pairs) and Snipe (5 pairs). The site is one of the most important areas in the country for breeding Dunlin. The area was well known as the main breeding site for Red-necked Phalarope but breeding has not been recorded in recent years. The reason for the abandonment of the site by the birds may be habitat change. During the breeding season Corncrake have been recorded here, albeit in low numbers. Post-fledgling Chough flocks of up to 30 individuals regularly occur at the site between August and October.

Agricultural intensification, associated with fencing and division of the machair and subsequent overgrazing by cattle and sheep, has degraded part of the site. Some areas formerly suitable for nesting waders have become overgrown with vegetation.

Part of site is owned by BirdWatch Ireland who have recently commenced a management programme to improve habitat conditions for breeding waders, including Red-necked Phalarope and Corncrake.

The site is of high ornithological importance, supporting as it does an internationally important Barnacle Goose population. It is also a prime site for breeding waders, notably Dunlin. It is hoped that the on-going habitat management programme for Red-necked Phalarope will encourage the return of the species to the site. Of note is that several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Barnacle Goose, Greenland White-fronted Goose, Whooper Swan, Golden Plover, Dunlin, Corncrake and Chough.

SITE NAME: INISHGLORA AND INISHKEERAGH SPA

Site Code: 004084 (Date: 11.9.2006)

The site comprises the two islands, Inishglora and Inishkeeragh, as well as a number of smaller islets and rocks situated c. 1.5-3 km west of the Mullet Peninsula, Co. Mayo. They are part of a larger grouping of similar islands that includes the Inishkeas and the Duvillauns. Inishglora is the larger of the main islands and had been inhabited in the Early Christian period. Both are fairly low-lying and support maritime grassland vegetation. The marine waters surrounding the islands and islets to a distance of not less than 200 m are included in the site. The islands are of ornithological interest for their seabird colonies and as a wintering site for Barnacle Geese.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Storm Petrel, Barnacle Goose, Arctic Tern, Cormorant, Shag, Lesser Black-backed Gull and Herring Gull.

Storm Petrel has a long history of breeding on both of the main islands. When surveyed during the course of the Seabird 2000 project, Inishglora had 1,780 pairs and Inishkeeragh 1,625 pairs, giving a total of 3,405. This is the most accurate assessment yet and easily exceeds the threshold for national importance. The islands are also of national importance for Arctic Tern, with 105 pairs recorded in the 1995 Tern Survey. Little Tern has nested in the past. A range of other seabirds breed, notably Shag (61 pairs in 2001), Cormorant (57 pairs in 1987), Lesser Black-backed Gull (66 pairs in 2001), Herring Gull (78 pairs in 2001), Great Black-backed Gull (20+ pairs in 2001), Common Gull (6 pairs in 2001) and Black Guillemot (<10 pairs).

Both islands are frequented by part of the large Barnacle Goose population centred on the Mullet and Inishkeas, which is the largest concentration in the country. On Inishglora 265 birds were recorded in spring 1994 and 220 in spring 1999. The islands provide good feeding habitat and a safe refuge for the geese.

Inishglora and Inishkeeragh form part of a larger group of islands, together with the Inishkeas and the Duvillauns, which hold an important breeding population of Grey Seal. Estimates in 1983 for the total population of this assemblage puts the number of animals in the range 700-900, about a third of the known breeding population in Ireland.

Disturbance from visitors during the summer period can be high and could be threatening to the various breeding birds, especially terns. Livestock, which are present on the main islands, could cause trampling of nests of seabirds. Over-grazing would be a very serious problem if stocking levels were to be too high.

This site is one of the most important seabird sites in the region, with nationally important populations of Storm Petrel, Arctic Tern, Cormorant, Shag, Lesser Blackbacked Gull and Herring Gull. The main islands regularly support nationally important numbers of wintering Barnacle Geese. The occurrence of Storm Petrel, Arctic Tern and Barnacle Goose are of particular note as these are listed on Annex I of the E.U. Birds Directive. The presence of breeding Grey Seal is also of note as this species is listed on Annex II of the E.U. Habitats Directive.

SITE NAME: INISHKEA ISLANDS SPA

Site Code: 004004 (Date: 10.11.2003)

The Inishkea Islands are the two largest islands off the west coast of the Mullet Peninsula in north-west County Mayo. As well as Inishkea North and Inishkea South, this site includes Carrickawilt, Carrigee, Carrickmoylenacurhoga, Pluddany Rocks, Carrickfad, Carrickgormal, Carricklaur, Carrickalaveen and several smaller rocks and reefs. The surrounding seas, where seabirds forage, bathe and socialise, are included in the site.

The north island is low-lying and dominated by machair, a habitat listed with priority status on Annex I of the EU Habitats Directive. The vegetation is typified by a Plantain sward (*Plantago* spp.), with Red Fescue (*Festuca rubra*), Smooth Meadowgrass (*Poa pratensis*), White Clover (*Trifolium repens*) and Daisy (*Bellis perennis*). A small lake, Doon Lough, which occurs at the northern end of the island, is bounded by a bed of Common Reed (*Phragmites australis*). The south island has a low-lying cover of machair vegetation in the northern part, but is characterised by a heathcovered ridge and hill (70 m O.D.) to the south. The dominant heath plants are Heather (*Calluna vulgaris*), Heath-grass (*Danthonia decumbens*), Devil's-bit Scabious (*Succisa pratensis*), Sheep's-bit (*Jasione montana*) and Creeping Willow (*Salix repens*). Some of the smaller islands and islets have a permanent area with a grassy sward above the tide line.

The Inishkeas are of ornithological importance for both wintering and breeding birds. The islands are the most important wintering site for Barnacle Geese in Ireland and the population is of International Importance. The geese also make much use of neighbouring islands, particularly the Duvillauns and Inishkeeragh, and also graze at a couple of sites on the Mullet Peninsula. In spring 1999, this population numbered 3,128 birds, out of a total Irish population of 8,800, with 2,841 of these on the Inishkeas. Counts of wintering birds in the 1999/2000 winter recorded the following species in nationally important numbers: Ringed Plover 300, Sanderling 80, Purple Sandpiper 50 and Turnstone 300. Other species counted included Great Northern Diver 12, Brent Goose 45, Teal 150, Oystercatcher 200, Golden Plover 1,000 and Dunlin 300.

The Inishkeas have important seabird colonies. A census in 2000 recorded the following: Fulmar 216 pairs, Shag 90 pairs, Common Gull 47 pairs, Lesser Blackbacked Gull 40 pairs, Herring Gull 81 pairs, Great Black-backed Gull 100 pairs and Black Guillemot 21 individuals. The populations of Shag and of the gull species are of National importance. Storm Petrel also breed, and in 2001 44 apparently occupied sites were recorded on Inishkea North. The islands are also a traditional breeding site for terns. In July 2000, 25 pairs of Common Tern, 182 pairs of Arctic Tern and 27 pairs of Little Tern were recorded. Further survey of the Little Terns in 2002 recorded over 100 adults (possibly 50 + pairs). The populations of Arctic Tern and Little Tern are of national importance.

The islands hold important concentrations of breeding waders. A survey in 1996 recorded the following: Oystercatcher 136 pairs, Lapwing 14 pairs, Ringed Plover 31 pairs, Redshank 5 pairs, Snipe 5 pairs and Dunlin 5 pairs.

The site is a traditional breeding site for Peregrine Falcon and Chough has bred in the past (though none were recorded in the 1992 survey). Corncrake formerly bred on the islands and after a long absence two birds were recorded on the islands in 1998, with 1 pair in both 1999 and 2000. Other breeding species include Shelduck, Skylark, Wheatear and Raven.

The Inishkeas, together with a group of neighbouring islands, including Inishglora, Inishkeeragh and the Duvillauns, are an important breeding site for Grey Seal, a species listed on Annex II of the EU Habitats Directive. Estimates in 1995 for the total minimum population of this assemblage put the number of animals in the range 539-693, about a third of the known breeding population in Ireland.

A population of *Petalophyllum ralfsii* has recently been discovered on North Inishkea. This species of liverwort is of high conservation importance and is listed on Annex II of the EU Habitats Directive. It is a species typically associated with machair habitat.

There are the remains of a village on both main islands, but, although still used for sheep and cattle grazing, the islands have been uninhabited since 1932.

The Inishkea Islands SPA is an internationally important site for birds, in particular for Barnacle Geese, an Annex I Birds Directive species. This population has been subject to long-term population studies. A number of other Annex I species breed, notably Storm Petrel, Arctic Tern, Common Tern and Little Tern. The recent presence of Corncrakes, also an Annex I species, is of especial note. Other Annex I species include Great Northern Diver, Golden Plover, Peregrine Falcon and Chough. The site is also of importance for breeding waders and a range of wintering waterfowl.

SITE NAME: DUVILLAUN ISLANDS SPA

Site Code: 004111 (Dated: 10.11.2003)

The Duvillaun Islands SPA comprises a group of uninhabited marine islands, rocks and reefs, located between 1 and 5 km off the southern tip of the Mullet Peninsula in Co. Mayo. The surrounding seas, where seabirds forage, bathe and socialise are included in the site.

Duvillaun More is the largest of the islands, rising to 63 m, with cliffs on the northwest, west and south-west sides. About two-thirds of this island is covered by a maritime grassland sward. There is a small area of dry heath, with some Ling (*Calluna vulgaris*), at the west end of the island near the summit. Duvillaun Beg, which rises to 14 m, also has a grassy sward and an extensive intertidal shore. The other islands, while having some permanent land above the high tide mark, are largely rocky islets and knolls. From west to east, the lesser islands are Turduvillaun, Shiraghy Island, Drumacappul Island, Orrageon Island, Keely Island, Gaghta Island and Leamareha Island.

In winter, the Duvillauns support Barnacle Geese. The geese are part of the population which is centred on the Inishkea Islands and which also utilise Inishglora and Inishkeeragh, further to the north, and parts of the Mullet Peninsula. In spring 1999, this internationally important population, and the largest in Ireland, numbered 3,128 birds out of a total Irish population of 8,800. While only 67 geese were counted on Duvillaun More in March 1999, up to 500 can be recorded at times.

The Duvillaun Islands are also of ornithological importance for their colonies of breeding seabirds. In 1994, a complete census for Fulmar recorded 638 pairs. At least 20 pairs of Cormorant and 37 Black Guillemot were recorded on Duvillaun More, though in a census of all the islands in 1985, up to 150 pairs of Cormorant and up to 80 Black Guillemot were recorded. Storm Petrels breed within the site, and in 2001 945 apparently occupied sites were estimated on Duvillaun Beg. This species has been recorded breeding on Duvillaun More in the past. Other seabirds which breed are Shag (25 pairs in 1981), Herring Gull (300-400 pairs in 1981), Great Black-backed Gull (217 pairs in 1981) and Common Gull (20-50 pairs in 1981). The populations of Fulmar, Storm Petrel, Herring Gull and Great Black-backed Gull are considered to be of National Importance (though an up-to-date gull census is required).

Peregrine Falcon (1 pair) and Chough (1-2 pairs) breed; both are listed Annex I of the E.U. Birds Directive. Other species which have been recorded breeding on Duvillaun More include Ringed Plover, Oystercatcher, Rock Pipit, Skylark, Wheatear and Raven.

The Duvillauns form part of a larger group of islands, together with the Inishkeas, Inishkeeragh and Inishglora, which hold an important breeding population of Grey Seal, an animal listed on Annex II of the EU Habitats Directive. Estimates in 1995 for the total minimum population of this assemblage put the number of animals in the range 539-693, about a third of the known Irish breeding population.

This site is of high ornithological importance as the islands form part of the range of an internationally important population of Barnacle Goose, a Birds Directive Annex I species. Storm Petrel, another Annex I species, breeds in significant numbers and there are nationally important populations of several other seabirds. Peregrine Falcon and Chough, both Annex I species, also breed.

APPENDIX 3: CORRIB DEVELOPMENT CONSENTS, PERMITS AND APPROVALS

Consent / Permission / Approval	Awarding Body	Date of Grant	EIS	NIS / Screening Report
Petroleum Lease	DCENR	15 November 2001	-	-
Continental Shelf Act Consent	DCENR	15 April 2002	-	-
Plan of Development Approval (POD Approval)	DCENR	15 April 2002	Yes	(as part of EIS)
Amended Plan of Development (2011 Amended POD)	DCENR	25 Feb 2011	Yes	Yes
Foreshore Licence (Foreshore Licence of 17 May 2002 revoked)	DECLG	22 July 2011	Yes	Yes
Authorisation under Section 40 of the Gas Act (Consent to Construct) (2011 Section 40 Consent)	DCENR	25 February 2011	Yes	Yes
Electricity Generation Licence (Bellanaboy Bridge Gas Terminal)	CER	7 March 2008	-	-
Safety Report Acceptance (Bellanaboy Bridge Gas Terminal)	HSA	8 December 2014	-	-
Production Safety Permit (ref no SP 01B) (SP 01A awarded 26 November 2014, Original (SP 01) awarded 15 October 2014).	CER	11 June 2015	-	-
a) IPPC licence 0738-01 (now IE Licence) b) Proposed Determination awarded for a review of the 12 November 2007 Industrial Emissions Licence Bellanaboy Bridge Gas Terminal (EPA ref no 0738-03). Final determination pending.	EPA	12 November 2007 13 April 2015 (PD)	Yes Yes	(as part of EIS) Yes
Green House Gas Permit (ref no IE-GHG161-10426-1). Variation awarded in July 2015.	EPA	10 September 2014	-	-
Bellanaboy Bridge Gas Terminal – Parent Permission (Planning & Development Act)				
a) Planning Permission ('Parent Permission') An Bord Pleanála Ref. PL16.207212	ABP	22 October 2004	Yes	-
b) Extension of duration (Mayo County Council Reg. Ref. 03/33430)	MCC	20 October 2009	-	-
c) Further Extension of duration (MCC Reg. Ref. 03/334300)	MCC	17 April 2012	-	-
Bellanaboy Bridge Gas Terminal – Amendment permissions (Planning & Development Act)				
a) Mayo County Council Reg. Ref. 07/3322 -Extension of duration (Reg. Ref. 07/33220)	MCC MCC	27 June 2008 30 July 2013	- -	- -
b) Mayo County Council Reg. Ref. 08/774	MCC	8 August 2008	-	-
c) Mayo County Council Reg. Ref. 08/1182	MCC	30 September 2008	-	-
d) An Bord Pleanála Ref. PL 16.229487 (MCC Reg. Ref. 08/170)	ABP	1 December 2008	-	-
e) Mayo County Council Reg. Ref. 09/20	MCC	6 April 2009	-	-
f) An Bord Pleanála Ref. PL 16.231952 (MCC Reg. Ref. 08/1620)	ABP	15 April 2009	-	-
g) Mayo County Council Reg. Ref. 09/196	MCC	2 June 2009	-	-
h) Mayo County Council Reg. Ref. 09/1248	MCC	8 March 2010	-	-
i) Mayo County Council Reg. Ref. 10/633	MCC	7 October 2010	-	-
j) Mayo County Council Reg. Ref. 11/56	MCC	3 May 2011	-	Yes
k) Mayo County Council Reg. Ref. 12/603	MCC	12 February 2013	-	Yes
l) Mayo County Council Reg. Ref. 13/2	MCC	27 March 2013	-	Yes
m) Mayo County Council Reg. Ref. 13/68	MCC	15 May 2013	-	Yes
n) Mayo County Council Reg. Ref. 13/355	MCC	15 October 2013	-	Yes
o) An Bord Pleanála Ref. PL16.242283 (MCC Reg. Ref. 13/232)	ABP	16 December 2013	-	Yes
p) Mayo County Council Reg. Ref. 13/561	MCC	28 February 2014	-	Yes
Corrib Gas Pipeline – Planning Approval (Planning & Development Act) - Strategic Infrastructure Development				
a) Section 182D Approval - An Bord Pleanála Ref. PL 16.GA0004	ABP	19 January 2011	Yes	Yes
b) Amendment of Decision (PL16.GA0004) An Bord Pleanála Ref. PL 16.GM0001	ABP	26 July 2012	-	-
c) Alteration of Decision An Bord Pleanála Ref. PL 16.GM0002	ABP	2 November 2012	-	-
d) Alteration of Decision An Bord Pleanála Ref. PL 16.GM0003	ABP	12 December 2012	-	-

APPENDIX 4: MONITORING REPORTS

	TITLE
4.1	Marine Mammal Monitoring in Broadhaven Bay 2010 Annual report – CMRC
4.2	Marine Mammal Monitoring in Broadhaven Bay 2011 Annual Report - CMRC
4.3	Marine Mammal Monitoring in Broadhaven Bay 2012 Annual Report - CMRC
4.4	Marine Mammal Monitoring in Broadhaven Bay 2013 Annual Report - CMRC
4.5	Winter Bird Abundance and Distribution in the Sruwaddacon Bay Area, Co Mayo Winter 2010/2011, FTC 2011
4.6	Winter Bird Report Sruwaddacon Bay Area 2011/2012, EIWCL April 2013
4.7	Winter Bird Report Sruwaddacon Bay Area 2012/2013, EIWCL January 2014
4.8	Winter Bird Monitoring Report Sruwaddacon Bay Area 2013/2014, EIWCL February 2015
4.9	Corrib Onshore non-avian fauna monitoring 2012 to 2013 (GRs REDACTED), (C. Smal, Ecol Sol) June 2014