

Appropriate Assessment Screening Report

Proposed Emigrant Park at Kiltimagh, Co Mayo



For Kiltimagh Amenity Park Committee

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Giorria Environmental Services
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1.0 Introduction

Giorria Environmental Services were commissioned by Gary Smyth on behalf of Kiltimagh Amenity Park Committee to undertake a Screening for Appropriate Assessment under Article 6 of the EU Habitats Directive on the proposed new Emigrant Park in Kiltimagh, Co Mayo.

The aim of this report is to identify any significant impacts of the proposed development on any adjacent Natura 2000 sites. The report has been prepared in accordance with the current guidance (NPWS 2009, revised February 2010). The report was compiled and written by Dr. Karina Dingerkus, ecologist (see Appendix 5 for qualifications).

1.1 Overview of proposed new Emigrant Park, Kiltimagh, Co. Mayo.

It is proposed to develop a new Emigrant Park in Kiltimagh. The site which is currently open field will be developed to include pond, walks, outdoor classroom, outdoor community space, MUGA area and community garden.



Photograph 1: Site location showing location of proposed new Emigrant Park in Kiltimagh, Co Mayo

1.2 The Appropriate Assessment Process

Natura 2000 is a European network of important ecological sites. The EU Habitats Directive (92/43/EEC) placed an obligation on Member States of the EU to establish the Natura 2000 network. The network is made up of Special Protection Areas (SPAs), established under the EU Birds Directive (2009/147/EC), and SACs, established under the Habitats Directive itself. Ireland's contribution to Natura 2000 is being created under the European Communities (Natural Habitats) Regulations, 1997 (S.I. 94 of 1997 as amended by S.I. 233 of 1998 and S.I. 378 of 2005). These regulations transpose the EU directives into Irish national Law.

There is a requirement, under Article 6(3) of the EU Habitats Directive (Directive 92/43/EEC), to carry out an Appropriate Assessment when a plan or project is proposed that may have conservation implications for the Natura 2000 site. The first step of the Appropriate Assessment process is to establish whether, in relation to a particular plan or project, Appropriate Assessment is required. 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. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.'

A number of guidance documents on the appropriate assessment process have been referred to during the preparation of this NIS. These are:

- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (NPWS 2009, Revised February 2010)
- Circular NPW 1/10 & PSSP 2/10 (March 2010)
- EU Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC (2007)
- 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)
- Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (2000).

Should a decision be reached to the effect that it cannot be said with sufficient certainty that the development will not have any significant effect on the Natura 2000 sites, then, as is stated above, it is necessary and appropriate to carry out an appropriate assessment of the implications of the development for the sites in view of their conservation objectives.

The guidance for Appropriate Assessment (NPWS, 2009, revised February 2010) states:

"AA is an impact assessment process that fits within the decision-making framework and tests of Articles 6(3) and 6(4) and, for the purposes of this guidance, it comprises two main elements. Firstly, a Natura Impact Statement – i.e. a statement of the likely and possible impacts

of the plan or project on a Natura 2000 site (abbreviated in the following guidance to “NIS”) must be prepared. This comprises a comprehensive ecological impact assessment of a plan or project; it examines the direct and indirect impacts that the plan or project might have on its own or in combination with other plans and projects, on one or more Natura 2000 sites in view of the sites’ conservation objectives. Secondly, the competent authority carries out the AA, based on the NIS and any other information it may consider necessary. The AA process encompasses all of the processes covered by Article 6(3) of the Habitats Directive, i.e. the screening process, the NIS, the AA by the competent authority, and the record of decisions made by the competent authority at each stage of the process, up to the point at which Article 6(4) may come into play following a determination that a plan or project may adversely affect the integrity of a Natura 2000 site.”

1.3 Appropriate Assessment Stages

The European Commission’s Guidance promotes a four-stage process to complete the Appropriate Assessment.

Stage 1 – Screening Process

Stage 2 – Appropriate Assessment

Stage 3 – Assessment of alternative Solutions

Stage 4 – Assessment where no alternative solutions exist and where adverse impacts remain.

Stage 1 and 2 deal with the main requirements of assessment under Article 6.3. Stage 3 may be part of Article 6.3 or a necessary precursor to Stage 4.

Screening determines whether appropriate assessment is necessary by examining:

1. Whether a plan or project can be excluded from AA requirements because it is directly connected with or necessary to the management of the site, and
2. The potential effects of a project or plan, either alone or in combination with other projects or plans, on a Natura 2000 site in view of its conservation objectives and considering whether these effects will be significant.

Screening involves the following:

1. Description of plan or project, and local site or plan area characteristics.
2. Identification of relevant Natura 2000 sites, and compilation of information qualifying interests and conservation objectives.
3. Assessment of likely effects – direct, indirect on the basis of available information as a desk study and/or field survey and/or primary research as necessary.
4. Screening statement and conclusion.

The report also provides the information required for the Competent Authority to complete the Appropriate Assessment (Stage 2) should this be necessary and appropriate in the opinion of the Competent Authority.

2.0 Methods

2.1 Zone of influence

The Zone of Influence of a project may be defined as area(s) over which ecological features may be affected by the biophysical changes caused by the proposed project and associated activities (CIEEM 2016). The zone of influence can extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries.

The NPWS (2010) recommends that: *“the distance should be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects.”*. Generally, all European sites within 15km of the proposed project are examined. In some circumstances it may be necessary to go beyond this distance (e.g. hydrologically connect site).

2.2 Desk-top study

A desk study was carried out to gather information available on Natura 2000 sites in the vicinity of the proposed project. The Environmental Protection Agency Appropriate Assessment GeoTool application was used to gather data about SACs and SPAs from the National Parks and Wildlife Service (NPWS). The Environmental Sensitivity Mapping tool (ESM tool) was also consulted (<https://airomaps.geohive.ie/ESM/>). The NPWS and National Biodiversity Data Centre online databases were consulted concerning designated conservation areas in the vicinity of the proposed development and protected species. The Mayo County Council website online <http://www.mayococo.ie/PlanSearch/mcc4/PlanningViewer/SelectPlan.asp> was consulted for information on other plans or projects in the area, which may result in a cumulative impact when considered with the proposed development. Other databases consulted include:

- Information on other plans or projects in the area from www.myplan.ie
- Information on soils, geology and hydrogeology in the area www.gsi.ie
- National Biodiversity Action Plan 2017–2021 (Department of Culture, Heritage and the Gaeltacht, 2017)
- Mayo County Development Plan 2014-2020
- National Biodiversity database maps <https://maps.biodiversityireland.ie/>
- Environmental Protection Agency - <https://gis.epa.ie/EPAMaps/>

2.3 Field Survey

A field visit took place on the 12th and 23rd June 2020. The site is composed of three fields comprising of improved grassland and acid grassland / bog. Site is accessed at the rear of West-A-Wake eggs, off a small alley way that links James Street and Thomas Street. Field boundaries consist of hedgerows, walls, timber fences, post and wire fencing and field drains. The site is bordered on the north, south and west by housing. To the east the site is bordered by Kiltimagh Sculpture Park. Surrounding habitats include one improved grassland field, rear gardens of houses and yards of commercial buildings.

The underlying geology is of Marine shelf facies; Limestone & calcareous shale. The area is classed as having poorly drained soil. The soil type is generally classed as Clashmore (1100CM), which is further described as coarse loamy drift with siliceous stones. Under the National Soil Survey, the soils are described as AminPD – Surface water Gleys / Ground water Gleys Acidic. See also Appendix 1.

For a detailed site description see Ecology Survey 2020.

3.0 Screening for Appropriate Assessment

The aim of this section of the report is to identify any significant impacts of the proposed development on any adjacent Natura 2000 sites. The report covers Stage 1 screening for appropriate assessment and has been prepared in accordance with the current guidance (NPWS 2009, revised February 2010).

3.1 Description of development

It is proposed to develop an amenity park in a current green field site in Kiltimagh, Co. Mayo.

It is proposed to create a large pond in the wetter section of the site. The pond will include areas of natural regeneration to the north and east and will also have a boardwalk and viewing platform to the south and west. It is proposed to have an island in the centre of the pond. To the south and south west of the pond there will be a MUGA (multi-use games area) and a meadow / woodland area which will be used as a natural play area and outdoor classroom. From here a path will wind its way toward a slightly raised area will have an enclosed community space (inspired by ring forts). The path will be interspersed with areas of native trees. At the top western corner of the park, close to one of the entrances there will be a community garden. Two other entrances are proposed, one from Thomas Street and one from James Street.

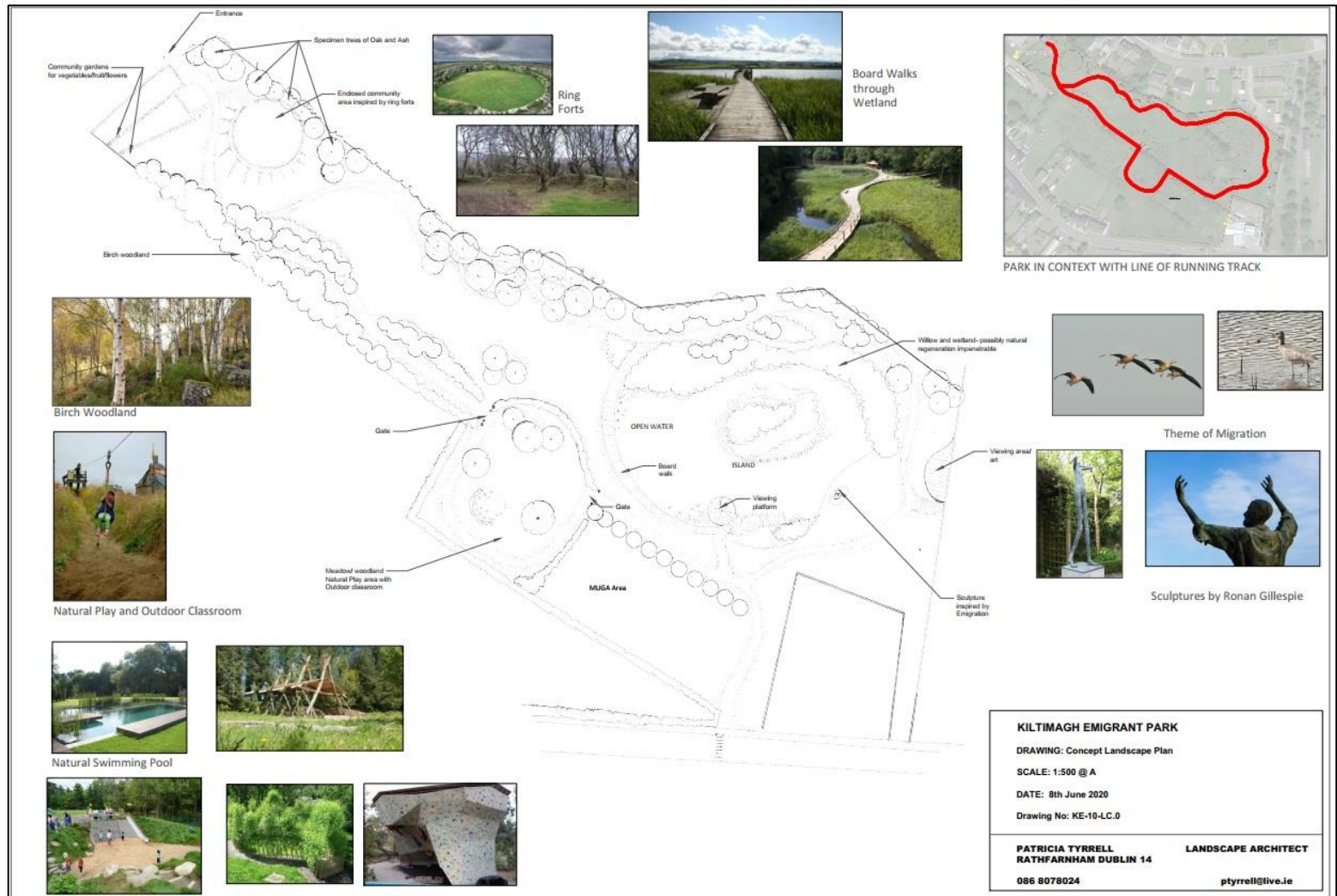
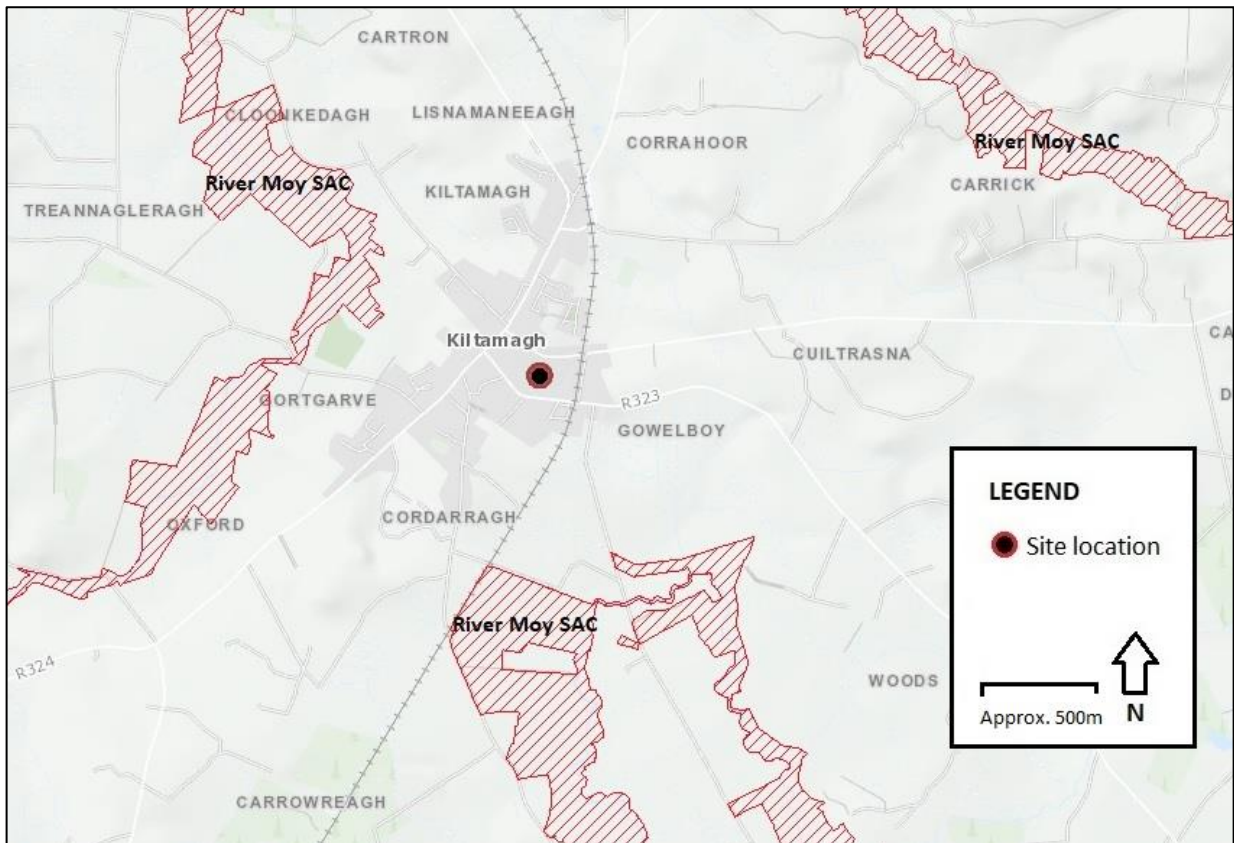


Diagram 1: Site layout of Kiltimagh Emigrant Park



Map 2: Showing location of River Moy SAC in relation to site
 (Map source: <http://dahg.maps.arcgis.com>)

Table 1: Natura 2000 sites lying in a 15km radius of the proposed development site and connectivity to Natura sites

Site Code	Site name and brief site description Site Name	Distance To (m)	Connectivity / Comment
002298	<p>River Moy SAC This site comprises almost the entire freshwater element of the River Moy and its tributaries, including both Lough Conn and Lough Cullin. The catchment area of 805 km². The river and its tributaries rise in a number of locations some of which are upland areas dominated by blanket bog and heath. Throughout most of its course the river flows through low-lying countryside consisting mainly of agricultural grassland. In addition to river and lake habitats, the site contains adjoining habitats of ecological interest such as raised bogs, heath, wet grassland and deciduous woodland.</p>	711.94	Lies south and north of the site. Possible hydrological link through drains to watercourse south east of site, across road and railway line and from there to Yellow River which is part of the River Moy SAC
000463	<p>Balla Turlough SAC This turlough lies in a north-south hollow just east of the village of Balla, Co. Mayo. Along each side of its basin there are smooth, low ridges of glacial deposition, while to the east the land rises more steeply. The floor of the basin is probably flat but there is a considerable accumulation of peat in the basin, which forms a raised platform. Most of the turlough is open to cattle but grazing is light. Peat-cutting took place in the past but ceased a long time ago. The turlough still floods regularly and retains its habitat quality. The turlough and surrounding grasslands attract significant numbers of waders in winter.</p>	9004.55	No hydrological connection to the site. Site lies over 9km from project area. No impact envisaged.
001571	<p>Urlaur Lakes SAC Urlaur Lakes SAC comprises three small hard water lakes (an Annex I habitat) - Lough Nanoge, Lough Roe and Urlaur Lough. They lie in the upper catchment of the Lung River, a major tributary of the Boyle River. All three lakes lie on marl. The aquatic flora is dominated by stoneworts (<i>Chara</i> spp.), but other aquatic species also occur, including Canadian Waterweed (<i>Elodea canadensis</i>) and Yellow and White Water-lilies (<i>Nuphar lutea</i> and <i>Nymphaea alba</i>). Swamps and reedbeds fringe the open water in places. Much of the shorelines consist of shallow mineral soils with flush vegetation dominated by Black Bog-rush (<i>Schoenus nigricans</i>). Locally important numbers of Teal, Mallard, Pochard, Whooper Swan, Wigeon, Tufted Duck and Curlew occur.</p>	13829.64	No hydrological connection to the site. Site lies over 13km from project area. No impact envisaged.

002081	<p>Ballinafad SAC This site is located approximately 10 km south-west of Castlebar in Co. Mayo. It is a breeding site for the Lesser Horseshoe Bat and consists of a large building which was formerly used as an agricultural college. The bats use the roof space which they access through roof hatches. In September 1998, 40 bats were counted at this site. The small population size recorded here is probably attributable to the fact that this is the most northerly site known for the species in Ireland, and hence Europe, rather than to any deficiency in the roosting site.</p>	14308.63	No hydrological connection to the site. Site lies over 14km from project area. No impact envisaged.
004228	<p>Lough Conn and Lough Cullin SPA Lough Conn and Lough Cullin is a designated Special Protection Area (SPA) under the EU Birds Directive, and it is of conservation interest for the following species: Greenland White-fronted Goose, Tufted Duck, Common Scoter and Common Gull (see Table 4). The loughs are also important for wintering waterfowl.</p>	15714.13	River Moy SAC and Lough Conn and Lough Cullin SPA are hydrologically connected, but SPA lies over 15km from the site. Due to the distance from site and the assimilation capacity of the intervening water ways no impact is envisaged.

In addition to the above sites, Killala Bay/Moy Estuary SAC (site code: 000458) and Killala Bay/Moy Estuary SPA (site code: 004036) are also hydrologically linked to the site. The two Natura sites lie over 59km away. Based on the scale of the project, the downstream hydrological distance of over 59km and the assimilative capacity of the intervening watercourses, potential for direct or indirect impact on the Natura sites are not envisaged.

Table 2: Natural Heritage Area and proposed Natura Heritage Areas lying in a 15km radius of the proposed development site

Site Name	Site Code	Approximate terrestrial distance (km)	Connectivity / comment
Carrowmore Lough Shore pNHA	001492	10.67	No direct or indirect connectivity
Killaturly Turlough pNHA	000511	11.15	No direct or indirect connectivity
Mannin and Island Lakes pNHA	001910	11.6	Hydrologically connected with Moy SAC, but on different tributary no impact
Moy Valley pNHA	002078	14.25	Hydrologically connected with Moy SAC but over 20km downstream distance, no potential for significant impact
Urlaur Lakes pNHA	001571	15.1	No direct or indirect connectivity
Lough Gower pNHA	000523	15.1	No direct or indirect connectivity

Table 3: Qualifying interests and documented threat to the Natura 2000 sites lying in a 15km radius of the proposed development site

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives	Documented Threats / Pressures Information primarily based on NPWS Site Synopses, NATURA 2000 – standard data forms and other sources
002298	River Moy SAC	<p>Habitats</p> <p>7110 Active raised bogs*</p> <p>7120 Degraded raised bogs still capable of natural regeneration</p> <p>7150 Depressions on peat substrates of the Rhynchosporion</p> <p>7230 Alkaline fens</p> <p>91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles</p> <p>91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)*</p> <p>Species</p> <p>1096 Brook Lamprey (<i>Lampetra planeri</i>)</p> <p>1106 Salmon (<i>Salmo salar</i>)</p> <p>1355 Otter (<i>Lutra lutra</i>)</p> <p>1092 White-clawed Crayfish (<i>Austropotamobius pallipes</i>)</p> <p>1095 Sea Lamprey (<i>Petromyzon marinus</i>)</p>	<p>http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002298.pdf</p>	<ul style="list-style-type: none"> • Forest planting on open ground • Aerodrome, heliport • Invasive non-native species • Diffuse pollution to surface waters due to agricultural and forestry activities • Peat extraction • Agricultural intensification • Use of fertilizers (forestry)
000463	Balla Turlough SAC	<p>Habitats</p> <p>3180 Turloughs*</p>	<p>http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000463.pdf</p>	<ul style="list-style-type: none"> • Hunting • In-appropriate grazing regime • Nutrient enrichment • Fertilisation • Drainage • Agricultural reclamation

001571	Urlaur Lakes SAC	<p>Habitats 3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.</p>	<p>http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001571.pdf</p>	<ul style="list-style-type: none"> • Roads • Peat extraction • Human induced changes to hydraulic conditions • Dispersed habitation • Grazing • Leisure fishing • Rubbish/waste • Fertilisation
000463	Ballinafad SAC	<p>Habitats 3180 Turloughs*</p>	<p>http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000463.pdf</p>	<ul style="list-style-type: none"> • Erosion • Disturbance0
004228	Lough Conn and Lough Cullin SPA	<p>Birds A395 Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) A061 Tufted Duck (<i>Aythya fuligula</i>) A065 Common Scoter (<i>Melanitta nigra</i>) A182 Common Gull (<i>Larus canus</i>)</p> <p>Habitats Wetlands</p>	<p>http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004228.pdf</p>	<ul style="list-style-type: none"> • Forestry • Fertilisation • Leisure fishing • Invasive non-native species

3.3 Assessment of Likely Effects

The proposed development of an amenity is not directly connected with or necessary to the management of any Natura 2000 site. In light of this the site must be subject to AA for its implications for the Natura 2000 sites in view of the site's conservation objectives "*if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects*" (EC, 2006). The assessment is based on a preliminary impact assessment using available information and data (e.g. NPWS data, water quality data etc.), supplemented with local site information and ecological surveys.

In order, to assess the likely impacts and ascertain whether a significant impact on the integrity of the Natura site is likely to occur as a result of the proposed development it is necessary to consider what constitutes the integrity of a Site as referred to in Article 6(3). The document Managing Natura 2000 Site, the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (2000) gives clear guidance 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.*"

3.3.1 Direct, indirect or secondary impacts

The screening analysis below considers each qualifying interest of the River Moy SAC as this lies just over 700m from the site. The table lists the potential pathway and potential threat source and whether it is likely to have a significant effect on the qualifying habitats or species.

Table 4: River Moy SAC – Screening analysis (using source-pathway-receptor model) to identify SAC qualifying habitats and any “Likely Significant Effects” of impacts on Natura 2000 site.

Qualifying Interests and code (Potential receptors)	Conservation objectives	Potential source of threat	Pathway / Comment	Likelihood of significance
<p>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)</p> <p>91E0</p>	<p>To maintain the favourable conservation condition of Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae) in River Moy SAC, which is defined by the following list of attributes and targets:</p> <p>Attribute: Habitat area Target: Area stable or increasing, subject to natural processes</p> <p>Attribute: Habitat distribution Target: No decline</p> <p>Attribute: Woodland size Target: Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size</p> <p>Attribute: Woodland structure: cover and height Target: Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semi-mature trees and shrubs; and well-developed herb</p>	<p>Sediment or pollution run-off</p>	<p>A potential pathway for impact in the form of deterioration of water quality</p>	<p>Habitat occurs along shores of Lough Conn. None of this habitat occurs close to site.</p> <p>Release of sediment can impact this habitat. However, based on the hydrology of site, the chance of silt or pollution run-off to nearby drains is very unlikely, and not likely to be significant. In addition, based on the scale and type of the project, the downstream hydrological distance of over 30km and the assimilative capacity of the intervening watercourses, potential for direct or indirect impact on this QI can be ruled out.</p> <p>No potential for impact</p>

	<p>layer</p> <p>Attribute: Woodland structure: community diversity and extent Target: Maintain diversity and extent of community types</p> <p>Attribute: Woodland structure: natural regeneration Target: Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy</p> <p>Attribute: Hydrological regime: Flooding depth/height of water table Target: Appropriate hydrological regime necessary for maintenance of alluvial vegetation</p> <p>Attribute: Woodland structure: dead wood Target: At least 30m³/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter (greater than 20cm diameter in the case of alder)</p> <p>Attribute: Woodland structure: veteran trees Target: No decline</p>			
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	<p>Attribute: Woodland structure: indicators of local distinctiveness Target: No decline</p> <p>Attribute: Vegetation composition: native tree cover Target: No decline. Native tree cover not less than 95%</p> <p>Attribute: Vegetation composition: typical species Target: A variety of typical native species present, depending on woodland type including alder (<i>Alnus glutinosa</i>), willows (<i>Salix</i> spp.), oak (<i>Quercus robur</i>) and ash (<i>Fraxinus excelsior</i>)</p> <p>Attribute: Vegetation composition: negative indicator species Target: Negative indicator species, particularly non-native invasive species, absent or under control</p>			
Active raised bog 7110	<p>To restore the favourable conservation condition of Active raised bogs in River Moy SAC, which is defined by the following list of attributes and targets:</p> <p>Attribute: Habitat area Target: Restore area of active raised bog to 132.4ha, subject to natural processes</p> <p>Attribute: Habitat distribution</p>	Physical destruction of bog habitats	Land/Air pathway	The raised bog habitat for which the SAC has been selected occurs at five locations, namely Cloongoonagh Bog and a bog cluster that comprises Derrynabrock Bog, Tawnaghbeg Bog, Kilgarriff Bog and Gowlaun Bog. As these bogs lie over 15km from the site of the project there will be no impact on habitat.

	<p>Target: Restore the distribution and variability of active raised bog across the SAC.</p> <p>Attribute: High Bog Area Target: No decline in extent of high bog necessary to support the development and maintenance of active raised bog</p> <p>Attribute: Hydrological regime: water levels Target: Restore appropriate water levels throughout the site</p> <p>Attribute: Hydrological regime: flow patterns Target: Restore, where possible, appropriate high bog topography, flow directions and slopes</p> <p>Attribute: Transitional areas between high bog and adjacent mineral soils (including cutover areas) Target: Restore adequate transitional areas to support/protect active raised bog and the services it provides</p> <p>Attribute: Vegetation quality: central ecotope, active flush, soaks, bog woodland Target: Restore 66.2ha of central ecotope/active flush/soaks/bog woodland as appropriate</p>			<p>No potential for significant impact</p>
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	<p>Attribute: Vegetation quality: microtopographical features Target: Restore adequate cover of bog moss (<i>Sphagnum</i>) species to ensure peat-forming capacity</p> <p>Attribute: Typical ARB species: flora Target: Restore, where appropriate, typical active raised bog flora</p> <p>Attribute: Typical ARB species: fauna Target: Restore, where appropriate, typical active raised bog fauna</p> <p>Attribute: Elements of local distinctiveness Target: Maintain features of local distinctiveness, subject to natural processes</p> <p>Attribute: Negative physical indicators Target: Negative physical features absent or insignificant</p> <p>Attribute: Vegetation composition: native negative indicator species Target: Native negative indicator species at insignificant levels</p> <p>Attribute: Vegetation composition: non-native invasive species</p>			
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	<p>Target: Non-native invasive species at insignificant levels and not more than 1% cover</p> <p>Attribute: Air quality: nitrogen deposition Target: Air quality surrounding bog close to natural reference conditions. The total N deposition should not exceed 5kg N/ha/yr</p> <p>Attribute: Water quality Target: Water quality on the high bog and in transitional areas close to natural reference conditions</p>			
<p>Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in British Isles</p> <p>91A0</p>	<p>To maintain the favourable conservation condition of Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles in River Moy SAC, which is defined by the following list of attributes and targets:</p> <p>Attribute: Habitat area Target: Area stable or increasing, subject to natural processes</p> <p>Attribute: Habitat distribution Target: No decline</p> <p>Attribute: Woodland size Target: Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semi-mature trees and shrubs; and well-developed herb</p>		Land/Air pathway	<p>Found around shores of Lough Conn and Cullin but none close to the project site. As this habitat lies over 16km from the project site there will be no impact on habitat.</p> <p>No potential for significant impact.</p>

	<p>layer</p> <p>Attribute: Woodland structure: cover and height Target: Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semi-mature trees and shrubs; and well-developed herb layer</p> <p>Attribute: Woodland structure: community diversity and extent Target: Maintain diversity and extent of community types</p> <p>Attribute: Woodland structure: natural regeneration Target: Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy</p> <p>Attribute: Woodland structure: dead wood Target: At least 30m³/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter</p> <p>Attribute: Woodland structure: veteran trees Target: No decline</p> <p>Attribute: Woodland structure: indicators</p>			
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	<p>of local distinctiveness Target: No decline</p> <p>Attribute: Vegetation composition: native tree cover Target: No decline. Native tree cover not less than 95%</p> <p>Attribute: Vegetation composition: typical species Target: variety of typical native species present, depending on woodland type, including oak (<i>Quercus petraea</i>) and birch (<i>Betula pubescens</i>)</p> <p>Attribute: Vegetation composition: negative indicator species Target: Negative indicator species, particularly non-native invasive species, absent or under control</p>			
<p>Degraded raised bogs still capable of natural regeneration</p> <p>7120</p>	<p>The long-term aim for Degraded raised bogs still capable of natural regeneration is that its peat-forming capability is re-established; therefore, the conservation objective for this habitat is inherently linked to that of Active raised bogs (7110) and a separate conservation objective has not been set in River Moy SAC</p>		Land/Air pathway	<p>Degraded bog habitat of the SAC is generally associated with raised bog above. As habitat lies over 15km from the project site, there will be no impact on habitat.</p> <p>No potential for impact</p>
<p>Depressions on peat substrates of the</p>	<p>Depressions on peat substrates of the <i>Rhynchosporion</i> is an integral part of</p>		Land/Air pathway	<p>Depressions on peat substrates of the <i>Rhynchosporion</i> of the SAC is</p>

<p><i>Rhynchosporion</i></p> <p>7150</p>	<p>good quality Active raised bogs (7110) and thus a separate conservation objective has not been set for the habitat in River Moy SAC</p>			<p>generally associated with raised bog above. As habitat lies over 15km from the site of the project site there will be no impact on habitat.</p> <p>No potential for significant impact</p>
<p>Alkaline Fens</p> <p>7230</p>	<p>To maintain the favourable conservation condition of Alkaline fens in River Moy SAC, which is defined by the following list of attributes and targets:</p> <p>Attribute: Habitat area Target: Area stable or increasing, subject to natural processes</p> <p>Attribute: Habitat distribution Target: No decline, subject to natural processes</p> <p>Attribute: Hydrological regime Target: Appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat</p> <p>Attribute: Peat formation Target: Active peat formation, where appropriate</p> <p>Attribute: Water quality: nutrients Target: Appropriate water quality to</p>	<p>Sediment or pollution run-off</p>	<p>Land/Air pathway</p>	<p>The full extent of this habitat within the SAC is unknown. An extensive area is known to occur as part of a wetland complex on the Glore River, northwest of Ballyhaunis. While the River Glore is only just over 3km from the project site the river lies in separate sub-catchment, that of the Yellow River, so there is no direct link.</p> <p>In addition, based on the hydrology of site, the chance of silt or pollution run-off to nearby drains is very unlikely. In addition, based on the scale and type of the project, potential for direct or indirect impact on this QI can be ruled out.</p> <p>No potential for significant impact</p>

	<p>support the natural structure and functioning of the habitat</p> <p>Attribute: Vegetation structure: typical species Target: Maintain vegetation cover of typical species including brown mosses and vascular plants.</p> <p>Attribute: Vegetation composition: trees and shrubs Target: Cover of scattered native trees and shrubs less than 10%</p> <p>Attribute: Physical structure: disturbed bare ground Target: Cover of disturbed bare ground less than 10%. Where tufa is present, disturbed bare ground less than 1%</p> <p>Attribute: Physical structure: drainage Target: Areas showing signs of drainage as a result of drainage ditches or heavy trampling less than 10%</p>			
<p>White-clawed crayfish (<i>Austropotamobius pallipes</i>) 1092</p>	<p>To maintain the favourable conservation condition of White-clawed Crayfish in River Moy SAC, which is defined by the following list of attributes and targets:</p> <p>Attribute: Distribution Target: No reduction from baseline.</p>	<p>Sediment or pollution run-off</p> <p>Physical impacts on riverbeds</p>	<p>Surface water pathway.</p>	<p>Population of crayfish are present throughout the River Moy SAC especially in the upper tributaries and the rivers which feed Loughs Conn and Cullin.</p> <p>Release of sediment can impact this species. However, based on the</p>

	<p>Attribute: Population structure: recruitment Target: Juveniles and/or females with eggs in all occupied tributaries</p> <p>Attribute: Negative indicator species Target: No alien crayfish species</p> <p>Attribute: Disease Target: No instances of disease</p> <p>Attribute: Water Quality Target: At least Q3-4 at all sites sampled by EPA</p> <p>Attribute: Habitat quality: heterogeneity Target: No decline in heterogeneity or habitat quality</p>			<p>hydrology of site, the chance of silt or pollution run-off to nearby drains is very unlikely.</p> <p>There will be no impact on river habitats as works will only occur within project site boundary.</p> <p>No potential for significant impact</p>
<p>Sea lamprey (<i>Petromyzon marinus</i>) 1095</p>	<p>To maintain the favourable conservation condition of Sea Lamprey in River Moy SAC, which is defined by the following list of attributes and targets:</p> <p>Attribute: Distribution: extent of anadromy Target: Greater than 75% of main stem length of rivers accessible from estuary</p> <p>Attribute: Population structure of juveniles Target: At least three age/size groups present</p>	<p>Sediment or pollution run-off</p> <p>The physical destruction of juvenile lamprey habitat is also a major factor in the decline of lamprey.</p> <p>Ammocoetes are relatively immobile in the substrate and tend to concentrate</p>	<p>Surface water pathway.</p>	<p>It is likely that sea lamprey are under-recorded in the Moy SAC. Sea lamprey spend much of their lives at sea only returning to rivers to spawn. The juvenile lamprey (ammocoetes) of both sea and brook lamprey live in river sediments.</p> <p>Based on the hydrology of site, the chance of silt or pollution run-off to nearby drains is very unlikely. There will be no impact on river habitats as works will only occur within</p>

	<p>Attribute: Juvenile density in fine sediment Target: Mean catchment juvenile density at least 1/m²</p> <p>Attribute: Extent and distribution of spawning habitat Target: No decline in extent and distribution of spawning beds</p> <p>Attribute: Availability of juvenile habitat Target: More than 50% of sample sites positive</p>	<p>in areas that include many age classes making them very susceptible to pollution.</p>		<p>project site boundary.</p> <p>No potential for significant impact.</p>
<p>Brook lamprey (<i>Lampetra planeri</i>)</p> <p>1096</p>	<p>To maintain the favourable conservation condition of Brook Lamprey in River Moy SAC, which is defined by the following list of attributes and targets:</p> <p>Attribute: Distribution Target: Access to all watercourses down to first order streams</p> <p>Attribute: Population structure of juveniles Target: At least three age/size groups of brook/river lamprey present</p> <p>Attribute: Juvenile density in fine sediment Target: Mean catchment juvenile density of brook/river lamprey at least 2/m²</p>	<p>Sediment or pollution run-off</p> <p>The physical destruction of juvenile lamprey habitat is also a major factor in the decline of lamprey.</p> <p>Ammocoetes are relatively immobile in the substrate and tend to concentrate in areas that include many age classes making them very susceptible to</p>	<p>Surface water pathway.</p>	<p>Brook lamprey are an entirely freshwater species, but sea lamprey spend much of their lives at sea only returning to rivers to spawn. The juvenile lamprey (ammocoetes) of both species live in river sediments.</p> <p>Based on the hydrology of site, the chance of silt or pollution run-off to nearby drains is very unlikely. There will be no impact on river habitats as works will only occur within project site boundary.</p> <p>No potential for significant impact.</p>

	<p>Attribute: Extent and distribution of spawning habitat Target: No decline in extent and distribution of spawning beds</p> <p>Attribute: Availability of juvenile habitat Target: More than 50% of sample sites positive</p>	pollution.		
Salmon (<i>Salmo salar</i>) 1106	<p>To maintain the favourable conservation condition of Salmon in River Moy SAC, which is defined by the following list of attributes and targets:</p> <p>Attribute: Distribution: extent of anadromy Target: 100% of river channels down to second order accessible from estuary</p> <p>Attribute: Adult spawning fish Target: Conservation limit (CL) for each system consistently exceeded</p> <p>Attribute: Salmon fry abundance Target: Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 minutes sampling</p> <p>Attribute: Out-migrating smolt abundance Target: No significant decline</p>	Sediment or pollution run-off	Surface water pathway.	<p>Salmon are widespread through the Moy River Catchment.</p> <p>Based on the hydrology of site, the chance of silt or pollution run-off to nearby drains is very unlikely. There will be no impact on river habitats as works will only occur within project site boundary.</p> <p>No potential for significant impact.</p>

	<p>Attribute: Number and distribution of redds Target: No decline in number and distribution of spawning redds due to anthropogenic causes</p> <p>Attribute: Water quality Target: At least Q4 at all sites sampled by EPA</p>			
<p>Otter (<i>Lutra lutra</i>) 1355</p>	<p>To maintain the favourable conservation condition of Otter in River Moy SAC, which is defined by the following list of attributes and targets:</p> <p>Attribute: distribution Target: No significant decline</p> <p>Attribute: Extent of terrestrial habitat Target: No significant decline. Area mapped and calculated as 1068.8ha</p> <p>Attribute: Extent of freshwater (river) habitat Target: No significant decline. Length mapped and calculated as 479.4km.</p> <p>Attribute: Extent of freshwater (lake) habitat Target: No significant decline. Area mapped and calculated as 1248.2ha.</p> <p>Attribute: Couching sites and holts</p>	<p>Disturbance</p> <p>Holt destruction</p> <p>Sediment or pollution run-off</p>	<p>Land/Air Pathway</p> <p>Surface water pathway.</p>	<p>Records of otter within 2.8km of site. Otters are highly mobile species but tend to be found close to rivers or the coast.</p> <p>The project site provides little cover for otters. There it is not suitable for otter breeding or resting sites.</p> <p>Pollution or sedimentation can have an indirect impact if water quality impacts availability of prey species.</p> <p>Based on the hydrology of site, the chance of silt or pollution run-off to nearby drains is very unlikely. There will be no impact on river habitats as works will only occur within project site boundary.</p> <p>No potential for significant impact.</p>

	<p>Target: No significant decline.</p> <p>Attribute: Fish biomass available Target: No significant decline.</p> <p>Attribute: Barriers to connectivity Target: No significant increase.</p>			
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Table 5: Other Annex II species occurring within Moy SAC

Qualifying Interests and code (Potential receptors)	Pathway / Comment	Source of potential Threats	Likelihood of significance
Whooper Swan <i>Cygnus Cygnus</i> A038	Surface water pathway. Land/Air Pathway	Water pollution, disturbance	Regionally important population supported on Lough Conn. Winter records within 10km ² (M38) (Bird Atlas of Ireland 2007-2011). As no suitable habitat for species within project site there is no potential for impact.
Golden plover <i>Pluvialis apricaria</i> A140	Surface water pathway. Land/Air Pathway	Water pollution, disturbance	Regionally important population supported on Lough Conn. Winter records within 10km ² (M38) (Bird Atlas of Ireland 2007-2011). As no suitable habitat for species within project site there is no potential for impact.
Greenland White-fronted goose <i>Anser albifrons flavirostris</i> A395	Surface water pathway. Land/Air Pathway	Water pollution, disturbance	Nationally important population supported on Lough Conn. No records within 10km ² or adjacent squares. (Bird Atlas of Ireland 2007-2011). As no suitable habitat for species within project site there is no potential for impact.

There are five Natura 2000 sites within a 15km radius of the proposed project, four SACs and one SPA. The proposed project is not situated within any of the SACs or the SPA, therefore no direct impacts will occur through habitat loss or fragmentation of habitats or species. Disturbance will be minimal and only caused during the construction phase of the project. The work is far enough away from the SACs and SPAs not to have an adverse impact on species of qualifying interest.

There is one small drain on the northern boundary of the site, another on the eastern boundary and the third on the south west boundary. The nearest relevant water course lies some 214 m to the south east of the site. This lies across the road and railway line from the project site. This relevant water is linked to the Yellow River. The Yellow River is a tributary of the River Moy and part of the River Moy SAC. The Yellow River is classified as “Not at risk” and the WFD status for the river is classed as “good”. The relevant watercourse is separated from the site by the old railway line, so there is little likelihood that any runoff would reach the river from the site.

The project will involve the clearing of soil during the construction phase for parts of the project such as the MUGA and wetland area. There is potential for the release of sediment during these operations, but it is highly unlikely to reach the river due to the distance from the site and the separation of the site from the relevant watercourse by the railway.

Species impacts are not envisaged as habitat within the project site is not suitable for species of qualifying interest. While numerous qualifying species are recorded for the SACs and SPA there are no existing records of them occurring within the site boundary, though there are records of some of the species occurring close to the site (see Appendix 3). The nearest otter records are within 2.8km of the site. Disturbance will be short term and is therefore unlikely to be significant for this species.

3.3.2 Cumulative Impacts – other projects

Under Appropriate Assessment it is necessary to investigate if there are any other projects or plans that together with the project outlined here could affect the Natura 2000 Sites. Table 3 below lists other proposed plans accesses through the Mayo County Council planning database.

Table 4: Planning application near proposed development site
(Planning search 4th March 2021)

Mayo County Council Planning Application Number	Address	Description	Comments
20290	Cultrasna, Kiltimagh, Co. Mayo	Retention permission for dwelling house and domestic garage as constructed along with all ancillary site works	Due to scsle and nature of the plan it is unlikely to impact Natura sites
2096	James Street, Kiltimagh	Change of use of existing storage shed to granny flat along with all ancillary site works	Planning Authority considers that due to location that the proposed development, by itself or in combination with other development in the vicinity, would not be likely to have a significant effect on natura site(s)
2067	Aiden Street, Kiltimagh, Co. Mayo	Alterations and refurbishment to existing house/shop to involve the change of use of the shop portion of the building to domestic house, change of shop front, demolition of storage shed to the rear along with all ancillary site works	No AA required as change of use
20446	Lisnamaneeagh, Kiltimagh	Replacing existing septic tank and soak pit with a new sewage treatment system and percolation area along with ancillary site works	Planning Authority considers that due to nature of development that the proposed development, by itself or in combination with other development in the vicinity, would not be likely to have a significant effect on European site(s) and would be an improvement for groundwater
20596	Ballyglass, Kiltimagh	Construct revised house type to that granted under p19/406	Change of house type under previous planning
20777	Pollronahan More, Kiltimagh	Retention of alterations made to an existing house	FI pending
20739	Shanvally, Kiltimagh, Co. Mayo	Construction of dwelling house and domestic garage. Also installation of sewerage treatment system together with all ancillary site works.	Planning Authority concluded that proposed development, by itself or in combination with other development in the vicinity, would not be likely to have a significant effect on European site(s)
20129	Swinford Road, Corrahoor, Kiltimagh	Installation of renewable energy farm of low level panels and the provision of a metal storage building, surrounding 2 metre high fencing, access road and all associated siteworks	Planning Authority concluded that proposed development, by itself or in combination with other development in the vicinity, would not be likely to have a significant effect on European site(s)

2099	Listrisnan, Bohola	Construct dwelling house, garage, septic tank system and percolation area, complete with all associated works	Planning Authority concluded that proposed development, by itself or in combination with other development in the vicinity, would not be likely to have a significant effect on European site(s)
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3.3.3 Cumulative impacts – other plans

It is a requirement of Appropriate Assessment that the ‘in-combination’ (the cumulative development with any other plans) effects be assessed. A search of Mayo County Council Planning enquiry system was conducted for plans that may have in-combination effects on the listed Natura 2000 sites.

Table 5: Other plans and possible impacts

Plan	Summary objectives	Possible impacts from plans	Is there a risk of significant in combination effects from the plans
Mayo County Development Plan 2014-2020 Volume 1, 2014	<p>1: To promote rural sustainability by encouraging more people to live in Rural Areas through the promotion of sustainable rural communities and economic development.</p> <p>2: To attract investment and people into the County.</p> <p>3: To ensure a sustainable economy.</p> <p>4: To adopt ‘green principles’ that promote a high quality of life.</p> <p>5: To create attractive settlements that promote a high quality of life.</p> <p>6: To maintain and provide additional services for our citizens, investors and visitors.</p> <p>7: To protect and enhance our natural environment.</p> <p>8: To offer visitors, from Ireland and overseas, a range of high quality</p>	No negative impacts envisaged	Screening completed for this plan – no significant ‘in combination’ effects

	experiences.		
River Basin Management Plan for Western River Basin District in Ireland	<ol style="list-style-type: none"> 1. Prevent deterioration 2. Restore good status 3. Reduce chemical pollution 4. Achieve water related protected areas objectives. 	No negative impacts envisaged	Screening completed for this plan – no significant ‘in combination’ effects

3.4 Stage 1 Screening Conclusion and Statement

The Screening process identified five Natura 2000 sites within a 15km radius of the proposed project, four SACs and one SPA. The proposed project is not situated within any of the SACs or SPA. See also Screening Matrix in Appendix 1.

The screening exercise concludes that there are no potential significant effects on the Natura 2000 sites. Therefore, the project need not proceed to Stage 2 (AA).

4.0 References

Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Environment, Heritage and Local Government (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. European Commission. (Nov. 2001 – published 2002)

Circular NPW 1/10 & PSSP 2/10 (March 2010)

CIEEM (2018). The Guidelines for Ecological Impact Assessment in the UK and Ireland

EU Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC (2007)

Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (2000).

NPWS (2018) Conservation Objectives: Balla Turlough SAC 000463. Version 6. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2018) Conservation objectives for Lough Conn and Lough Cullin SPA [004228]. Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht.

NPWS (2017) Conservation Objectives: Urlaur Lakes SAC 001571. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS (2016) Conservation Objectives: River Moy SAC 002298. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs

Bird Atlas of Ireland 2007-2011

5.0 Appendices

Appendix 1 – Screening Matrix

Screening Matrix

<i>Description of project</i>	See section 3.1
<i>Description of Natura 2000 sites</i>	See section 3.2

Assessment Criteria	
<i>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site.</i>	It is considered that the proposed plan either alone or in combination with other plans or projects is not likely to give rise to significant effects on the Natura 2000 sites
<i>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of:</i>	There are no perceived impacts
	Size and scale The size and scale of the project is small and does not impact directly on a Natura 2000 site.
	Land-take There will be no land take from any Natura 2000 sites
	Distance from the Natura 2000 site or key features of the site The distances to the Natura sites are listed in Table 1 – the closest Natura 2000 is just over 700 m from the site and there are 4 other protected areas within 15km of the site.
	Resource requirements (water abstraction etc.) The proposed development is not dependent on any resource, such as freshwater, from any of the Natura sites.
	Emissions (disposal to land, water or air) Minimal emissions from proposed development.
	Excavation requirements Some soil movement will occur on site during the construction phase of the project. Any run-off is unlikely to enter watercourses as no hydrological link from site to relevant watercourses
	Transportation requirements Minimum increase in traffic during construction phase. Will not impact Natura 2000 sites.
	Duration of construction, operation, decommissioning, etc. Short construction phase. Unlikely to impact Natura 2000 sites
	Other -
<i>Describe any likely changes to the site(s) arising as a result of:</i>	Reduction of habitat area None
	Disturbance of key species Disturbance will be minimal and only caused by noise during the construction phase of project. The work is far enough away from the SACs and SPA, and the work is of short enough duration not to have an adverse impact on qualifying species.
	Habitat or species fragmentation None

	Reduction in species density None for qualifying species.
	Changes in key conservation indicators Unlikely
	Climate change Positive impact due to planting of trees and creation of wetland area
Describe any likely impacts on the Natura 2000 site as a whole in terms of:	Interference with the key relationships that define the structure of the site None envisaged
	Interference with key relationships that define the function of the site None envisaged
Provide indicators of significance as a result of the identification of effects set out above in terms of:	Loss N/A
	Fragmentation N/A
	Disruption N/A
	Disturbance N/A
	Change to key element of the site N/A

The Assessment of Significance of Effects	
Describe how the project or plan (alone or in combination) is likely to affect the Natura sites.	The proposed project is not likely to affect any Natura 2000 site
Explain why these effects are not considered significant.	There are five Natura 2000 sites within a 15km radius of the proposed project, four SACs and one SPA. The proposed project is not situated within any of the SACs or SPAs, therefore, no direct impacts will occur through habitat loss or fragmentation of habitats or species. Disturbance will be minimal and only caused during the construction phase of the project. No direct hydrological connection to Natura 2000 sites.
List of agencies consulted and responses, if applicable	-

Data collected to carry out the Assessment	
Who carried out the Assessment	Giorria Environmental Services
Sources of data	www.npws.ie , https://gis.epa.ie/EPAMaps/ , http://www.mayococo.ie/en/Planning/SearchPlanning/ , https://maps.biodiversityireland.ie/ Giorria Environmental Services
Level of assessment completed	Desktop and site survey
Where can full results of the Assessment screening be viewed	Mayo County Council Planning

Appendix 2 – Geological / Soil Information

Following information is from the Geological Survey Ireland
<https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx>



Geology	64, Marine shelf facies; Limestone & calcareous shale
Aquifer vulnerability	Moderate
Ground water vulnerability	Not at risk
Groundwater Status	Good

Appendix 3 – Biodiversity Records

Table 6: Showing Biodiversity records in the vicinity of the site

Species	Date	Grid Ref	Distance (km)	Data
Otter	24/08/2016	M354919	2.8	Mammals of Ireland 2016-2025
Freshwater white clawed crayfish	2010	M333892	1.15	River Biologists data set (EPA)
Whopper Swan	2007-2011	M38	Winter record within 10km ²	Bird Atlas 2007 - 2011
Golden plover	2007-2011	M38	Winter record within 10km ²	Bird Atlas 2007 - 2011
Greenland white front goose	2007-2011	-	No record	Bird Atlas 2007 - 2011

Appendix 4 - Site Synopsis

SITE NAME: RIVER MOY

SITE CODE: 002298

This site comprises almost the entire freshwater element of the Moy and its tributaries including both Loughs Conn and Cullin. The system drains a catchment area of 805 sq. km. Most of the site is in Co. Mayo though parts are in west Sligo and north Roscommon. Apart from the Moy itself, other rivers included within the site are the Deel, Bar Deela, Castlehill, Addergoole, Clydagh and Manulla on the west side and the Glenree, Yellow, Strade, Gweestion, Trimogue, Sonnagh, Mullaghanoe, Owengarve, Eighnagh and Owenaher on the east side. The underlying geology is Carboniferous Limestone for the most part though Carboniferous Sandstone is present at the extreme west of the site with Dalradian Quartzites and schists at the south west. Some of the tributaries at the east, the south of Lough Conn and all Lough Cullin are underlain by granite. There are many towns adjacent to but not within the site. These include Ballina, Crossmolina, Foxford, Swinford, Kiltimagh and Charlestown.

The site is a candidate SAC selected for alluvial wet woodlands and raised bog, both priority habitats on Annex I of the E.U. Habitats Directive. The site is also a candidate SAC selected for old oak woodlands, alkaline fens, degraded raised bog and Rhynchosporion, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Atlantic Salmon, Otter, Sea and Brook Lamprey and White-clawed Crayfish.

On the slopes and rising ground around the southern shores of Loughs Conn and Cullin, Oak woodlands are seen. Sessile Oak (*Quercus petraea*) is the dominant tree with an understorey of Holly (*Ilex aquifolium*), Hazel (*Corylus avellana*) and Birch (*Betula pubescens*) with some Ash (*Fraxinus excelsior*). Additional species are associated with the lakeshore such as the whitebeam (*Sorbus rupicola*), Aspen (*Populus tremula*), Silver Birch (*B. pendula*) and the shrubs Guelder Rose (*Viburnum opulus*), Buckthorn (*Rhamnus catharticus*) and Spindle Tree (*Euonymus europaeus*). The ground flora is usually composed of Bilberry (*Vaccinium myrtillus*), Wood Rush (*Luzula sylvatica*), Wood Sorrel (*Oxalis acetosella*), Buckler Ferns (*Dryopteris aemula* and *D. dilatata*), Hard Fern (*Blechnum spicant*), Cow-wheat (*Melampyrum* spp.) and Bracken (*Pteridium aquilinum*). The rare Narrow-leaved Helleborine (*Cephalanthera longifolia*), protected under the Flora Protection Order, 1999, occurs in association with the woodlands. Also found in these woodlands is the snail (*Acanthinula lamellata*), associated with old natural woodlands.

Alluvial woodland occurs at several locations along the shores of the lakes but is particularly well developed along the river at Coryosla Bridge. Principal tree species are Willows (*Salix cinerea*) and Alder (*Alnus glutinosa*). Herbaceous species include Royal Fern (*Osmunda regalis*), Meadowsweet (*Filipendula ulmaria*) and Reed Canary-grass (*Phalaris arundinacea*). The woods are flooded by seasonal fluctuations in lake level. On higher ground adjacent to the woodlands is blanket bog with scattered shrubs and trees on the drier areas. The rocky knolls often bear Juniper (*Juniperus communis*) or Gorse (*Ulex europaeus*), with some unusual rare herb species such as Intermediate Wintergreen (*Pyrola media*) and Lesser Twayblade (*Listera cordata*).

Within the site are a number of raised bogs including those at Kilgarriff, Gowlaun, Derrynabrock, Tawnaghbeg and Cloongoonagh. These are examples of raised bogs at the north-western edge of the spectrum and possesses many of the species typical of such in Ireland, including an abundance of Bog Asphodel (*Narthecium ossifragum*), Carnation Sedge (*Carex panicea*) and the moss *Campylopus atrovirens*. Some of the bogs include significant areas of active raised bog habitat.

Well developed pool and hummock systems with quaking mats of bog mosses (*Sphagnum* spp.), Bog Asphodel (*Narthecium ossifragum*) and White Beaked-sedge (*Rhynchospora alba*) are present. Many of the pools contain a diversity of plant species, including Bogbean (*Menyanthes trifoliata*), the bog moss *Sphagnum cuspidatum*, *Campylopus atrovirens*, Common Cottongrass (*Eriophorum angustifolium*), Great Sundew (*Drosera anglica*) and occasional Lesser Bladderwort (*Utricularia minor*). Several of the hummock-forming mosses (*Sphagnum fuscum* and *S. imbricatum*) which occur here are quite rare in this region and add to the scientific interest of the bogs within the overall site.

Depressions on the bogs, pool edges and erosion channels, where the vegetation is dominated by White Beaked-sedge (*Rhynchospora alba*) comprise the habitat Rhynchosporion. Associated species in this habitat at the site include Bog Asphodel, Sundews, Deergrass (*Scirpus cespitosus*) and Carnation Sedge.

Degraded raised bog is present where the hydrology of the uncut bogs, has been affected by peat cutting and other land use activities in the surrounding area such as afforestation and associated drainage and also by the Moy arterial drainage. Species typical of the active raised bog habitat are still present but the relative abundance of them is different. A typical example of the degraded habitat, where drying has occurred at the edge of the high bog, contains an abundance and more uniform cover of Ling Heather (*Calluna vulgaris*), Carnation Sedge, Deergrass and sometimes Bog-myrtle (*Myrica gale*). Occurring in association with the uncut high bog are areas of wet regenerating cutover bog with species such as Common Cottongrass, bog mosses and Sundew, while on the drier areas, the vegetation is mostly dominated by Purple Moor-grass (*Molinia caerulea*). Natural regeneration with peat-forming capability will be possible over time with some restorative measures.

Alkaline fen is considered to be well developed within the site. An extensive stand occurs as part of a wetland complex at Mannin and Island Lakes on the Glore River. Key diagnostic species of the *Schoenus* association characteristic of rich fens include the bryophytes *Campylium stellatum*, *Aneura pinguis*, *Scorpidium scorpioides*, and the herbaceous species Long-stalked Yellow-sedge (*Carex lepidocarpa*), Grass-of-Parnassus (*Parnassia palustris*) and Common Butterwort (*Pinguicula vulgaris*). Other fen species include Black Bog-rush (*Schoenus nigricans*), Purple Moor-grass (*Molinia caerulea*), Marsh Helleborine (*Epipactis palustris*), Meadow Thistle (*Cirsium dissectum*) and Blunt-flowered Rush (*Juncus subnodulosus*). The rare moss *Bryum uliginosum* occurs on exposed marl at a ditch to the east of Island Lake. The open water of Loughs Conn and Cullin is moderately hard with relatively low colour and good transparency. The phytoplankton of the lake is dominated by diatoms and blue-green algae and there is evidence that the latter group is more common now than in former years. This indicates that nutrient inflow is occurring. Arctic Charr (*Salvelinus alpinus*) appear to have disappeared from the lake over the same period of time. The changes in Lough Conn appear to represent an early phase in the eutrication process. Stoneworts still present include *Chara aspera*, *C. delicatula* and *Nitella* cf. *opaca*. Other plants found in the shallower portions are the pondweeds. Where there is a peat influence Intermediate Bladderwort (*Utricularia intermedia*) is characteristic while Water Lobelia (*Lobelia dortmanna*) often grows in sand. Narrow reedbeds and patches of Yellow Water-lily (*Nuphar lutea*) occur in some of the bays.

Drainage of the Moy in the 60s lowered the level of the lakes, exposing wide areas of stony shoreline and wet grassland, which are liable to flooding in winter. This increased the habitat diversity of the shoreline and created a number of marginal wetlands, including fens and marshes. Plant species of note in the lake-margin include Heath Cudweed (*Omalotheca sylvatica*), Great Burnet (*Sanguisorba officinalis*) and Irish Lady's-tresses (*Spiranthes romanzoffiana*). These three species are listed on the Irish Red Data list and are protected under the Flora Protection Order 1999.

Other habitats present within the site include wet grassland dominated by Rushes (*Juncus* spp.) grading into species-rich marsh in which sedges are common. Among the other species found in this habitat are Yellow Iris (*Iris pseudacorus*), Water Mint (*Mentha aquatica*), Purple Loosestrife (*Lythrum salicaria*) and Soft Rush (*Juncus effusus*).

Grey Willow (*Salix cinerea*) scrub and pockets of wet woodland dominated by Alder (*Alnus glutinosa*) have become established in places throughout the site. Ash (*Fraxinus excelsior*) and Birch (*Betula pubescens*) are common in the latter and the ground flora is typical of wet woodland with Meadowsweet (*Filipendula ulmaria*), Angelica (*Angelica sylvestris*), Yellow Iris, Horsetail (*Equisetum* spp.) and occasional tussocks of Greater Tussock-sedge (*Carex paniculata*). Small pockets of conifer plantation, close to the lakes and along the strip both sides of the rivers, are included in the site.

The Moy system is one of Ireland's premier salmon waters and it also encompasses two of Ireland's best lake trout fisheries in Loughs Conn and Cullin. Although the Atlantic Salmon (*Salmo salar*) is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the Habitats Directive. The Moy is a most productive catchment in salmon terms and this can be attributed to its being a fingered system with a multiplicity of 1st to 5th order tributaries which are large enough to support salmonids < 2 years of age while at the same time being too small to support significant adult trout numbers and are therefore highly productive in salmonid nursery terms.

Salmon run the Moy every month of the year. Both multi-sea-winter fish and grilse are present. The salmon fishing season is 1st February to 30th September. The peak of the spring fishing is in April and the grilse begin running in early May. The average weight of the spring fish is 9 lb and the grilse range from about 3-7 lb. In general spring fish are found more frequently in the rivers at the western extent of the Moy system.

The Arctic Char (*Salvelinus alpinus*), an interesting relict species from the last ice age, which is listed as threatened in the Irish Red Data Book has been recorded from Lough Conn and in only a few other lakes in Ireland. The latest reports suggest that it may now have disappeared from the site.

The site is also important for the presence of three other species listed on Annex II of the E.U. Habitats Directive, namely Sea Lamprey (*Petromyzon marinus*), Otter (*Lutra lutra*) and White-clawed Crayfish (*Austropotamobius pallipes*). The Sea Lamprey is regularly encountered in the lower stretches of the river around Ballina, while the otter and crayfish are widespread throughout the system. In addition, the site also supports many more of the mammal species occurring in Ireland. Those which are listed in the Irish Red Data Book include Pine Marten, Badger, Irish Hare and Daubenton's Bat. Common Frog, another Red Data Book species, also occurs within the site.

Loughs Conn and Cullin support important concentrations of wintering waterfowl and both are designated Special Protection Areas. A nationally important population of the Annex I species Greenland White-fronted Geese (average 113 over 6 winters 1994/95 to 1999/00) is centred on Lough Conn. Whooper Swans also occur (numbers range between 25 to 50), along with nationally important populations of Tufted Duck 635, Goldeneye 189 and Coot 464. A range of other species occur on the lakes in regionally important concentrations, notably Wigeon 303, teal 154, Mallard 225, Pochard 182, Lapwing (>1,000) and Curlew 464. Golden Plover also frequent the lakes, with numbers ranging between 700 and 1,000.

Loughs Conn and Cullin are one of the few breeding sites for Common Scoter in Ireland. Breeding has occurred on Lough Conn since about the 1940s when about 20-30 pairs were known. A census in 1983 recorded 29 pairs. Breeding was first proved on Lough Cullin in 1983 when 24 pairs were recorded. In 1995, 24-26 pairs were recorded at Lough Conn and 5 pairs at Lough Cullin. The latest survey in 1999 gives a total of 30 birds for both lakes, comprising only 5 pairs, 18 unpaired males and 2 unpaired females. The reason for the decline is not known but may be due to predation by mink, possible changes in food supply and/or redistribution to other sites. The Common Scoter is a Red listed species.

Agriculture, with particular emphasis on grazing, is the main landuse along the Moy. Much of the grassland is unimproved but improved grassland and silage are also present. The spreading of slurry and fertiliser poses a threat to the water quality of this salmonid river and to the large lakes. Fishing is a main tourist attraction on the Moy and there are a large number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. The North Western Regional Fishery Board have erected fencing along selected stretches of the river as part of their salmonid enhancement programme. Other aspects of tourism are concentrated around Loughs Conn and Cullin.

Afforestation has occurred in the past around the shores of Loughs Conn and Cullin. The coniferous trees are due for harvesting shortly. It is proposed to replant with native tree species in this area. Forestry is also present along many of the tributaries and in particular along the headwaters of the Deel. Forestry poses a threat in that sedimentation and acidification occurs. Sedimentation can cover the gravel beds resulting in a loss of suitable spawning grounds. The Moy has been arterially dredged in the 60s. Water levels have been reduced since that time. This is particularly evident along the shores of Loughs Conn and Cullin and in the canal-like appearance of some river stretches. Ongoing maintenance dredging is carried out along stretches of the river system where the gradient is low. This is extremely destructive to salmonid habitat in the area.

The site supports populations of several species listed on Annex II of the EU Habitats Directive, and habitats listed on Annex I of this directive, as well as examples of other important habitats. The presence of a fine example of broad-leaved woodland in this part of the country increases the overall habitat diversity and adds to the ecological value of the site as does the presence of the range of nationally rare and Red Data Book plant and animal species.

29.9.2010

Appendix 5 - Qualifications

Dr. Karina Dingerkus

Summary

Experienced field ecologist with twenty years' experience of working with local authorities, communities, charities, academic institutions and as a self-employed consultant.

Employment

2005-present	Self-employed Environmental Consultant, based in Co. Mayo
2000–2005	Ecology Officer, Norwich City Council
1998–2000	Environmental Liaison Officer, Ulster Wildlife Trust/Lisburn Borough Council
1997	Part time field worker for ATEC (Environmental Consultants)
1993	Fieldworker at Culterty Field Station, Aberdeen University, Scotland

Education

PhD. 1997 The Ecology and Distribution of the Irish hare in Northern Ireland, Queen's University, Belfast

BSc. 1993 (2:1 Class Hons.), Zoology (Animal Ecology), Aberdeen University, Scotland

Selected publications and reports

Various NIS reports for planning applications for private individuals.

Ballinedine Wildlife and Pollinator Wildlife (2018), Ballinedine Tidy Towns, Heritage Office, Mayo County Council

Survey of woodland at Laghtarvarry, Ballyvary and Chancery, Turlough, Co Mayo (2016) for Bernard and Zane Joyce. Unpublished report

Survey for squirrels at Jamestown Forest, Co Westmeath for Coillte (2015)

County Louth Hedgerow Survey (2014): Survey and report for Heritage Office, Louth County Council. www.louthheritage.ie/publications_39_2350481956.pdf

Nature and Wildlife in Roscommon - Action for Biodiversity, Giorria Environmental Services and Janice Fuller, Roscommon County Council (2012)

Dingerkus, SK, Stone, RE, Wilkinson, JW, Marnell F and Reid N., (2010) Developing a methodology for the National Frog Survey of Ireland: a pilot study in Co. Mayo. *Irish Naturalists' Journal* 31 No.2 2010: 85-90

West Galway Hedgerow Survey and associate hedgerow leaflets for Galway County Council (2007).

Biodiversity Action Plans for County Mayo and County Roscommon (Heritage Council funded) (2007).

County Cavan Hedgerow Report for Cavan County Council (2006).

Reid, N., Dingerkus, K., Montgomery, W.I., Marnell, F., Jeffrey, R., Lynn, D., Kingston, N. & McDonald, R.A. (2007) Status of hares in Ireland. *Irish Wildlife Manuals*, No. 30. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government

Dr. Richard Stone

Experienced ornithologist and field ecologist with wide range of surveying experience including aquatic, hedgerow, bird, mammal, and vegetation surveys.

Employment

2005 - present Self-employed Environmental Consultant, based in Co. Mayo
2003 - 2005 Organ keyboard maker. P & S Specialist Joinery, UK
2000 - 2002 Environmental Research Scientist at British Antarctic Survey, Cambridge, UK
1998 - 1999 Field Ecologist ATEC Consultants
1998 Breeding Bird survey for RSPB Northern Ireland.
1989 Set-aside survey for RSPB, bird and vegetation surveys.
1987 Vegetation survey of open cast coal sites, Wales for RSPB

Education

PhD. 1999 The ecology and behaviour of water birds in relation to human activity on Strangford Lough, Queen's University, Belfast.

BSc. 1993 (2:1 Class Hons.), Zoology (Animal Ecology), Aberdeen University, UK.

Selected publications and reports

Survey of woodland at Laghtarvarry, Ballyvary and Chancery Turlough Co Mayo (2016) for Bernard and Zane Joyce. Unpublished report

Survey for squirrels at Jamestown Forest, Co Westmeath for Coillte (2015)

Cooper, F., Stone, R.E., McEvoy, P., Wilkins, T. & Reid, N. (2012). The conservation status of juniper formations in Ireland. Irish Wildlife Manuals, No. 63. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

Dingerkus, SK, Stone, RE, Wilkinson, JW, Marnell F and Reid N., (2010) Developing a methodology for the National Frog Survey of Ireland: a pilot study in Co. Mayo. Irish Naturalists' Journal 31 No.2 2010: 85-90

West Galway Hedgerow Survey and associate hedgerow leaflets (2007).

Mathers, R.G., Watson, S., Stone, R.E. and Montgomery, W.I. (2000) A study of the impact of human disturbance on Wigeon *Anas penelope* and Brent geese *Branta bernicla hrota* on an Irish Sea Loch. Wildfowl 51: 67-81.

Speakman, J.R., Irwin, N., Tallach, N. and Stone, R.E. (1999) Effect of roost size on the emergence behaviour of pipistrelle bats (*Pipistrellus pipistrellus*): Statistical artefacts and intra- and inter-roost effects. Animal Behaviour 58: 787-795.

Mathers, R.G., Montgomery, W.I., Portig, A.A. and Stone, R. (1998) Winter habitat use by Brent Geese *Branta bernicla hrota* and Wigeon *Anas penelope* on Strangford Lough, Co. Down. Irish Birds 6: 257-268.