Appropriate Assessment Screening Report and Natural Impact Statement to inform Appropriate Assessment

Construction of five new dwellings at
Maiden Crescent, Tubbercurry, Co. Sligo

For
Grey Rock Atlantic Ltd

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Giorria Environmental Services
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SECTION 1

1.0 Introduction

Giorria Environmental Services were commissioned by John O'Hara (Client – Grey Rock Atlantic Ltd) to undertake a Screening for Appropriate Assessment under Article 6 of the EU Habitats Directive on the proposed development of five houses at Masshill Road, Tubbercurry, Co. Sligo.

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, Office of Planning Regulator 2021). The report was compiled and written by Dr. Karina Dingerkus, ecologist (see Appendix 7 for qualifications).

1.1. Overview of construction of 5 dwellings at Maiden Crescent, Tubbercurry, Co Sligo.

It is proposed to construct five semi-detached dwellings at Maiden Crescent, Tubbercurry, Co. Sligo (see Photograph 1). The houses will be in two blocks with two semi-detached houses to the east and a 3-house terrace to the south of the site. Services will connect to the local services within the estate.

Photograph 1: Site at Maiden Crescent, Tubbercurry, Co. Sligo

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."*

Several 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)
- 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)
- Office of the Planning Regulator (2021). Appropriate Assessment Screening for Development Management. OPR Practice Note PN01

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:

i. 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.
ii. 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:

i. Description of plan or project, and local site or plan area characteristics.
ii. Identification of relevant Natura 2000 sites, and compilation of information qualifying interests and conservation objectives.
iii. 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.
iv. 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).

Recent guidance from Office of the Planning Regulator (2021) indicates that the zone of influence of a proposed development is the geographical area over which it could affect the receiving environment in a way that could have significant effects on the Qualifying Interests of a Natura 2000 Site. It indicates that this should be established on a case-by-case basis using the Source-Pathway-Receptor framework.

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 Sligo County Council website online planning access: https://www.sligococo.ie/planning/SearchPlanningApplications/OnlinePlanningTools/ 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)
- Sligo County Development Plan 2017-2023
- National Biodiversity database https://maps.biodiversityireland.ie/
- Environmental Protection Agency - https://gis.epa.ie/EPAMaps/

2.3. Site Description

A multidisciplinary walkover survey was conducted on 6th March 2023 following NRA (2009) guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes) by ecologist Dr Richard Stone. All habitats were identified. The walkover surveys were designed to detect the presence, or likely presence, of a range of protected species. The survey included a search of all potentially suitable habitats for protected species that are likely to occur in the vicinity of the project area. Habitats were identified in accordance with the Heritage Council's 'Guide to Habitats in Ireland' (Fossitt, 2000).

The site is located just off Masshill Road (L8705) at the far end of a small housing estate (Maiden Crescent). The estate is just under 200 m west off Circular Road (N17). The proposed site is located at the southern end of Maiden Crescent with four semi-detached houses on the eastern side and 6 semi-detached houses to the west with a small grass central area with car parking to the south. The southern end is fenced (green steel fencing) with the site extending to the sides of each property on both sides. The site was previously part of the present development but was never completed.

The remains of a concrete post and wire fence extends round the southern part of the site before the land slopes down to the small stream marking the southern border of the property. The west is bordered by the railway line and the east by a drain and agricultural field (which appears to be not currently used). From an old Google maps (image capture 2009) the site was previously gravel and had various building materials stored on site. Today, grass and scrub are encroaching along the margins and the old boundary fence is no longer intact.

At present, the proposed area (size 0.25 ha) comprises of encroaching scrub and grass with brambles (*Rubus fruticosus agg.)*. The scrub consists of willow (*Salix* spp.), Sycamore (*Acer pseudoplatanus*), alder (*Alnus glutinosa*), birch (*Betula pubescens*), hawthorn (*Crataegus monogyna*) and gorse (*Ulex europaeus*). Grass is also dominant, especially in the area in front of the steel fence with trees and bushes around the sides.

The fencing around the southern part of the site is no longer intact with only the concrete posts remaining. To the south, 10 m from site boundary, there is a small stream (EPA name IE_WE_34T030400, Tubbercurry 34) that flows west and joins the River Moy SAC approximately 6 km downstream. This stream is 1.5 to 2 m wide and 0.3 m deep at the time of the survey. It has a gravel bed and V profile vegetated banks. There is a small drain just outside the eastern boundary of the proposed site that runs between the houses and field to the east. This drain enters the stream just upriver of the site.

The site is on CUT soils (Cutover or Cutaway peats. Mostly Basin peats, some Blanket peats.) (see Appendix 3).

Photograph 2: River Tubbercurry (Maiden River) lying just outside southern site boundary

Photograph 3: Eastern view of site with drain and old boundary fence line

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 and Office of the Planning Regulator 2021).

3.1. Description of development

It is proposed construct five semi-detached dwellings at Maiden Crescent, Tubbercurry, Co. Sligo. The houses will be constructed in two blocks with two semi-detached houses to the east and a 3-house terrace to the south of the site. The proposed 3-bedroom, two-storey houses will each have a total floor area of 118.8 m^2.

The houses will be finished with manufactured slate tiles, and nap plaster finish.

Services will connect to the local services within the estate.

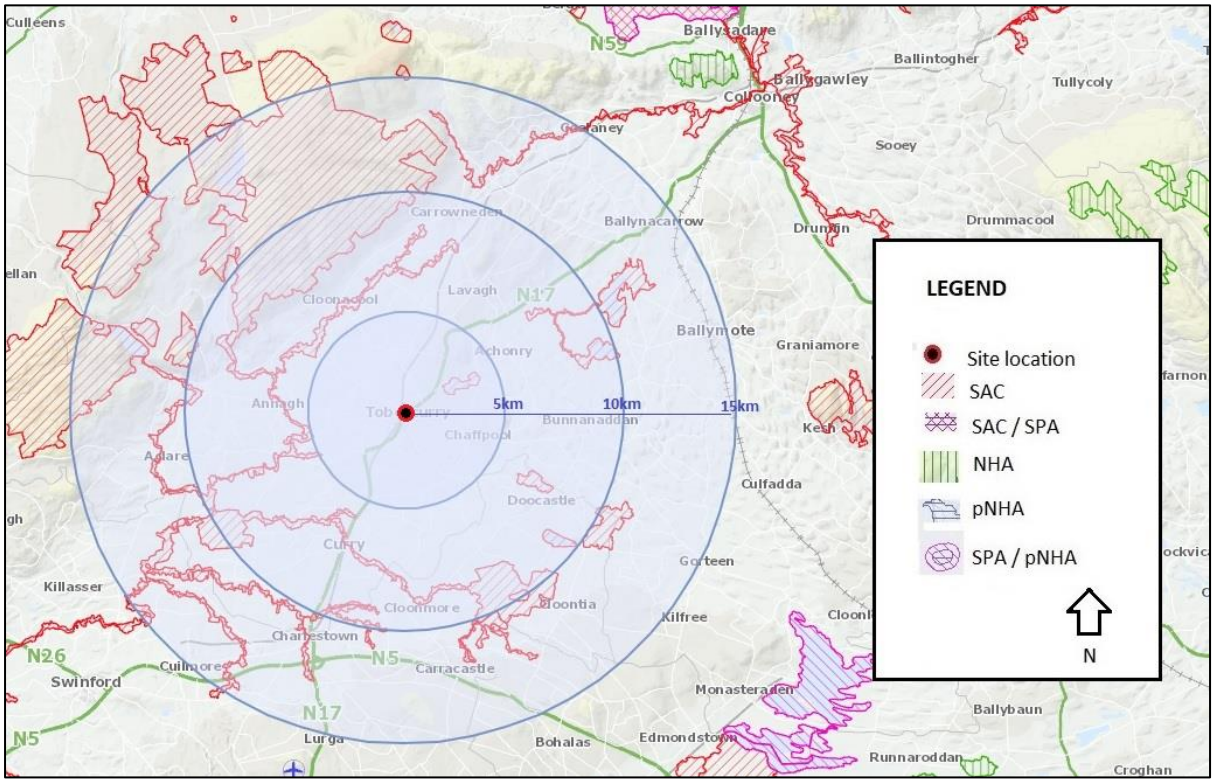
Map 1: Site layout at Maiden Crescent, Tubbercurry, Co. Sligo

3.2. Description of Natura 2000 sites

Due to the scale and nature of the proposed project, the zone of influence is highly unlikely to extend to 15 km. However, in order to ensure no impact on Natura 2000 sites occurring within 15 km of the project site, all were considered for the initial assessment.

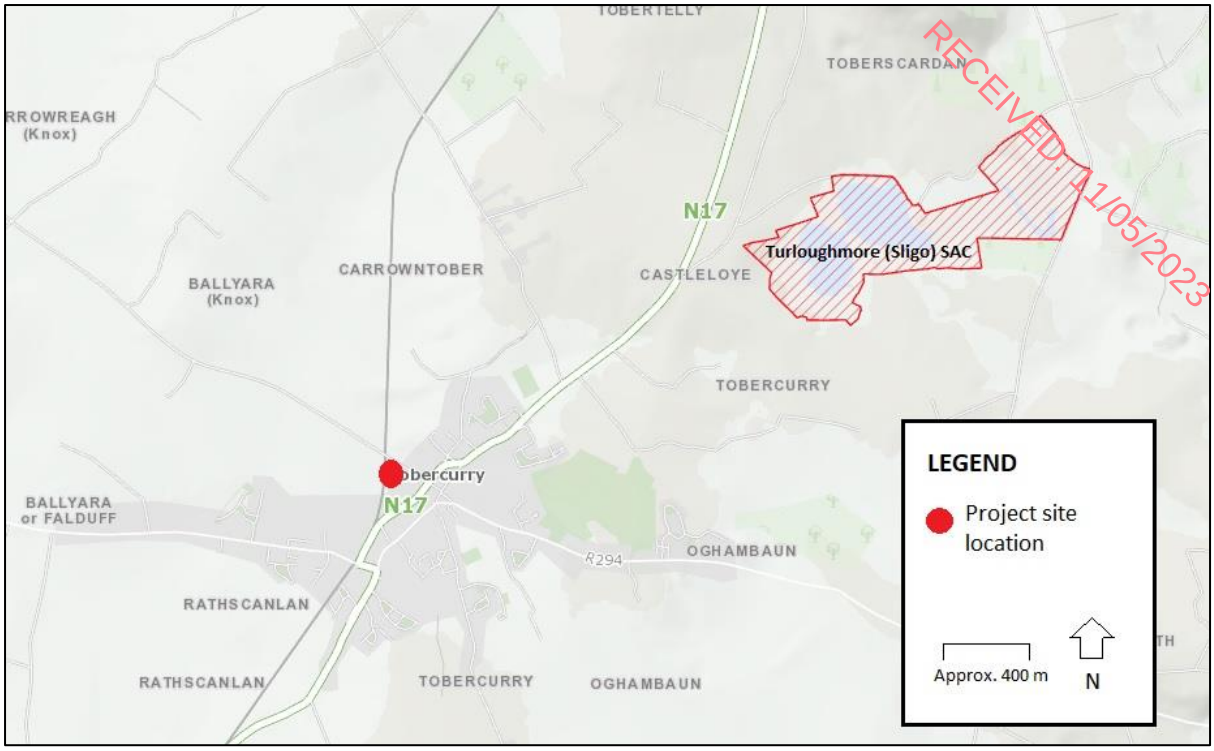
There are 11 Special Areas of Conservation (SAC) within 15 km of the project site. The site lies within 2.1 km of the Turloughmore (Sligo) SAC (000637) and 4 km from the River Moy SAC (002298). No Special Protection Areas (SPA) fall within a 15km radius of the site. See Table 1 below for details.

Three Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHA) lie within 15km of the site (see Table 2 below). The basic designation for wildlife is the Natural Heritage Area. It is an area considered important for the habitats present, or which holds species of plants and animals whose habitat needs protection. Proposed Natural Heritage Areas (pNHA) were published on a non-statutory basis in 1995. They have not since been statutorily proposed or designated. These sites are of significance for wildlife and habitats. A process is underway to resurvey and formally designate some pNHAs as NHAs.



Map 2: Natura 2000 sites within a 15km radius of site.

(Base Map: OpenStreetMaps
GIS Layers: National Parks & Wildlife Services
https://www.npws.ie/maps-and-data/designated-site-data/download-boundary-data)



Map 3: Natura 2000 sites within close proximity of site.

(Base Map: OpenStreetMaps
GIS Layers: National Parks & Wildlife Services
https://www.npws.ie/maps-and-data/designated-site-data/download-boundary-data)

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

Site Name	Qualifying Interests (* denotes a priority habitat)	Distance To (m)	Downstream distance (m)	Assessment
000637 Turloughmore (Sligo) SAC Turloughmore is less calcareous than most turloughs and is also relatively free-draining, resulting in the fact that there are no long-lasting pools left when groundwater levels subside. The reason for this seems to be the sandy glacial drift which fills the basin. A raised bog encroaches from the east, which creates an unusual zonation on this side. Pasture, some of which floods at times of very high-water levels, surrounds the remainder of the turlough. Whooper swans occasionally occur in winter. The turlough has a regular flooding pattern in winter and appears to be unaffected by drainage.	**Habitats** 3180 Turloughs*	2130	N/A	SAC lies just over 2 km north-east of the project site. There is no hydrological connection from the project site to the SAC. Due to the proximity of the site to the project site further assessment is covered in Table 3 below.
002298: 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 km^2. The river and its tributaries rise in several 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	**Habitats** 6510 Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) 7110 Active raised bogs* 7120 Degraded raised bogs still capable of natural regeneration 7150 Depressions on peat substrates of the Rhynchosporion 7230 Alkaline fens 91A0 Old sessile oak woods	4071	5980	SAC lies 4 km west of the project site. There is a direct hydrological connection to SAC from the project site. The Tubbercurry 34 stream (EPA Code: 34T03) (also called the Maiden River) lies 10 m from the south-western boundary of the project site. This order 2 stream flows in a westerly direction for approximately 0.7 km before joining the Tubbercurry River order 3. After a total of 5.9 km the river enters the Moy 34 (EPA Code: 34M02) and the

interest such as raised bogs, heath, wet grassland and deciduous woodland.	with I*lex* and *Blechnum* in the British Isles 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)* **Species** 1095 Sea Lamprey *(Petromyzon marinus)* 1106 Salmon *(Salmo salar)* 1092 White-clawed Crayfish *(Austropotamobius pallipes)* 1355 Otter *(Lutra lutra)* 1096 Brook Lamprey *(Lampetra planeri)*			River Moy SAC. A drain along the eastern site boundary also flows into the Tubbercurry 34 stream. Due to the hydrological connectivity and the distance to SAC a further assessment is covered in Table 4 below.
000492: Doocastle Turlough SAC Doocastle turlough occurs on the county boundary between Mayo and Sligo, southeast of Tobercurry. The site is the best developed of the three most northerly turloughs in the country. It has a good diversity of vegetation and several uncommon plants. There is some nutrient-poor fen with Fen Bedstraw. The turlough is relatively intact and no arterial or other drainage has been carried out. The site is also important for bird population including Whooper Swan and Golden Plover.	**Habitats** 3180 Turloughs*	5953	N/A	SAC lies just under 6 km south-east of the project site. There is no direct or indirect hydrological connectivity to this SAC as it lies in sperate water catchment. Due to distance from project site to SAC being over 5.9 km, no hydrological connection, the size and nature of the proposed project and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SAC and it's QIs.
002006: Ox Mountains Bogs SAC	**Habitats** 3110 Oligotrophic waters	6902	N/A	SAC lies over 6.9 km north of the project site. There is no direct

This site comprises several upland blanket bogs situated in the Slieve Gamph, or Ox Mountain range. Extensive areas of active blanket bog occur. There is also a large number of dystrophic, bog pool systems. Several oligotrophic lakes occur on the site, the largest being Easky Lough. Wet heath is found on the lower slopes of the north-facing side of the Ox Mountains and along the numerous stream valleys that descend from the plateau. Drier heath areas occur in other parts of the site. Important/rare species include a number of Sphagnum mosses and the liverwort *Cladopodiella fluitans*, Marsh Saxifrage (*Saxifraga hirculus*), the whorl snail *Vertigo geyeri*, Greenland White-fronted Goose and Golden Plover.	containing very few minerals of sandy plains (*Littorelletalia uniflorae*) 3160 Natural dystrophic lakes and ponds 4010 Northern Atlantic wet heaths with *Erica tetralix* 4030 European dry heaths 7130 Blanket bogs (* if active bog) 7140 Transition mires and quaking bogs 7150 Depressions on peat substrates of the Rhynchosporion **Species** 1528 Marsh Saxifrage *(Saxifraga hirculus)* 1013 Geyer's Whorl Snail *(Vertigo geyeri)*			hydrological connectivity to this SAC from project site, though SAC is connected to the River Moy SAC. Due to distance from project site to SAC being over 6.9 km, no direct hydrological connection, the size and nature of the proposed project and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SAC and it's QIs.
000636: Templehouse and Cloonacleigha Loughs SAC This site comprises three shallow, hard water lakes - Templehouse Lough, Cloonacleigha Lough and Killawee Lough - which are inter-connected by the Owenmore river. The lakes are situated on Carboniferous limestone, but are surrounded by low, peat-covered hills. Templehouse and Cloonacleigha Loughs support a wide diversity of wetland communities including floating and submerged aquatic habitats, tall fen	**Habitats** 3140 Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. 3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	7066	N/A	SAC lies just under 7 km north-east of the project site. There is no direct or indirect hydrological connectivity to this SAC as it lies in separate water catchment. Due to distance from project site to SAC being over 7 km, no hydrological connection, the size and nature of the proposed project and the proposed works being contained within the project site boundary,

vegetation, carr and wet woodland. The stretch of Owenmore River included in the site is meandering and slow-moving and hosts a diverse flora which achieves up to 80% coverage in places. The Red Data Book species Marsh Pea (Lathyrus palustris) occurs along the river. The complex of loughs, woodland and river channels makes this an important site for birds, especially wintering waterfowl and waders e.g. Teal, Wigeon, Mallard, Tufted Duck, Goldeneye, Lapwing, Curlew and small numbers of Greenland White-fronted Goose. Many bird species breed in the area, including Heron, Mute Swan and Great Crested Grebe.				there is no possibility for significant effects on this SAC and it's QIs.
001899: Cloonakillina Lough SAC Cloonakillina is a medium sized lake located in Co. Roscommon. More than half the area of the original lake has now developed into an extensive area of scraw (floating vegetation) or transition mire. With the exception of a few areas of open water, the floating mat of vegetation covers the entire western half of Cloonakillina Lough. Islands on the lake support stands of broadleaf deciduous woodland adding diversity to the site. The site is a good ecological example of one of the successional pathways from open water to raised bog formation.	**Habitats** 7140 Transition mires and quaking bogs	8431	N/A	SAC lies just under 8.4 km north-east of the project site. There is no direct or indirect hydrological connectivity to this SAC as it lies in separate water catchment. Due to distance from project site to SAC being over 8 km, no hydrological connection, the size and nature of the proposed project and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SAC and it's QIs.
000634: Lough Nabrickkeagh Bog SAC Lough Nabrickkeagh Bog is located in the Ox Mountains. The site comprises OF two areas of highland blanket bog which are divided	**Habitats** 7130 Blanket bogs (* if active bog)	9672	N/A	SAC lies over 9.6 km north-west of the project site. There is no direct hydrological connectivity to this SAC

by a conifer plantation, but which are otherwise largely intact. The bog areas support a good diversity of vegetation communities and micro-topographical features typical of blanket bog. Several flushes occur on the site, mostly associated with streams, and some are iron-stained. Site includes Lough Nabrickkeagh which has a stony bottom and is colonised by aquatic species. Parts of the bog were cut for turf in the past and the abandoned cut-away areas are now regenerating with bog mosses. The bog provides habitat for Red Grouse.				from project site, though SAC is connected to the River Moy SAC. Due to distance from project site to SAC being over 9.7 km, no direct hydrological connection, the size and nature of the proposed project and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SAC and it's QIs.
000497: Flughany Bog SAC Flughany Bog is an example of a western raised bog, located 10 km south-east of Tobercurry. It is one of a series of small to medium-sized raised bogs. Flughany is comprised of two lobes which are separated by a ridge of mineral material. The bog displays some features of blanket bog morphology, such as the absence of a distinct dome. The bog contains examples of the Annex 1 habitats active raised bog, degraded raised bog and depressions on peat substrates (Rhynchosporion). The bog supports snipe, curlew and red grouse.	**Habitats** 7110 Active raised bogs* 7120 Degraded raised bogs still capable of natural regeneration 7150 Depressions on peat substrates of the Rhynchosporion	9884	N/A	SAC lies just under 9.8 km south-east of the project site. There is no direct or indirect hydrological connectivity to this SAC as it lies in separate water catchment. Due to distance from project site to SAC being over 9 km, no hydrological connection, the size and nature of the proposed project and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SAC and it's QIs.
001898: Unshin River SAC The Unshin River runs from Lough Arrow north to Ballysadare Bay, Co. Sligo. The river is largely undrained and unaltered along much of its course. The site also contains the Owenboy/ Owenbeg and a number of	**Habitats** 3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	10658	N/A	SAC lies just under 10 km south-east of the project site. There is no direct or indirect hydrological connectivity to this SAC as it lies in separate water catchment.

smaller tributaries. All of which are very important for Atlantic Salmon. The Unshin River supports an excellent example of floating river vegetation. There is a good diversity of aquatic macrophytes. There are a number of areas of woodland, many of which flood. Orchid-rich Calcareous Grassland and Molinia Meadows, have been reported at Cloonmacduff. Otter, Whooper Swan, and Kingfisher all occur.	6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) 91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)* **Species** 1106 Salmon *(Salmo salar)* 1355 Otter *(Lutra lutra)*			Due to distance from project site to SAC being over 10 km, no hydrological connection, the size and nature of the proposed project and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SAC and it's QIs
000633: Lough Hoe Bog SAC Lough Hoe Bog is an extensive area of undulating montane blanket bog and heath-covered rocky ridges on a lake-studded plateau in the Ox Mountains. The plateau top is covered by a thin layer of blanket bog with areas of shallow inter-connecting pools. In places, blanket bog grades into wet heath vegetation, while dry heath occurs on some of the steeper slopes and rocky outcrops. There are numerous oligotrophic lakes found on the site. The northern boundary of the site encompasses Lough Talt. There are three large rivers on the site, two in the south and the third to the north - the Lough Hoe River. The rare snail Annex II	**Habitats** 3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) 7130 Blanket bogs (* if active bog) **Species** 1013 Geyer's Whorl Snail *(Vertigo geyeri)* 1092 White-clawed Crayfish *(Austropotamobius pallipes)*	11781	N/A	SAC lies over 11 km north-west of the project site. There is no direct hydrological connectivity to this SAC from project site, though SAC is connected to the River Moy SAC. Due to distance from project site to SAC being over 11 km, no direct hydrological connection, the size and nature of the proposed project and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SAC and it's QIs.

species, Vertigo geyeri, occurs on the shore on Lough Talt. White-clawed Crayfish, another annex II species, occurs in Lough Talt. The lough also supports a population of the rare and threatened Arctic Char.				
001669: Knockalongy and Knockachree Cliffs SAC Knockalongy and Knockachree Cliffs SAC is situated at the north-eastern end of the Ox Mountains range. It consists of two areas of steeply sloping ground with an abundance of outcropping acid rocks of gneiss and granite, with two loughs (Lough Achree and Lough Minnaun) situated at the base of these cliffs. The cliffs range in altitude from approximately 100 to 300 m above sea level. The cliffs at this site support a range of montane plant communities, and several notable species occur. Of particular note is the presence in the site of Killarney Fern.	**Species** 1421 Killarney Fern *(Trichomanes speciosum)*	15009	N/A	SAC lies just over 15 km south-east of the project site. There is no direct or indirect hydrological connectivity to this SAC as it lies in separate water catchment. Due to distance from project site to SAC being over 15 km, no hydrological connection, the size and nature of the proposed project and the proposed works being contained within the project site boundary, there is no possibility for significant effects on this SAC and it's QIs

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 potentially linked to the site through the River Moy SAC. The two Natura sites lie over 70 km and 72 km respectively away from project site. Based on the scale of the proposed development, the downstream hydrological distance of over 70 km and the assimilative capacity of the intervening watercourses, potential for direct or indirect effects on the Natura 2000 Sites can be excluded on these downstream sites.

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

Name:	Site Ref.:	Distance (km):	Connectivity:
Moylough Turlough	001677	3.6	No connectivity
Quarryfield West Turlough	001901	7.1	No connectivity
Fin and Riskeen Loughs	001907	11.0	No connectivity

3.3. Assessment of Likely Effects

The proposed development 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 (QI) of the Turloughmore (Sligo) SAC and River Moy SAC and 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 3: Turloughmore (Sligo) SAC (000637)– Screening analysis (using a source-pathway-receptor model) to identify SAC qualifying habitats and any "Likely Significant Effects" of impacts on the Natura 2000 site, based on current project proposals.

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Pathway/ Comment**	**Source of Potential Threats**	**Likelihood of Significance:**
Habitats				
3180 Turloughs	To restore the favourable conservation condition of Turloughs in Turloughmore (Sligo) SAC, which is defined by the following list of attributes and targets: **Attribute**: Habitat area **Target**: Area stable or increasing, subject to natural processes **Attribute**: Habitat distribution **Target**: No decline, subject to natural processes. **Attribute**: Hydrological regime **Target**: Maintain appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat **Attribute**: Soil type **Target**: Maintain variety, area and extent of soil types necessary to support turlough vegetation and other biota **Attribute**: Soil nutrient status: nitrogen and phosphorus **Target**: Maintain nutrient status appropriate to soil types and vegetation communities **Attribute**: Physical structure: bare ground	Land/Air pathway Hydrological pathway	Loss of habitat Changes to hydrological regime, water quality	The turlough area in the SAC has been calculated as 27.2ha (NPWS 2021). There is no overground flow into the basin apart from a small seepage from a bog area to the east during high rainfall. Swallow holes can be found around the edges of the eastern basin with a few on more central raised areas. In the western basin about four narrow holes occur in the floor (NPWS, 2021). As the turlough is situated in a separate water catchment (Sligo Bay & Drowse) compared to project site (Moy & Killala Bay) there is no possibility of hydrological connection. Due to no hydrological connection to this habitat, a terrestrial separation distance of over 2 km, the size and scale of the proposed project and the fact that works will only occur within the site boundary, there is no possibility for significant effects on Turloughs.

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Pathway/ Comment**	**Source of Potential Threats**	**Likelihood of Significance:**
	Target: Maintain sufficient wet bare ground, as appropriate **Attribute**: Chemical processes: calcium carbonate deposition and concentration **Target**: Maintain appropriate calcium carbonate deposition rate and concentration in soil **Attribute**: Active peat formation **Target**: Maintain active peat formation **Attribute**: Water quality **Target**: Maintain appropriate water quality to support the natural structure and functioning of the habitat **Attribute**: Vegetation composition: area of vegetation communities **Target**: Maintain area of sensitive and high conservation value vegetation communities/units **Attribute**: Vegetation composition: vegetation zonation **Target**: Maintain vegetation zonation/mosaic characteristic of the turlough **Attribute**: Vegetation structure: sward height **Target**: Maintain sward heights appropriate to the vegetation unit, and a variety of sward heights across the turlough			

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Pathway/ Comment**	**Source of Potential Threats**	**Likelihood of Significance:**
	Attribute: Typical species **Target**: Maintain typical species within the turlough **Attribute**: Fringing habitats: area **Target**: Maintain marginal fringing habitats that support turlough vegetation, invertebrate, mammal and/or bird populations **Attribute**: Vegetation structure: turlough woodland **Target**: Maintain appropriate turlough woodland diversity and structure			

Table 4: River Moy SAC (002298)– Screening analysis (using a source-pathway-receptor model) to identify SAC qualifying habitats and any "Likely Significant Effects" of impacts on the Natura 2000 site, based on current project proposals.

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Source of Potential Threats**	**Pathway/ Comment**	**Likelihood of Significance:**
Habitats				
6510 Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*)	To maintain the favourable conservation condition of Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*) in River Moy SAC. No attributes and targets currently listed in conservation objectives.	Land/Air pathway	Intensification of agriculture	Habitat has not yet been mapped for SAC (NPWS, 2016) but none of this habitat was recorded within or close to site. Due to the terrestrial nature of this habitat, the size and scale of the proposed project and the fact that works will only occur within the site boundary, there is no possibility for significant effects on Lowland hay meadows.
7110 Active raised bog	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: **Attribute**: Habitat area **Target**: Restore area of active raised bog to 132.4ha, subject to natural processes **Attribute**: Habitat distribution **Target**: Restore the distribution and variability of active raised bog across the SAC. **Attribute**: High Bog Area **Target**: No decline in extent of high bog	Land/Air	Drainage and afforestation of surrounding habitat, invasive species	The raised bog habitat for which the SAC has been selected occurs at five locations. Cloongoonagh Bog and a bog cluster that comprises Derrynabrock Bog, Tawnaghbeg Bog, Kilgarrif Bog and Gowlaun Bog (NPWS, 2016). Cloongoonagh Bog is the closest to the site which lies approximately 12 km downstream of the project site (or 8 km terrestrial distance). This contains approximately 20 ha of active raised bog. Given the distance from the closest active raised bog, no bog habitat was recorded on or

Qualifying Interests (QI) and Code (Potential receptors):	Conservation Objectives	Source of Potential Threats	Pathway/ Comment	Likelihood of Significance:
	necessary to support the development and maintenance of active raised bog **Attribute**: Hydrological regime: water levels **Target**: Restore appropriate water levels throughout the site **Attribute**: Hydrological regime: flow patterns **Target**: Restore, where possible, appropriate high bog topography, flow directions and slopes **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 **Attribute**: Vegetation quality: central ecotope, active flush, soaks, bog woodland **Target**: Restore 66.2ha of central ecotope/active flush/soaks/bog woodland as appropriate **Attribute**: Vegetation quality: microtopographical features **Target**: Restore adequate cover of bog moss (*Sphagnum*) species to ensure peat-forming capacity			adjacent to the site, and due to the nature and scale of the proposed project, the terrestrial nature of this habitat, and no changes to the hydrological regime, and the fact that the project works will only occur within site boundary, there will be no significant effect on area, distribution, vegetation quality, structure or composition of active raised bogs.

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Source of Potential Threats**	**Pathway/ Comment**	**Likelihood of Significance:**
	Attribute: Typical ARB species: flora **Target**: Restore, where appropriate, typical active raised bog flora **Attribute**: Typical ARB species: fauna **Target**: Restore, where appropriate, typical active raised bog fauna **Attribute**: Elements of local distinctiveness **Target**: Maintain features of local distinctiveness, subject to natural processes **Attribute**: Negative physical indicators **Target**: Negative physical features absent or insignificant **Attribute**: Vegetation composition: native negative indicator species **Target**: Native negative indicator species at insignificant levels **Attribute**: Vegetation composition: non-native invasive species **Target**: Non-native invasive species at insignificant levels and not more than 1% cover **Attribute**: Air quality: nitrogen deposition **Target**: Air quality surrounding bog close to natural reference conditions. The total N			

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Source of Potential Threats**	**Pathway/ Comment**	**Likelihood of Significance:**
	deposition should not exceed 5 kg N/ha/yr **Attribute**: Water quality **Target**: Water quality on the high bog and in transitional areas close to natural reference conditions			
7120 Degraded raised bogs still capable of natural regeneration	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	Land/Air pathway	Drainage and afforestation of surrounding habitat	Degraded bogs are associated with raised bogs above. Cloongoonagh Bog is the closest to the site which lies approximately 12 km downstream of the project site (or 8 km terrestrial distance). Given the distance from the closest raised bog habitat, no bog habitat was recorded on or adjacent to the site, and due to the nature and scale of the proposed project, the terrestrial nature of this habitat, and no changes to the hydrological regime, and the fact that the project works will only occur within site boundary, there will be no significant effect on area, distribution, vegetation quality, structure or composition of active raised bogs.
7150 Depressions on peat substrates of the *Rhynchosporion*	Depressions on peat substrates of the Rhynchosporion is an integral part of good quality Active raised bogs (7110) and thus a separate conservation objective has not been set for the habitat in River Moy SAC	Land/Air pathway	Drainage and afforestation of surrounding habitat,	Depressions on peat substrates of the *Rhynchosporion* is associated with raised bogs above. As the closest bog to the site lies approximately 12 km downstream of the project, no bog habitat recorded on or adjacent to the site, and due to the nature

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Source of Potential Threats**	**Pathway/ Comment**	**Likelihood of Significance:**
			invasive species	and scale of the proposed project, the terrestrial nature of this habitat and the fact that the project works will only occur within site boundary, there will be no significant effect on the area, distribution, hydrological regime, vegetation quality, or structure of this habitat.
7230 Alkaline Fens	To maintain the favourable conservation condition of Alkaline fens in River Moy SAC, which is defined by the following list of attributes and targets: **Attribute**: Habitat area **Target**: Area stable or increasing, subject to natural processes **Attribute**: Habitat distribution **Target**: No decline, subject to natural processes **Attribute**: Hydrological regime **Target**: Appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat **Attribute**: Peat formation **Target**: Active peat formation, where appropriate **Attribute**: Water quality: nutrients	Land/Air pathway Hydrological Pathway	Drainage and afforestation of surrounding habitat	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, north-west of Ballyhaunis (NPWS, 2016) which is approximately 27 km from the proposed site. No fen habitat was recorded within or adjacent to site boundary which is an abandoned building site. However, there is potential for this habitat to lie downstream of the development. If water quality was effected by a possible pollution event or sediment release on the project site there is potential for this habitat to be effected. Therefore, potential significant effect on alkaline fen has been highlighted on a precautionary basis

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Source of Potential Threats**	**Pathway/ Comment**	**Likelihood of Significance:**
	Target: Appropriate water quality to support the natural structure and functioning of the habitat **Attribute**: Vegetation structure: typical species **Target**: Maintain vegetation cover of typical species including brown mosses and vascular plants. **Attribute**: Vegetation composition: trees and shrubs **Target**: Cover of scattered native trees and shrubs less than 10% **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% **Attribute**: Physical structure: drainage **Target**: Areas showing signs of drainage as a result of drainage ditches or heavy trampling less than 10%			
91A0 Old sessile oak woods with *Ilex* and *Blechnum* in British Isles	To maintain the favourable conservation condition of Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles in River Moy SAC, which is defined by the following list of attributes and targets:	Land/Air	Invasive species	Found around shores of Lough Conn and Cullin. Potential habitat lies over 40 km north-west of the proposed development (NPWS, 2016).

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Source of Potential Threats**	**Pathway/ Comment**	**Likelihood of Significance:**
	Attribute: Habitat area **Target**: Area stable or increasing, subject to natural processes **Attribute**: Habitat distribution **Target**: No decline **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 layer **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 **Attribute**: Woodland structure: community diversity and extent **Target**: Maintain diversity and extent of community types **Attribute**: Woodland structure: natural regeneration **Target**: Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy			Due to the distance of habitat from project site being over 40 km, no woodland recorded within or adjacent to site boundary, the nature and scale of the proposed project, the terrestrial nature of this habitat and the fact that the project works will only occur within site boundary, there will be no significant effect on habitat area, distribution, structure, or composition Old sessile oak woods.

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Source of Potential Threats**	**Pathway/ Comment**	**Likelihood of Significance:**
	Attribute: Woodland structure: dead wood **Target**: At least 30 m^3/ha of fallen timber greater than 10c m diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter **Attribute**: Woodland structure: veteran trees **Target**: No decline **Attribute**: Woodland structure: indicators of local distinctiveness **Target**: No decline **Attribute**: Vegetation composition: native tree cover **Target**: No decline. Native tree cover not less than 95% **Attribute**: Vegetation composition: typical species **Target**: variety of typical native species present, depending on woodland type, including oak (*Quercus petraea*) and birch (*Betula pubescens*) **Attribute**: Vegetation composition: negative indicator species **Target**: Negative indicator species, particularly non-native invasive species, absent or under control			

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Source of Potential Threats**	**Pathway/ Comment**	**Likelihood of Significance:**
91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)	To maintain the favourable conservation condition of Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) in River Moy SAC, which is defined by the following list of attributes and targets: **Attribute**: Habitat area **Target**: Area stable or increasing, subject to natural processes **Attribute**: Habitat distribution **Target**: No decline **Attribute**: Woodland size **Target**: Area stable or increasing. Where topographically possible, "large" woods at least 25 ha in size and “small” woods at least 3 ha in size **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	Land/Air pathway Hydrological pathway	Invasive species, pollution	The full area of this habitat has not been completely mapped. However, habitat within SAC occurs along shores of Lough Conn, known habitat at least 40 km from site (NPWS, 2016). None of this habitat was recorded on or close to project site. As habitat lies over 40 km from proposed works, as there will be no impact on hydrological regime, and due to the nature and scale of the project, and the fact that project works will only occur within site boundary, there will be no significant effect on area, distribution, composition, or structure of on Alluvial forests.

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Source of Potential Threats**	**Pathway/ Comment**	**Likelihood of Significance:**
	Attribute: Woodland structure: community diversity and extent **Target**: Maintain diversity and extent of community types **Attribute**: Woodland structure: natural regeneration **Target**: Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy **Attribute**: Hydrological regime: Flooding depth/height of water table **Target**: Appropriate hydrological regime necessary for maintenance of alluvial vegetation **Attribute**: Woodland structure: dead wood **Target**: At least 30 m^3/ha of fallen timber greater than 10 cm diameter; 30 snags/ha; both categories should include stems greater than 40 cm diameter (greater than 20 cm diameter in the case of alder **Attribute**: Woodland structure: veteran trees **Target**: No decline **Attribute**: Woodland structure: indicators of local distinctiveness **Target**: No decline			

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Source of Potential Threats**	**Pathway/ Comment**	**Likelihood of Significance:**
	Attribute: Vegetation composition: native tree cover **Target**: No decline. Native tree cover not less than 95% **Attribute**: Vegetation composition: typical species **Target**: A variety of typical native species present, depending on woodland type including alder (*Alnus glutinosa*), willows (*Salix* spp.), oak (*Quercus robur*) and ash (*Fraxinus excelsior)* **Attribute**: Vegetation composition: negative indicator species **Target**: Negative indicator species, particularly non-native invasive species, absent or under control			
Species				
1092 White-clawed crayfish *(Austropotamobius pallipes*)	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: **Attribute:** Distribution **Target:** No reduction from baseline. **Attribute:** Population structure: recruitment	Surface water pathway. Hydrological pathway	Water pollution, disturbance, poor substrate quality	Population of crayfish are known to be present in River Moy and its tributaries. Closest records lies approximately 3.3 km downstream of proposed project site (NBDC, River Biologists' Database (EPA)). There will be no direct effects as no instream works will occur.

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Source of Potential Threats**	**Pathway/ Comment**	**Likelihood of Significance:**
	Target: Juveniles and/or females with eggs in all occupied tributaries **Attribute:** Negative indicator species **Target:** No alien crayfish species **Attribute:** Disease **Target:** No instances of disease **Attribute:** Water Quality **Target:** At least Q3-4 at all sites sampled by EPA **Attribute:** Habitat quality: heterogeneity **Target:** No decline in heterogeneity or habitat quality.			There may be indirect effects such as water pollution / sedimentation as there is a direct hydrological connection from project site to the SAC, through the Tubbercurry 34 stream (EPA Code: 34T03) (also called the Maiden River) which lies 10 m from the south-western boundary of the project site. There is a small risk if a pollution or sediment run off incident occurs during the construction phase of the project.
1095 Sea lamprey (*Petromyzon marinus*)	To maintain the favourable conservation condition of Sea Lamprey in River Moy SAC, which is defined by the following list of attributes and targets: **Attribute:** Distribution: extent of anadromy **Target:** Greater than 75% of main stem length of rivers accessible from estuary **Attribute:** Population structure of juveniles **Target:** At least three age/size groups present **Attribute:** Juvenile density in fine sediment	Surface water pathway. Hydrological pathway	Water pollution, sedimentation	Common in River Moy and its tributaries, especially around Ballina. Species is under recorded. There will be no direct effects as no instream works will occur. There may be indirect effects such as water pollution / sedimentation as there is a direct hydrological connection from project site to the SAC, through the Tubbercurry 34 stream (EPA Code: 34T03) (also called the Maiden

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Source of Potential Threats**	**Pathway/ Comment**	**Likelihood of Significance:**
	Target: Mean catchment juvenile density at least 1/m² **Attribute:** Extent and distribution of spawning habitat **Target:** No decline in extent and distribution of spawning beds **Attribute:** Availability of juvenile habitat **Target:** More than 50% of sample sites positive			River) which lies 10 m from the south-western boundary of the project site. There is a small risk if a pollution or sediment run off incident occurs during the construction phase of the project.
1096 Brook lamprey (*Lampetra planeri*)	To maintain the favourable conservation condition of Brook Lamprey in River Moy SAC, which is defined by the following list of attributes and targets: **Attribute:** Distribution **Target:** Access to all watercourses down to first order streams **Attribute:** Population structure of juveniles **Target:** At least three age/size groups of brook/river lamprey present **Attribute:** Juvenile density in fine sediment **Target:** Mean catchment juvenile density of brook/river lamprey at least 2/m²	Surface water pathway. Hydrological pathway	Water pollution, sedimentation	River Moy and lakes are known to support important populations, though species is generally under recorded. There will be no direct effects as no instream works will occur. There may be indirect effects such as water pollution / sedimentation as there is a direct hydrological connection from project site to the SAC, through the Tubbercurry 34 stream (EPA Code: 34T03) (also called the Maiden River) which lies 10 m from the south-western boundary of the project site. There is a small risk if a pollution or sediment run off incident occurs during the construction phase of the project.

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Source of Potential Threats**	**Pathway/ Comment**	**Likelihood of Significance:**
	Attribute: Extent and distribution of spawning habitat **Target:** No decline in extent and distribution of spawning beds **Attribute:** Availability of juvenile habitat **Target:** More than 50% of sample sites positive			
1106 Salmon (*Salmo salar*)	To maintain the favourable conservation condition of Salmon in River Moy SAC, which is defined by the following list of attributes and targets: **Attribute: Distribution:** extent of anadromy **Target:** 100% of river channels down to second order accessible from estuary **Attribute:** Adult spawning fish **Target:** Conservation limit (CL) for each system consistently exceeded **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 **Attribute:** Out-migrating smolt abundance **Target:** No significant decline	Surface water pathway. Hydrological pathway	Water pollution	River Moy system is one of most important in Ireland for salmon populations. There will be no direct effects as no instream works will occur. There may be indirect effects such as water pollution / sedimentation as there is a direct hydrological connection from project site to the SAC, through the Tubbercurry 34 stream (EPA Code: 34T03) (also called the Maiden River) which lies 10 m from the south-western boundary of the project site. There is a small risk if a pollution or sediment run off incident occurs during the construction phase of the project.

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Source of Potential Threats**	**Pathway/ Comment**	**Likelihood of Significance:**
	Attribute: Number and distribution of redds **Target:** No decline in number and distribution of spawning redds due to anthropogenic causes **Attribute:** Water quality **Target:** At least Q4 at all sites sampled by EPA			
1355 Otter (*Lutra lutra*)	To maintain the favourable conservation condition of Otter in River Moy SAC, which is defined by the following list of attributes and targets: **Attribute:** distribution **Target:** No significant decline **Attribute:** Extent of terrestrial habitat **Target:** No significant decline. Area mapped and calculated as 1068.8 ha **Attribute:** Extent of freshwater (river) habitat **Target:** No significant decline. Length mapped and calculated as 479.4 km. **Attribute:** Extent of freshwater (lake) habitat **Target:** No significant decline. Area mapped and calculated as 1248.2 ha. **Attribute:** Couching sites and holts	Land/Air Pathway Surface water pathway	Disturbance, destruction of holts Water pollution	Record in the SAC of otter within 1 km (G5111) of the project site on the Tubbercurry Stream (National Biodiversity Data Centre record: Atlas of Mammals in Ireland 2010-2015). This species depends on aquatic prey and areas of thick vegetation especially riparian habitats. The project site itself is unsuitable for otter as it is close to existing housing. No evidence of otters was seen during the field visit. There will be no direct effects as no instream works will occur. There may be indirect effects such as water pollution / sedimentation as there is a direct hydrological connection from project site to the SAC, through the Tubbercurry 34 stream (EPA Code: 34T03) (also called the Maiden

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Conservation Objectives**	**Source of Potential Threats**	**Pathway/ Comment**	**Likelihood of Significance:**
	Target: No significant decline. **Attribute:** Fish biomass available **Target:** No significant decline. **Attribute:** Barriers to connectivity **Target:** No significant increase.			River) which lies 10 m from the south-western boundary of the project site. There is a small risk if a pollution or sediment run off incident occurs during the construction phase of the project.

There are 11 Natura 2000 sites within a 15km radius of the proposed project, all SACs. The proposed project is not situated within any of the SACs or SPAs, therefore no direct effects will occur through habitat loss, or fragmentation of habitats or species.

There is a hydrological connection to the River Moy SAC, via a small river that lies 10 m from the south-western site boundary of project site. This river, the Tubbercurry 34 stream (EPA Code: 34T03) (also called the Maiden River) (order 2) flows in a westerly direction for approximately 0.7 km before joining the Tubbercurry River order 3. After a total of 5.9 km the river enters the Moy 34 (EPA Code: 34M02) and the River Moy SAC. In addition, a drain that runs along the eastern site boundary flows into the Tubbercurry 34 stream. Due to the proximity of the project site to this river, there is a small risk of pollution and / or sediment run-off from the project site entering the water course.

Considering the nature of the proposed works, the risk of disturbance of QI species due to the presence of machinery is minimal. No evidence of otters was seen during field visit and though they are likely to use the river as foraging grounds, they are mobile species and will avoid areas where there is excessive noise or activity.

The proposed project site is located on peat soil (CUT = Cutover or Cutaway peats. Mostly Basin peats, some blanket peats.). The boundary between site and the river is well vegetated. If the intervening 10 m between the project site and river are not interfered with or cleared during development, this area will act as a natural buffer between the development and the river thereby reducing the risk of the movement of sediment from the project site into the River Moy SAC.

While numerous qualifying species are recorded for the SACs and SPAs there are no existing records of them occurring on site, though otter have been recorded in the adjacent 1 km square km (see Appendix 4).

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 8 below lists other proposed plans accesses through the Sligo County Council planning database.

Table 5: Planning Application Near Proposed Development Site

(Planning searched 29 March 2023 https://www.eplanning.ie/SligoCC/searchresults – Tubbercurry, Carrowntober, Ballyara (Knox), Falduff, Rathscanlan.)

Planning Ref and Address:	Description:	Comments:
22209 - Carrowreagh Knox, Tubbercurry, Co. Sligo	Development consisting of construction of dwelling house, septic tank and percolation area on site	Due to scale and nature of development no impacts likely
22290 - Circular Road, Tubbercurry, Co. Sligo	Development consisting of a 1,615 m^2 two-storey Primary Care Centre building, access road, car parking	It is considered that the proposed development would not be likely to have a significant effect individually, or in combination with other plans and projects, on the Natura 2000 network and AA is not therefore required
22315 - Tullycusheen More, Tubbercurry, Co Sligo	Development consisting of construction of; (1) a 915 sq.m cow cubicle shed, (2) 642 cubic meter capacity slatted tank, (3) concrete aprons with associated site works	Given the nature and scale of the development, the distance from the EU designated sites in the Natura 2000 network it is considered that the proposed development on its own or in combination with other projects will not have any impact on such sites and accordingly, AA is not required
22368 - Cashel South, Tubbercurry, Co. Sligo	Development consisting of construction of a dwelling house, proprietary wastewater treatment system and all associated site works	Internal screening report project screened out and AA not required
22421 - Tullycusheen More, Tubbercurry, Co. Sligo	Development consisting of the construction of an extension to an existing dwelling, renovate dwelling	New application
22425 - Magheranore Td, Tubbercurry, Co. Sligo	Development consisting of the construction of a dwelling house, detached garage, proprietary effluent system	Internal screening report project screened out and AA not required
2360024 – Carraun, Tubbercurry, Co Sligo	Demolition of the existing derelict cottage, the construction of a new dwelling house, new garage	New application
22196 - IDA Industrial Estate, Rathscanlan Td, Tobercurry, Co. Sligo	Development consisting of the following: (1) Provision of a warehouse unit, (2) provison of storage unit, (3) provision of on-site parking	Internal screening report project screened out and AA not required

Table 6: An Bord Pleanála Planning Appeals Near Proposed Development Site

(Planning site access on 29th March 2023
Data source: https://www.pleanala.ie/en-ie/home/
Townlands searched – Tubbercurry, Carrowntober, Ballyara (Knox), Falduff, Rathscanlan)

Application No. and Address:	Description:	Risk of Significant Impact or in Combination Effects from Plans:
N/A	N/A	N/A

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 Sligo County Council Planning enquiry system was conducted for plans that may have in-combination effects on the listed Natura 2000 sites.

Table 7: Other Plans and Possible Impacts

Plan:	Summary Objectives:	Possible Impacts:	Risk of Significant Impact or in Combination Effects from Plans:
Sligo County Development Plan 2017-2023	www.sligococo.ie/cdp/	No negative impacts envisaged for with exception of proposed amendment (A-MP-23-4) on the integrity of the Unshin River Natura 2000 site and NIS recommended that the proposed amendment should not be adopted as part of the Draft Sligo County Development Plan 2017-2023.	All the policies and objectives for development contained in Volume 1 and Volume 2 of Plan were subject to compliance with the requirements of the Habitats Directive and, where relevant, those of the Birds Directive, EIA directive and relevant national legislation.
River Basin Management Plan for Western River Basin District in Ireland	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

In reviewing the above plans and projects and the best objective information, no cumulative effects were identified because of the proposed project that could cause significant effects on Natural 2000 sites. No impacts were identified that might arise from the combination of projects and plans with the proposed project.

3.4. Stage 1 Screening Conclusion and Statement

The screening process identified eleven Natura 2000 sites within a 15 km radius of the proposed project, all SACs. The proposed project is not situated within any of the SACs or SPAs. See also the Screening Matrix in Appendix 1.

The screening exercise concludes that potential significant effects on the River Moy SAC are likely or uncertain. Therefore, the project must proceed to Stage 2 (AA).

Based on the information contained in this Screening Report, it was not considered possible to rule out the potential for significant effects of the proposed project on the conservation objectives of the following European site, whether alone or in-combination with other plans or projects:

- River Moy SAC.

Signed

Dr Karina Dingerkus (Ecologist)

SECTION 2

4.0 Stage 2: Natura Impact Statement to inform Appropriate Assessment

4.1. Introduction

The impact of a project or plan alone and in combination with other projects or plans on the integrity of the Natura 2000 site is considered with respect to the conservation objectives of the site and to its structure and function. The Natura Impact Statement provides information to aid the competent authority in making the Appropriate Assessment.

The Stage 1 Screening concluded that there was potential for River Moy SAC to be affected by the proposed project (see Table 3 and Section 3.3 above), due to possible threats to water quality from pollution and / or sediment run-off from the project site entering watercourse on site boundary. This watercourse is hydrologically linked to the River Moy SAC. Therefore, it is necessary to prepare a Natura Impact Statement that outlines mitigation measures to prevent sediment run-off and pollution.

4.2. Conservation Objectives of the River Moy SAC

The general aim of the Habitats Directive is to maintain or restore the favorable conservation status of habitats and species of community interest. European and national legislation places a shared obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network (SACs and SPAs) at favourable conservation status. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

According to the EU Habitats Directive, favourable conservation status of a habitat is achieved when:

- Its natural range, and area it covers within that range, is stable or increasing.
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future.
- 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.
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future.
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The Conservation Objectives of River Moy SAC are listed in Table 3 above and can be found at: https://www.npws.ie/protected-sites/sac/002298

4.3. Impact Prediction

There is a hydrological connection to the River Moy SAC, via a small river that lies on the south-western site boundary of project site. This river, the Tubbercurry 34 stream (EPA Code: 34T03) (also called the Maiden River) (order 2) flows in a westerly direction for approximately 0.7 km before joining the Tubbercurry River order 3. After a total of 5.9 km the river enters the Moy 34 (EPA Code: 34M02) and the River Moy SAC. Due to the proximity of the project site to this river, there is a small risk of pollution and / or sediment run-off from the project site entering the water course.

Considering the nature of the proposed works, the risk of disturbance of QI species due to the presence of machinery is minimal. No evidence of otters was seen during field visit and though they are likely to use the river as foraging grounds, they are mobile species and will avoid areas where there is excessive noise or activity.

The proposed project site is located on peat soil (CUT = Cutover or Cutaway peats. Mostly Basin peats, some blanket peats.). The boundary between site and the river is well vegetated. If the intervening 10 m between the project site and river are not interfered with or cleared during development, this area will act as a natural buffer between the development and the river thereby reducing the risk of the movement of sediment from the project site into the River Moy SAC.

There are no existing records of species of qualifying interesting occurring on site. While otter have been recorded in the adjacent 1 km square km there is no suitable otter habitat within he project site which is a abandoned development site with limited scrub growth. Otters may however use the adjacent water course for commuting and foraging.

Table 8: River Moy SAC (002298) – Qualifying Interests – assessment of potential impacts on qualifying interest assessed as having potential impact at Pre-Screening stage.

Qualifying Interests (QI) and Code (Potential receptors)**:**	**Assessment**	**Source of Potential Threats**	**Likelihood of Significance:**
Habitat			
Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*) [6510]	Habitat has not yet been mapped for SAC but none of this habitat was recorded within or close to site. Due to the terrestrial nature of this habitat, the size and scale of the proposed project and the fact that works will only occur within the site boundary, there is no possibility for significant effects on Lowland hay meadows	None of this habitat recorded within or close to project site no threats envisaged	No mitigation required as there is no possibility of significant effect.
Active raised bog [7110]	Cloongoonagh Bog is the closest to the site which lies approximately 12 km downstream of the project site (or 8 km terrestrial distance). This contains approximately 20 ha of active raised bog. Given the distance from the closest active raised bog, no bog habitat was recorded on or adjacent to the site, and due to the nature and scale of the proposed project, the terrestrial nature of this habitat, and no changes to the hydrological regime, and the fact that the project works will only occur within site boundary, there will be no significant effect on area, distribution, vegetation quality, structure or composition of active raised bogs.	None of this habitat recorded within or close to project site no threats envisaged	No mitigation required as there is no possibility of significant effect.
Degraded raised bogs still capable of natural regeneration [7120]	Cloongoonagh Bog is the closest to the site which lies approximately 12 km downstream of the project site (or 8 km terrestrial distance).	None of this habitat recorded close to project site no threats envisaged	No mitigation required as there is no possibility of significant effect.

Qualifying Interests (QI) and Code (Potential receptors):	**Assessment**	**Source of Potential Threats**	**Likelihood of Significance:**
	Given the distance from the closest raised bog habitat, no bog habitat was recorded on or adjacent to the site, and due to the nature and scale of the proposed project, the terrestrial nature of this habitat, and no changes to the hydrological regime, and the fact that the project works will only occur within site boundary, there will be no significant effect on area, distribution, vegetation quality, structure or composition of degraded raised bogs.		
Depressions on peat substrates of the *Rhynchosporion* [7150]	As the closest bog to the site lies approximately 12 km downstream of the project, no bog habitat recorded on or adjacent to the site, and due to the nature and scale of the proposed project, the terrestrial nature of this habitat and the fact that the project works will only occur within site boundary, there will be no significant effect on the area, distribution, hydrological regime, vegetation quality, or structure of this habitat.	None of this habitat recorded within or close to project site no threats envisaged	No mitigation required as there is no possibility of significant effect.
Alkaline Fens [7230]	No fen habitat was recorded within or adjacent to site boundary which is an abandoned building site. However, there is potential for this habitat to lie downstream of the development. If water quality was affected by a possible pollution event or sediment release on the project site, there is potential for this habitat to be affected.	Surface – water pathway • Release of sediment to receiving waters. • Release of nutrients into the water, which could lead to oxygen depletion in the water. • Release of chemicals (fuels, hydraulic oils) into watercourses	As a precautionary measure and in order to protect water quality for this qualifying interest, mitigation measures are required in order to ensure no release of silt/sediment, nutrients or chemicals to receiving waters. See detailed mitigation Section 6.0 below

Qualifying Interests (QI) and Code (Potential receptors):	**Assessment**	**Source of Potential Threats**	**Likelihood of Significance:**
Old sessile oak woods with *Ilex* and *Blechnum* in British Isles [91A0]	Due to the distance of habitat from project site being over 40 km, no woodland recorded within or adjacent to site boundary, the nature and scale of the proposed project, the terrestrial nature of this habitat and the fact that the project works will only occur within site boundary, there will be no significant effect on habitat area, distribution, structure, or composition Old sessile oak woods.	None of this habitat recorded within or close to project site no threats envisaged	No mitigation required as there is no possibility of significant effect.
Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0]	As habitat lies over 40 km from proposed works, as there will be no impact on hydrological regime, and due to the nature and scale of the project, and the fact that project works will only occur within site boundary, there will be no significant effect on area, distribution, composition, or structure of on Alluvial forests.	None of this habitat recorded within or close to project site no threats envisaged	No mitigation required as there is no possibility of significant effect.
Species			
White-clawed crayfish *(Austropotamobius pallipes*) [1092]	Closest records lies approximately 3.3 km downstream of proposed project site (NBDC, River Biologists' Database (EPA)). There may be indirect effects such as water pollution / sedimentation as there is a direct hydrological connection from project site to the SAC, through the Tubbercurry 34 stream (EPA Code: 34T03) (also called the Maiden River) which lies 10 m from the south-western boundary of the project site. There is a small risk if a pollution or sediment run off incident occurs during the construction phase of the project.	Surface – water pathway • Release of sediment to receiving waters. • Release of nutrients into the water, which could lead to oxygen depletion in the water. • Release of chemicals (fuels, hydraulic oils) into watercourses.	As a precautionary measure and in order to protect water quality for this qualifying interest, mitigation measures are required in order to ensure no release of silt/sediment, nutrients or chemicals to receiving waters. See detailed mitigation Section 6.0 below

Qualifying Interests (QI) and Code (Potential receptors):	**Assessment**	**Source of Potential Threats**	**Likelihood of Significance:**
Sea lamprey (*Petromyzon marinus*) [1095]	Common in River Moy and its tributaries, especially around Ballina. Species is under recorded. There will be no direct effects as no instream works will occur. There may be indirect effects such as water pollution / sedimentation as there is a direct hydrological connection from project site to the SAC, through the Tubbercurry 34 stream (EPA Code: 34T03) (also called the Maiden River) which lies 10 m from the south-western boundary of the project site. There is a small risk if a pollution or sediment run off incident occurs during the construction phase of the project.	Surface – water pathway • Release of sediment to receiving waters. • Release of nutrients into the water, which could lead to oxygen depletion in the water. • Release of chemicals (fuels, hydraulic oils) into watercourses.	As a precautionary measure and in order to protect water quality for this qualifying interest, mitigation measures are required in order to ensure no release of silt/sediment, nutrients or chemicals to receiving waters. See detailed mitigation Section 6.0 below.
Brook lamprey (*Lampetra planeri*) [1096]	River Moy and lakes are known to support important populations, though species is generally under recorded. There will be no direct effects as no instream works will occur. There may be indirect effects such as water pollution / sedimentation as there is a direct hydrological connection from project site to the SAC, through the Tubbercurry 34 stream (EPA Code: 34T03) (also called the Maiden River) which lies 10 m from the south-western boundary of the project site. There is a small risk if a pollution or sediment run off incident occurs during the construction phase of the project.	Surface – water pathway • Release of sediment to receiving waters. • Release of nutrients into the water, which could lead to oxygen depletion in the water. • Release of chemicals (fuels, hydraulic oils) into watercourses.	As a precautionary measure and in order to protect water quality for this qualifying interest, mitigation measures are required in order to ensure no release of silt/sediment, nutrients or chemicals to receiving waters. See detailed mitigation Section 6.0 below.
Salmon (*Salmo salar*) [1106]	River Moy and it's tributaries is one of most important river systems for salmon populations. There will be no direct effects as no instream works will occur. There may be indirect effects such as water	Surface – water pathway • Release of sediment to receiving waters.	As a precautionary measure and in order to protect water quality for this qualifying interest, mitigation measures are required in order to ensure no release of

Qualifying Interests (QI) and Code (Potential receptors):	**Assessment**	**Source of Potential Threats**	**Likelihood of Significance:**
	pollution / sedimentation as there is a direct hydrological connection from project site to the SAC, through the Tubbercurry 34 stream (EPA Code: 34T03) (also called the Maiden River) which lies 10 m from the south-western boundary of the project site. There is a small risk if a pollution or sediment run off incident occurs during the construction phase of the project.	• Release of nutrients into the water, which could lead to oxygen depletion in the water. • Release of chemicals (fuels, hydraulic oils) into watercourses.	silt/sediment, nutrients or chemicals to receiving waters. See detailed mitigation Section 6.0 below.
Otter (*Lutra lutra*) [1355]	Record in the SAC of otter within 1 km (G5111) of the project site on the Tubbercurry Stream (National Biodiversity Data Centre record: Atlas of Mammals in Ireland 2010-2015). This species depends on aquatic prey and areas of thick vegetation especially riparian habitats. The project site itself is unsuitable for otter as it is close to existing housing. No evidence of otters was seen during the field visit. There will be no direct effects as no instream works will occur. There may be indirect effects such as water pollution / sedimentation as there is a direct hydrological connection from project site to the SAC, through the Tubbercurry 34 stream (EPA Code: 34T03) (also called the Maiden River) which lies 10 m from the south-western boundary of the project site. There is a small risk if a pollution or sediment run off incident occurs during the construction phase of the project.	Surface – water pathway • Release of sediment to receiving waters. • Release of nutrients into the water, which could lead to oxygen depletion in the water. • Release of chemicals (fuels, hydraulic oils) into watercourses.	As a precautionary measure and in order to protect water quality for this qualifying interest, mitigation measures are required in order to ensure no release of silt/sediment, nutrients or chemicals to receiving waters. See detailed mitigation Section 6.0 below.

5.0 Cumulative Impacts

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 5 in section 1 above lists other proposed plans accessed through the Sligo County Council planning database.

It is a requirement of Appropriate Assessment that the 'in-combination' (the cumulative development with any other plans) effects be assessed. Table 6 in section 1 above lists other plans.

6.0 Measures to Mitigate Potential Adverse Impacts

Mitigation refers to *measures taken to avoid or reduce negative impacts and effects* (CIEEM 2018).

The evaluation of likely significant impacts of the proposed development includes recommendations for specific measures to avoid and reduce any negative impacts of a project (i.e. mitigation measures). These measures are considered necessary to minimise environmental impacts associated with the proposed development. Avoiding and/or minimising negative impacts is best achieved through consideration of potential impacts of the proposed project from the initial stages.
To minimise environmental impacts, it is important in the first instance that the following general principles are taken on board:

- Implementation of good construction work practices on site.
- Working in accordance with relevant legislation, for example, (Wildlife Acts 1976 to 2021 and European Communities (Birds and Natural Habitats) Regulations 2011-2021).
- Contractors should ensure adequate site supervision and security.
- Construction workers should be briefed to ensure that environmental issues are taken into consideration and that guidelines and codes of practice are followed.

6.1. Habitat Loss

No area of habitat will be lost from Natura 2000 sites, so no mitigation is proposed.

6.2. Fragmentation

No direct mitigation is proposed as no fragmentation of Natura 2000 sites will occur.

6.3. Disturbance

Disturbance will be relatively short-term and could be caused by noise during the construction and other site works.

6.4. Species Impact

No direct mitigation is proposed as no species are likely to impacted.

6.5. Water Resource

No direct mitigation is proposed as water resource will not be impacted.

6.6. Water Quality

Mitigation measures aim to eliminate both the discharge of polluting materials (e.g. fuel or oil from vehicles; concrete etc.) and the mobilisation of silts and sediments into the watercourses. Pollution may occur following accidents that result in spillage of fuel or other materials. Strict pollution prevention measures must be implemented during construction of the new building and all associated works to avoid siltation or discharge of pollutants.

<u>Pre-construction/ site works</u>

- The location of any construction compound should be located well away from the river and should not be located along the southern or eastern boundary of the site where the river and drain borders the site boundary.

<u>Construction Site Set-Up</u>

Sediment control measures

- It will be necessary to install a silt fence along the southern and eastern site boundary before works on site commence (see Map 4 below). This is to prevent any silt or other run-off running from the site and entering into the river and from there into the River Moy SAC (see Map 4 below). See also Appendix 5 for silt fence installation guides.
- Soil stripping should only occur during periods of dry weather.

Map 4: Site layout at Maiden Crescent, Tubbercurry, Co Sligo with location of proposed silt fence

Construction / site works:

Standard good building practices should always be followed with extra care given to the following points:

- Sediment control measures must be put in place during construction as detailed above.

Hydrocarbon Use

Hydrocarbon use (e.g. fuel) during construction or installation of secondary effluent treatment system and percolation area may lead to potential pollution of the waterway. Examples of potential threats include spillages during re-fuelling operations, leaks in poorly maintained plant and machinery and the use of oil on shuttering boards.

- Fuel storage - all fuels, lubricants and hydraulic fluids should be kept in secure bunded areas away from the river (recommend a minimum of 100m from the watercourse). The bunded area will accommodate 110% of the total capacity of the containers within it. Containers will be properly secured to prevent unauthorised access and misuse. An effective spillage procedure should be put in place (see below). Any waste oils or hydraulic fluids should be collected, stored in appropriate containers and disposed of off-site in an appropriate manner.
- The contractor should provide spill kits and they should be stored on-site during deconstruction and used in the event of a fuel or chemical spillage. Such kits should contain absorbent materials (such as absorbent granules, booms or mats). Appropriate operatives responsible for handling chemicals or oils or for plant refuelling should be trained in the use of this kit.
- Re-fuelling and lubrication of plant should not occur within 50m of the water source. Appropriate drip trays should be used. Vehicles should never be left unattended during re-fuelling.
- All machinery should be regularly maintained and checked to prevent hydrocarbon leaks.

Site Decommissioning

Decommissioning of the site needs to be carefully managed as there is the potential for polluting material to enter any waterway.

- Remove the sediment fence, ensuring that any trapped sediment is removed well from the watercourse.
- No materials, plant or machinery should be left on site following the completion of works.

6.7. Visual Impact

No mitigation measures are provided as no visual impacts are envisaged.

7.0 Collated Mitigation Measures

Collated Mitigations

The following measure will need to be followed in order to ensure there is no risk of water pollution and/or sediment run-off.

1. The location of any construction compound should be located well away from the river and should not be located along the southern or eastern boundary of the site where the river and drain borders the site boundary.
2. It will be necessary to install a silt fence along the southern and eastern site boundary before works on site commence (see Map 4 below). This is to prevent any silt or other run-off running from the site and entering into the river and from there into the River Moy SAC (see Map 4 below). See also Appendix 5 for silt fence installation guides.
3. Soil stripping should only occur during periods of dry weather.
4. Standard good building practices should always be followed.
5. Sediment control measures must be put in place during construction as detailed above.
6. Hydrocarbon use (e.g. fuel) during construction or installation of new secondary effluent treatment system and soil polishing filter may lead to potential pollution of the waterway. Fuel storage - all fuels, lubricants and hydraulic fluids should be kept in secure bunded areas away from the river (recommend a minimum of 100m from the watercourse). The bunded area will accommodate 110% of the total capacity of the containers within it. Containers will be properly secured to prevent unauthorised access and misuse. An effective spillage procedure should be put in place (see below). Any waste oils or hydraulic fluids should be collected, stored in appropriate containers and disposed of off-site in an appropriate manner.
7. The contractor should provide spill kits and they should be stored on-site during deconstruction and used in the event of a fuel or chemical spillage. Such kits should contain absorbent materials (such as absorbent granules, booms or mats). Appropriate operatives responsible for handling chemicals or oils or for plant refuelling should be trained in the use of this kit.
8. Re-fuelling and lubrication of plant should not occur within 50m of the water source. Appropriate drip trays should be used. Vehicles should never be left unattended during re-fuelling.
9. All machinery should be regularly maintained and checked to prevent hydrocarbon leaks.
10. Remove the sediment fence, ensuring that any trapped sediment is removed well from the watercourse.
11. No materials, plant or machinery should be left on site following the completion of works.

8.0 Residual Effects

The mitigation measures described above will ensure that the proposed project itself will not prevent or obstruct the Qualifying Interests of River Moy SAC from reaching favourable conservation status.

The measures described above, together with adherence to relevant environmental guidelines/requirements/standards and to the site-specific mitigation measures set out above, ensure that the proposed project will not result in any adverse effect on any European Site.

Based on the above, it can be concluded in view of best scientific knowledge and based on objective information, that the proposed project itself will not adversely affect the Qualifying Interests / Special Conservation interests or integrity of the above European sites.

9.0 Conclusions

Screening for Appropriate Assessment of the proposed development concluded that there was potential for the River Moy SAC to be affected by the development due to the potential for sediment run-off and / or pollution from the proposed project site into the adjacent watercourse where it could potentially enter the River Moy SAC and have indirect effect on habitats and species of qualifying interests.

For the reasons set out in detail in this NIS, in the light of the best scientific knowledge in the field, all aspects of the proposed project which, by itself, or in combination with other plans or projects, which may affect the relevant European Sites have been considered.

The NIS contains information which the competent authority, may consider in making its own complete, precise and definitive findings and conclusions and upon which it is capable of determining that all reasonable scientific doubt has been removed as to the effects of the proposed project on the integrity of the relevant Natura 2000 sites.

In conclusion, in the light of the conclusions of the assessment which it shall conduct on the implications for the European sites concerned, the competent authority is enabled to ascertain that the proposed project will not affect the integrity of any of the European sites concerned.

Signed

Dr Karina Dingerkus (Ecologist)

10.0 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)

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

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NPWS (2016). Conservation Objectives: River Moy SAC 002298. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2016) Conservation Objectives: Flughany Bog SAC 000497. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2016) Conservation Objectives: Ox Mountains Bogs SAC 002006. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

NPWS (2017) Conservation Objectives: Lough Hoe Bog SAC 000633. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs

NPWS (2019) Conservation Objectives: Lough Nabrickkeagh Bog SAC 000634. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht

NPWS (2019) Conservation Objectives: Cloonakillina Lough SAC 001899. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS (2020) Conservation Objectives: Doocastle Turlough SAC 000492. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage

NPWS (2020) Conservation Objectives: Knockalongy and Knockachree Cliffs SAC 001669. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

NPWS (2021) Conservation Objectives: Templehouse and Cloonacleigha Loughs SAC 000636. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

NPWS (2021) Conservation Objectives: Turloughmore (Sligo) SAC 000637. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage

NPWS (2021) Conservation Objectives: Unshin River SAC 001898. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

11.0 Appendices

Appendix 1 – Screening Matrix

Screening Matrix

Description of project	See section 3.1
Description of Natura 2000 sites	See section 3.2

Assessment Criteria	
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.	It is considered that the proposed project either alone or in combination with other plans or projects is not likely to give rise to significant effects on the Natura 2000 sites if mitigation measures outlined in section 6.0 are actioned during construction
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:	The potential impacts on the integrity of the River Moy SAC included water quality threats
	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 the Turloughmore (Sligo) SAC (000637) at 2.1 km and the River Moy SAC (002298) at 4 km and there are 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 excavation will occur on-site during site works. Potential for run-off to river, which is hydrologically connected to the River Moy SAC.
	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 None envisaged
Describe any likely changes to the site(s) arising as a result of:	**Reduction of habitat area** None
	Disturbance of key species None
	Habitat or species fragmentation None
	Reduction in species density

	None for qualifying species.
	Changes in key conservation indicators Unlikely
	Climate change Minimum impact
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 Short duration due to small scale of project
	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, particularly if mitigation measures outline in section 6.0 are implemented during the construction
Explain why these effects are not considered significant.	There are 11 Natura 2000 sites within a 15km radius of the proposed project, all SACs. No direct effects through habitat loss or fragmentation of habitats or species. Disturbance will be minimal and only caused during the construction phase of the project. Given the proximity to the Tubbercurry River (10 m) to project site, there is a small risk of sediment or pollution runoff from site to river which is hydrologically connected to the River Moy SAC.
List of agencies consulted and responses, if applicable	N/A

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.eplanning.ie/SligoCC/searchtypes 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	Sligo County Council Planning

Appendix 2 – Qualifying Interests and Documented Threats to the Natura 2000 Sites

Table 2.1: Qualifying interests and documented threats to the Natura 2000 sites lying in a 15 km radius of the proposed development site

Site Code	Site Name	Qualifying Interests (* denotes a priority habitat)	Conservation Objectives	Threats
000637	Turloughmore (Sligo) SAC	**Habitats** 3180 Turloughs*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000637.pdf	• Agricultural improvement to the areas around the turlough. • Grazing pressure • Scrub encroachment • Forestry replanting
002298	River Moy SAC	**Habitats** 6510 Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*) 7110 Active raised bogs* 7120 Degraded raised bogs still capable of natural regeneration 7150 Depressions on peat substrates of the Rhynchosporion 7230 Alkaline fens 91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles 91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)* **Species** 1095 Sea Lamprey *(Petromyzon marinus)* 1106 Salmon *(Salmo salar)* 1092 White-clawed Crayfish *(Austropotamobius pallipes)*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002298.pdf	• 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)

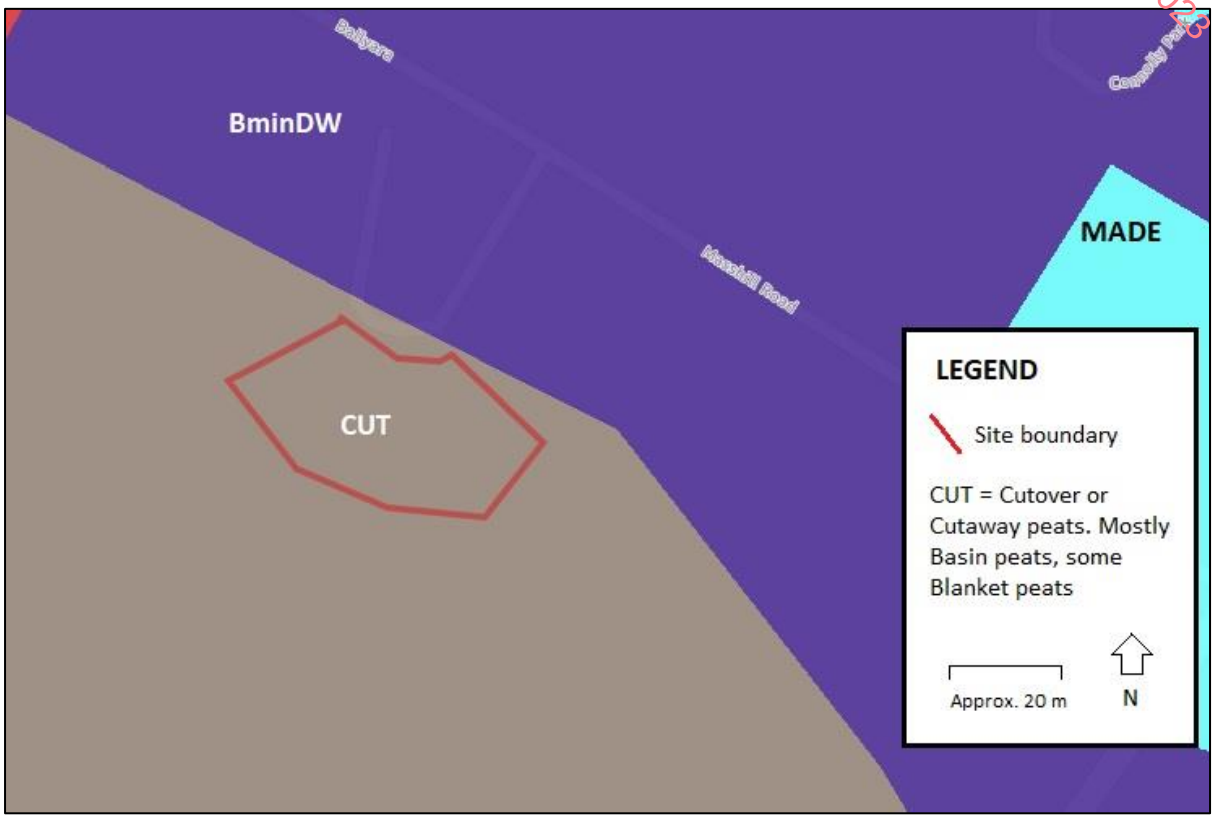
		1355 Otter *(Lutra lutra)* 1096 Brook Lamprey *(Lampetra planeri)*		
000492	Doocastle Turlough SAC	**Habitats** 3180 Turloughs*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000492.pdf	• Fertilisation • Hunting • Grazing
002006	Ox Mountains Bogs SAC	**Habitats** 3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) 3160 Natural dystrophic lakes and ponds 4010 Northern Atlantic wet heaths with Erica tetralix 4030 European dry heaths 7130 Blanket bogs (* if active bog) 7140 Transition mires and quaking bogs 7150 Depressions on peat substrates of the Rhynchosporion **Species** 1528 Marsh Saxifrage *(Saxifraga hirculus)* 1013 Geyer's Whorl Snail *(Vertigo geyeri)*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002006.pdf	• Fragmentation • Afforestation • Peat extraction • Modification of cultivation practices • Paths / tracks • Improved access to site • Wind energy developments • Fire
000636	Templehouse and Cloonacleigha Loughs SAC	**Habitats** 3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. 3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000636.pdf	• Forestry • Agricultural intensification • Fertilisation

001899	Cloonakillina Lough SAC	**Habitats** 7140 Transition mires and quaking bogs	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001899.pdf	• Leisure fishing • Grazing • Mowing and cutting of grassland • Forestry • Fire and fire suppression
000634	Lough Nabrickkeagh Bog SAC	**Habitats** 7130 Blanket bogs (* if active bog)	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000634.pdf	• Peat exploitation • Drainage • Afforestation • Over-stocking with grazing animals • Afforestation
000497	Flughany Bog SAC	**Habitats** 7110 Active raised bogs* 7120 Degraded raised bogs still capable of natural regeneration 7150 Depressions on peat substrates of the Rhynchosporion	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000497.pdf	• Restructuring agricultural land holding • Roads • Peat extraction • Fertilization • Grazing • Turf-cutting, particularly mechanised peat extraction, and drain excavation pose major threats to raised bogs
001898	Unshin River SAC	**Habitats** 3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)* **Species**	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001898.pdf	• Invasive non-native species • Diffuse pollution to surface waters due to agricultural and forestry activities • Peat extraction • Agricultural intensification • Use of fertilizers • Over-stocking with grazing animals

		1106 Salmon *(Salmo salar)* 1355 Otter *(Lutra lutra)*		
000633	Lough Hoe Bog SAC	**Habitats** 3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) 7130 Blanket bogs (* if active bog) **Species** 1013 Geyer's Whorl Snail *(Vertigo geyeri)* 1092 White-clawed Crayfish *(Austropotamobius pallipes)*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000633.pdf	• Afforestation • Peat extraction • Over-stocking • Wind energy production
001669	Knockalongy and Knockachree Cliffs SAC	**Species** 1421 Killarney Fern *(Trichomanes speciosum)*	http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001669.pd	• Afforestation

Appendix 3 – Soil and Geological Information

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



Map 5: Soil map of proposed project site.

Following information is from the Geological Survey Ireland
https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx
and ESM tool (https://airomaps.geohive.ie/ESM/)

Table 3.1: Geological Information for Proposed Site

Geology:	64, Marine shelf facies; Limestone & calcareous shale
Aquifer:	Regionally Important Aquifer - Karstified (conduit)
Aquifer Vulnerability:	High
Ground Water Vulnerability:	Not at risk
Groundwater Status:	Good

Appendix 4 – Biodiversity Records

Table 4.1: National Biodiversity Record Centre showing sample records in vicinity of site

(Site searched 28/03/2023)

Species:	**Grid ref.:**	**Date:**	**Distance (km):**	**Database:**
Otter *Lutra lutra*	G5111	1990	1	Atlas of Mammals in Ireland 2010-2015
Otter *Lutra lutra*	G537084	2008	4	Atlas of Mammals in Ireland 2010-2015
White-clawed crayfish *Austropotamobius pallipes*	G521138	1989	1.8	River Biologists' Database (EPA)

Appendix 5 – Silt fence

SILT FENCING INSTALLATION

- Posts are placed every 3 to 5 m and a 1m high geotextile membrane is attached to this fence on the uphill side.
- Place about 600m of membrane on the post with the other 300mm loose at the bottom facing uphill.
- This membrane foot is then covered with soil / turf that is removed from the house plot area.
- The soil turfs should be bigger than the membrane foot, 400mm to 1000m wide. This is easily done with a digger bucket.
- The soil turfs hold the membrane down and any water/runoff has to go through the soil and membrane and is filtered as it goes.
- It is important not to leave any gaps in the membrane foot or to have any areas uncovered or lifted up as this will allow the runoff to go under the membrane foot and so it will not be filtered.
- When removing the fence, the turfs can be left in place the fence simply pulled out from under them.

See https://ssienvironmental.ie/wp-content/uploads/2018/03/Terrastop_Install_02-1.pdf for more information.

Appendix 6 – Site Synopsis

Site Name: Turloughmore (Sligo) SAC

Site Code: 000637

Turloughmore occupies a hollow in the drift-covered ridges north-east of Tobercurry in Co. Sligo. It is less calcareous than most turloughs and is also relatively free-draining, resulting in the fact that there are no long-lasting pools left when groundwater levels subside. The reason for this seems to be the sandy glacial drift which fills the basin. This is derived from the acidic rocks to the north, rather than the limestones to the south-east. The drift gives a smooth outline to the turlough and there is only a single small outcrop of rock. A raised bog encroaches from the east, which creates an unusual zonation on this side. Pasture, some of which floods at times of very high water levels, surrounds the remainder of the turlough. 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):

[3180] Turloughs*

The turlough consists of two parts, separated by a slight ridge. The vegetation of both basins is a predominantly dry grass and sedge community. Species present on the floor include a range of sedges (*Carex nigra*, *C. hirta* and scattered C*. disticha*), with Tall Fescue (*Festuca arundinacea*), Reed Canary-grass (*Phalaris arundinacea*) and Marsh Ragwort (*Senecio aquaticus*). Above this level, there is an extensive area of slightly leached heath-type vegetation, with Mat-grass (Nardus stricta), Tufted Hair-grass (Deschampsia cespitosa) and Carnation Sedge (*Carex panicea*). Tormentil (*Potentilla erecta*) is abundant, and a little Creeping Cinquefoil (*P. reptans*) is present, with lady's-mantle (*Alchemilla* sp.), Common Spotted-orchid (*Dactylorhiza fuchsii*) and, on the eastern side below the bog, Sneezewort (*Achillea ptarmica*), the eyebright *Euphrasia arctica* and Heath Rush (*Juncus squarrosus*). Above this zone there is often a band of Purple Moor-grass (*Molinia caerulea*), rushes (Juncus effusus and *J. conglomeratus*), Devil's-bit Scabious (*Succisa pratensis*) and Sweet Vernal-grass (*Anthoxanthum odoratum*). The site is visited occasionally by small numbers of Whooper Swan, a species listed on Annex I of the E.U. Birds Directive. The turlough has a regular flooding pattern in winter and appears to be unaffected by local or regional drainage. The more oligotrophic communities at this site would be threatened by agricultural improvement to the areas around the turlough. Grazing pressure around the turlough is mostly fairly high and this prevents scrub Version date: 10.09.20132 of 2 000637_Rev13.Docand woodland from becoming established. Part of the floor of the basin is grazed by horses. Turloughmore is important for being the most northern turlough in the country. It is of ecological interest also for its relatively oligotrophic nature, and has a good representation of the associated vegetation types

10/9/2013

Site Name: River Moy SAC
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 phytpoplankton 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 eutrification 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 7 – 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), Ballindine 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

Summary

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.