Appropriate Assessment Screening

Ground Investigation Works,
N5 Ballaghadereen to Scramoge Road Project

McCarthy
Keville
O'Sullivan

Planning & Environmental Consultants

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Prepared By:	McCarthy Keville O'Sullivan Ltd. Planning & Environmental Consultants Block 1, G.F.S.C. Moneenageisha Road, Galway

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1 INTRODUCTION

1.1 General Introduction

This report has been completed to provide the information necessary to allow the competent authority to conduct an Article 6(3) Appropriate Assessment Screening of the proposed Ground investigation works along the route of the proposed N5 Ballaghadereen to Scramoge Road Project.

According to the Department of the Environment, Heritage and Local Government Guidelines, issued in December 2009 and updated in 2010, on the implementation of Article 6(3) of the Habitats Directive as transposed into Irish Law under the European Communities (Natural Habitats) Regulations, 1997 (G.I. 94/1997), screening is required to examine the potential effects of all projects or plans, either alone or in combination with other projects or plans, upon the conservation objectives of Natura 2000 sites. Where there is potential for significant or indeterminate effects on the conservation objectives of Natura 2000 sites (SACs and SPAs) as a result of the proposed plan or project, a Habitats Directive Appropriate Assessment must be conducted by the competent authority, based on objective scientific information in the form of a Natura Impact Statement.

McCarthy Keville O'Sullivan Ltd. has been appointed to undertake an Appropriate Assessment Screening to determine whether the proposed works have the potential to have any significant effects on the integrity of Natura 2000 sites.

The assessment is based on a desk study and utilizes data collected from previous field visits on the 14th & 28th of July, 11th of September and 31st of October 2014. This document includes a detailed description of the proposed works in Section 1.3. This is followed in Section Two by an Initial Screening Exercise. Section 3 provides the Site specific and general Appropriate Assessment Screening. Section 3.1 includes potential impacts on the Conservation Objectives of the Designated Sites. Section 3.2 of the report provides General Article 6(3) Screening Assessment based on generic criteria. Findings of Article 6(3) Screening Assessment are presented in Section 3.3.

This report has been prepared in accordance with the European Commission guidance document *Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC* (EC, 2001) and the Department of the Environment's Guidance on the Appropriate Assessment of Plans and Projects in Ireland (December 2009, amended February 2010).

1.2 Site Location

The site of the proposed Ground investigation works extends from west of Frenchpark in the townland of Rathkerry (Grid Ref: E169065 N293002), located west of Frenchpark, to the townland of Scramoge, east of Strokestown (Grid Ref:196117 N279615), where the newly proposed N5 route will tie into the existing N5. The proposed alignment route along which the Ground investigation works are proposed is presented in Figure 1.1.

MAP TITLE: **General Site Location**		MAP NO.: **Figure 1.1**	SCALE: **1:145,000**
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McCarthy Keville O'Sullivan

McCarthy Keville O'Sullivan Ltd., Block 1, G.F.S.C, Moneenageisha Road, Galway, Ireland. Email: info@mccarthykos.ie Tel: +353 (0)91 735611 Fax: +353 (0)91 771279

1.3 Description of the Proposed Works

The works involve Ground investigation G.I. and include trial pits and slit trenches, rotary core boreholes, cable percussion boreholes, ground probing, geophysics, pressure probing and material testing. The contract period is 3.5 months.

1.3.1 Slit Trenches and Trial Pits

The depths of slit trenches and trial pits will generally less than 2.0m; however, a small number of trial pits will be excavated to greater depth (up to 3.5m). The slit trenches are typically 0.6m wide and range in length from 3m to 15m. The trial pits typically have a plan area of between $2m^2$ and $4m^2$. Trenches will be subsequently backfilled and the former vegetation cover or surface type will be restored.

1.3.2 Rotary Cores

These Boreholes are drilled to establish the type, quality and strength of the rock in areas where shallow rock has been encountered. The diameter of the core is at least 76mm and is drilled to a depth of 4m the rock core is recovered and sent for laboratory analysis to establish the strength of the rock. Boreholes shall be backfilled with a sand cement grout on completion.

1.3.3 Light Cable Percussion Boreholes

Light cable percussion boreholes shall be made using a `shell and auger' drill , The rig has a winch capacity of over 1 tonne and a casing size of 150mm diameter ,the casing retrieves samples of soil up to a depth of 4 meters and if rock is encountered can retrieve rock chippings for analysis. Boreholes shall be backfilled with a sand cement grout on completion.

1.3.4 Ground Probes

The vehicle mounted probing equipment used provides a probe of minimum diameter capable of retrieving an 87 mm dia. Sample to a depth of 2m and will have the capability of carrying out in-situ Standard Penetration Tests (SPT). Boreholes shall be backfilled with a sand cement grout on completion

1.3.5 Geophysical Investigation

The scope of the geophysical investigation includes but is not limited to the following:

- Microgravity survey to be carried out in areas of potential karst to identify the extent and significance of limestone karst features such as collapsed sinkholes, infilled dissolution features with pockets of soft compressible material, open conduits or caves
- Seismic Refraction profiles at selected chainges to categorise the subsurface geological conditions.
- Resistivity profiles along the proposed road route at selected chainages

1.3.6 Soil Sampling

Samples are taken in accordance with the procedures set out in EN ISO 22475-1:2006. This includes the taking of undisturbed and disturbed samples for both in-situ and laboratory testing.

In-situ tests which may be required include:

(i) Shear vane tests.
(ii) Rising and falling head permeability tests.
(iii) Piezometer installations and level monitoring.

(iv) Dynamic cone (manual) tests. All Samples for laboratory testing are removed in plastic and wax cores.

1.3.7 Lighting

No external lighting is proposed/required as part of the project.

1.3.8 Access and Haul Roads

Temporary Haul roads may be required as part of the works. In most cases machinery will access the S.I areas using existing access points to fields/ forestry with significant disturbance to treelines or hedgerows considered unlikely.

1.4 Methodology

The flora and habitats of the site were assessed by means of a desk study of information and literature pertinent to the site and surrounding area, information pertaining to legislation/designations and other notable ecological records. In addition, the current assessment relied on field surveys including habitat mapping completed on the 14th & 28th of July, 11th of September and 31st of October 2014.

2 INITIAL SCREENING EXERCISE

2.1 Background to Designated Sites

With the introduction of the EU Habitats Directive (92/43/EEC) which was transposed into Irish law as the European Communities (Birds and Natural Habitats) Regulations 2011, the European Union formally recognised the significance of protecting rare and endangered species of flora and fauna, and also, more importantly, their habitats. Member states were directed to provide lists of sites for designation.

Natural Heritage Areas and proposed Natural Heritage Areas
Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) are heritage sites that were designated for the protection of flora, fauna, habitats and geological sites of **national** importance. Management of NHAs/pNHAs is guided by planning policy and the Wildlife (Amendment) Act 2000. It was from these NHAs that the most important sites were selected for international designation as European sites. The AA process, or screening for same, does not apply to NHAs or pNHAs.

Special Areas of Conservation and Special Protection Areas
There are two types of EU site designation, the Special Area of Conservation (SAC) and the Special Protection Area (SPA). These sites form part of "*Natura 2000*" a network of protected areas throughout the European Union. Any works or projects that have the potential to impact on a Natura 2000 site must be screened for Appropriate Assessment. If, following the screening process, the potential for impacts cannot be discounted an Appropriate Assessment (AA) must be carried out. The AA process is informed by scientific information, which is presented in the form of a Natura Impact Statement.

SACs are designated under the EU Habitats Directive for the conservation of flora, fauna and habitats of European importance. Annex I of the EU Habitats Directive lists certain habitats that must be given protection through the designation of SACs. Certain habitats are deemed 'priority' and have greater protection. Irish habitats include raised bogs, active blanket bogs, turloughs and heaths; in addition many lakes and rivers are also designated. Annex II of the Directive lists species whose habitats must be protected through the designation of SACs and includes species such as Lesser Horseshoe Bat, Otter, Salmon and White-clawed Crayfish.

SPAs are designated under the EU Birds Directive for the conservation of bird species and habitats of European importance.

2.2 Designated Sites within 15km of the Site of the Proposed Works

Using the GIS software, MapInfo (Version 10.0), designated sites within a 15 kilometre radius of the proposed works were identified. The site synopses and conservation objectives of these sites, as per the NPWS website (www.npws.ie), were considered at the time of preparation of this report (19/02/2015). Details of these sites, including their distance from the proposed works, are provided in Table 2.1 below.

All designated sites within a 15 kilometre radius of the proposed works were considered as part of this screening assessment. Given the nature and scale of the works the likelihood of impacts on areas over 15km was discounted. All designated sites that are located greater than 15km from the proposed works are automatically screened out on the basis that the works are of such a scale that impacts at this distance are considered *Extremely unlikely* i.e. <5% chance of occurring as predicted. (NRA Guidelines for Assessment of Ecological Impacts of Roads Schemes, 2009).

Figure 2.1 shows the location of the proposed works in relation to all designated sites within 15 km.

The majority of the sites were screened out at this early stage on the basis of their distance from the proposed works, lack of habitat connectivity or the nature of the qualifying interests of the Natura 2000 sites or the lack of potential for the works, as proposed, to significantly impact on the conservation objectives. Natura 2000 Sites that require further assessment within this screening document are highlighted in bold in Table 2.1 below.

Table 2.1. Natura 2000 sites within 15 kilometres of the Proposed Works

Natura 2000 Site	Distance from Proposed Works (km)	Qualify Interests/Special Conservation Interests for which the Natura 2000 Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 19/02/2015)	Screening
Special Areas of Conservation (SAC)			
Bellanagare Bog SAC (000592)	**0.45km**	• **Active raised bogs [7110]** • **Degraded raised bogs still capable of natural regeneration [7120]** • **Depressions on peat substrates of the Rhynchosporion [7150]** • ***Euphydryas aurinia* (Marsh Fritillary) [1065]**	**Given the distance between the Natura 2000 Site and the proposed works potential impacts are considered further.**
Annaghmore Lough	**1.1km**	• **Alkaline fens [7230]**	**Given the distance between the Natura**

Natura 2000 Site	Distance from Proposed Works (km)	Qualify Interests/Special Conservation Interests for which the Natura 2000 Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 19/02/2015)	Screening
(Roscommon) SAC (001626)		• ***Vetigo geyeri*** **(Geyer's Whorl Snail) [1013**	**2000 Site and the proposed works potential impacts are considered further.**
Callow Bog SAC (000595)	1.8km	• Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the Rhynchosporion [7150] • *Euphydryas aurinia* (Marsh Fritillary) [1065]	Given the distance between the Natura 2000 Site and the proposed works and the nature of the Qualifying Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.
Cloonshanville Bog SAC (000614)	1.8km	• Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the Rhynchosporion [7150] • Bog woodland [91D0]	Given the distance between the Natura 2000 Site and the proposed works and the nature of the Qualifying Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.
Tullaghanrock Bog SAC (002354)	4.2km	• Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the Rhynchosporion [7150]	Given the distance between the Natura 2000 Site and the proposed works and the nature of the Qualifying Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.
Moygollan Turlough SAC (000612)	7.6km	• Turloughs [3180]	Given the distance between the Natura 2000 Site and the proposed works and the nature of the Qualifying Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.

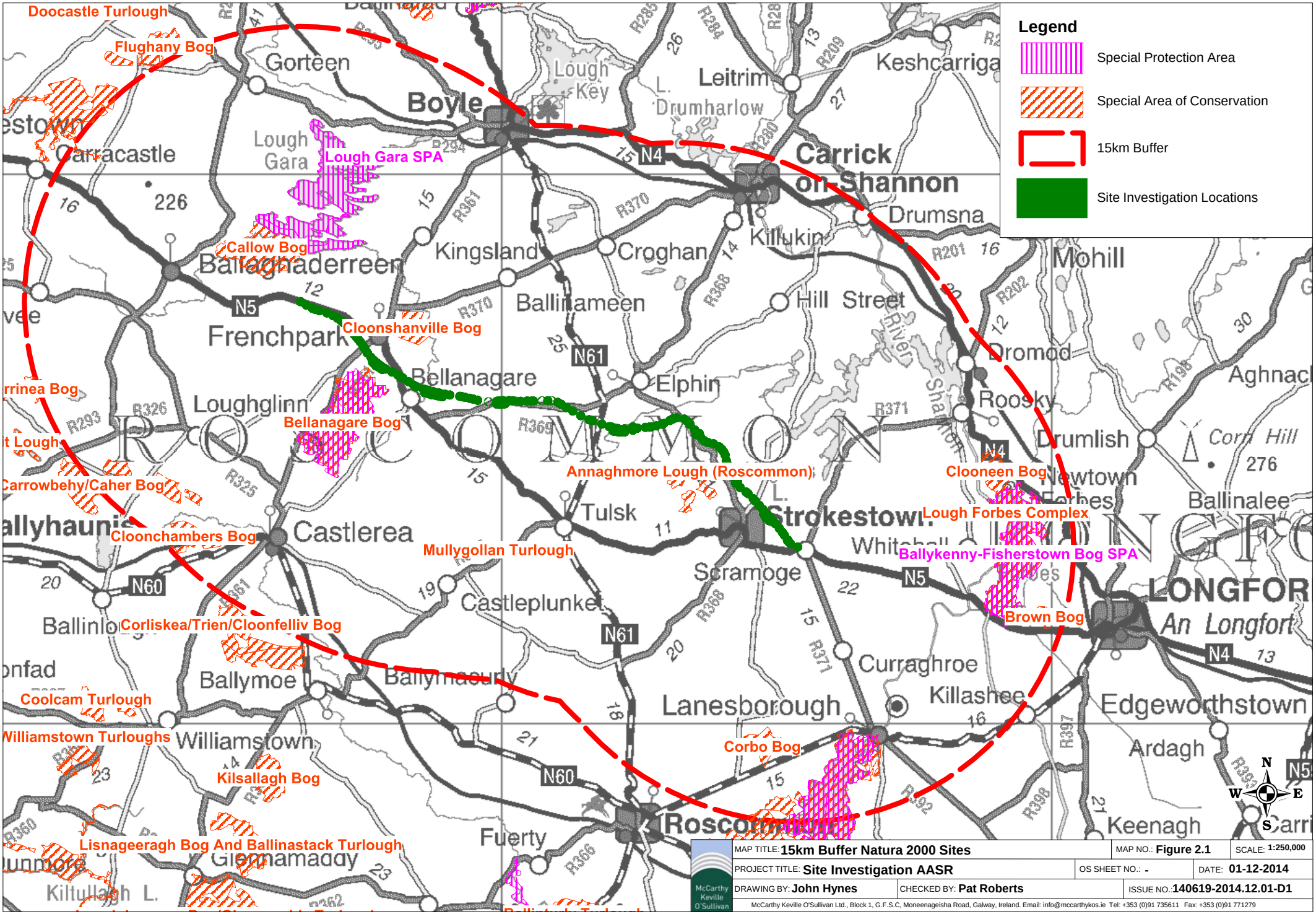
Natura 2000 Site	Distance from Proposed Works (km)	Qualify Interests/Special Conservation Interests for which the Natura 2000 Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 19/02/2015)	Screening
Corbo Bog SAC (002349)	9.9km	• Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the Rhynchosporion [7150]	Given the distance between the Natura 2000 Site and the proposed works and the nature of the Qualifying Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.
Lough Ree (000440)	10.3km	• Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150] • Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] • Degraded raised bogs still capable of natural regeneration [7120] • Alkaline fens [7230] • Limestone pavements [8240] • Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] • Bog woodland [91D0] • *Lutra lutra* (Otter) [1355]	Given the distance between the Natura 2000 Site and the proposed works and the nature of the Qualifying Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.
Lough Forbes Complex SAC (001818)	10.4km	• Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150] • Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the Rhynchosporion [7150] • Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion	Given the distance between the Natura 2000 Site and the proposed works and the nature of the Qualifying Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.

Natura 2000 Site	Distance from Proposed Works (km)	Qualify Interests/Special Conservation Interests for which the Natura 2000 Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 19/02/2015)	Screening
		albae) [91E0]	
Clooneen Bog SAC (002348)	10.8km	• Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the Rhynchosporion [7150] • Bog woodland [91D0]	Given the distance between the Natura 2000 Site and the proposed works and the nature of the Qualifying Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.
Flughany Bog SAC (000497)	11.1km	• Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the Rhynchosporion [7150]	Given the distance between the Natura 2000 Site and the proposed works and the nature of the Qualifying Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.
Drumalough Bog SAC (002338)	11.8km	• Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the Rhynchosporion [7150]	Given the distance between the Natura 2000 Site and the proposed works and the nature of the Qualifying Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.
Cloonchambers Bog SAC (000600)	12.5km	• Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the Rhynchosporion [7150] • *Euphydryas aurinia* (Marsh Fritillary) [1065]	Given the distance between the Natura 2000 Site and the proposed works and the nature of the Qualifying Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.
Brown Bog SAC (002346)	13.3km	• Active raised bogs [7110]	Given the distance between the Natura

Natura 2000 Site	Distance from Proposed Works (km)	Qualify Interests/Special Conservation Interests for which the Natura 2000 Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 19/02/2015)	Screening
		• Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the Rhynchosporion [7150]	2000 Site and the proposed works and the nature of the Qualifying Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.
River Moy SAC (002298)	13.4km	• Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the Rhynchosporion [7150] • Alkaline fens [7230] • Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] • Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] • *Austropotamobius pallipes* (White-clawed Crayfish) [1092] • *Petromyzon marinus* (Sea Lamprey) [1095] • *Lampetra planeri* (Brook Lamprey) [1096] • *Salmo salar* (Salmon) [1106] • *Lutra lutra* (Otter) [1355]	Given the distance between the Natura 2000 Site and the proposed works and the nature of the Qualifying Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.
Derrinea Bog SAC (000604)	14.6km	• Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the Rhynchosporion [7150]	Given the distance between the Natura 2000 Site and the proposed works and the nature of the Qualifying Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.

Natura 2000 Site	Distance from Proposed Works (km)	Qualify Interests/Special Conservation Interests for which the Natura 2000 Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 19/02/2015)	Screening
Corrowbehy/Caher Bog SAC (000597)	14.6km	• Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the Rhynchosporion [7150] • *Euphydryas aurinia* (Marsh Fritillary) [1065]	Given the distance between the Natura 2000 Site and the proposed works and the nature of the Qualifying Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.
Special Protected Areas (SPA)			
Bellanagare Bog SPA (004105)	**0.75km**	• **Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]**	**Given the distance between the Natura 2000 Site and the proposed works potential impacts are considered further.**
Lough Gara SPA (004048)	2.6km	• Whooper Swan (*Cygnus cygnus*) [A038] • Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]	Given the distance between the Natura 2000 Site and the proposed works and the nature of the Special Conservation Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.
Lough Ree SPA (004064)	10.4km	• Little Grebe (*Tachybaptus ruficollis*) [A004] • Whooper Swan (*Cygnus cygnus*) [A038] • Wigeon (*Anas penelope*) [A050] • Teal (*Anas crecca*) [A052] • Mallard (*Anas platyrhynchos*) [A053] • Shoveler (*Anas clypeata*) [A056] • Tufted Duck (*Aythya fuligula*) [A061] • Common Scoter (*Melanitta nigra*) [A065] • Goldeneye (*Bucephala clangula*) [A067]	Given the distance between the Natura 2000 Site and the proposed works and the nature of the Special Conservation Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.

Natura 2000 Site	Distance from Proposed Works (km)	Qualify Interests/Special Conservation Interests for which the Natura 2000 Site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 19/02/2015)	Screening
		• Coot (*Fulica atra*) [A125] • Golden Plover (*Pluvialis apricaria*) [A140] • Lapwing (*Vanellus vanellus*) [A142] • Common Tern (*Sterna hirundo*) [A193] • Wetland and Waterbirds [A999]	
Ballykenny-Fisherstown Bog SPA (004101)	10.4km	• Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]	Given the distance between the Natura 2000 Site and the proposed works and the nature of the Special Conservation Interests, no complete impact source-pathway-receptor chain could be identified. Potential impacts are not anticipated.



MAP TITLE: **15km Buffer Natura 2000 Sites**		MAP NO.: **Figure 2.1**	SCALE: **1:250,000**
PROJECT TITLE: **Site Investigation AASR**		OS SHEET NO.: **-**	DATE: **01-12-2014**
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McCarthy Keville O'Sullivan Ltd., Block 1, G.F.S.C, Moneenageisha Road, Galway, Ireland. Email: info@mccarthykos.ie Tel: +353 (0)91 735611 Fax: +353 (0)91 771279

Based on proximity and (in the case of Annaghmore Lough) potential hydrological connectivity rather than any obvious habitat connectivity, Bellanagare Bog SAC and SPA and Annaghmore Lough (Roscommon) SAC (001626) are assessed further in this screening document.

The remaining Natura 2000 sites are located a minimum distance of 1.8km away and have no identifiable connectivity with the proposed works. Given the nature and scale of works and the distance by land, there is no known vector, pathway or conduit for impacts between the proposed works and the remaining Natura 2000 sites. Therefore the proposed works are considered *Extremely unlikely* (NRA, 2009) to have any significant direct or indirect impacts on the remaining Natura 2000 Sites and they are not considered further in this screening assessment.

The Detailed Screening Assessment of Bellanagare Bog SAC and SPA along with Annaghmore Lough SAC is presented in Section 3.2 below.

3 APPROPRIATE ASSESSMENT SCREENING

The following sections of the report assess the potential for impacts on the Natura 2000 identified in Section 2 as having potential to be effected. The initial screening exercise that is described in Section 2.2 of this document identified three designated sites within 15 km of the proposed works that required further screening assessment. These included the following sites:

- Bellanagare Bog SAC
- Bellanagare Bog SPA
- Annaghmore Lough SAC

The potential for impacts on the conservation objectives of these sites is assessed in Section 3.1 below (Tables 3.1, 3.2 & 3.3 below), with particular attention paid to any impacts on the Qualifying Interests/Special Conservation Interests of the Natura 2000 Sites.

The potential for impacts is assessed according to more general criteria in Section 3.2.

3.1 Potential Impacts on Qualifying Interests/Special Conservation Interests

3.1.1 Bellanagare Bog SAC (Site Code: 000592)

The current Conservation Objective of Bellanagare Bog SAC (Site Code: 000592), as published on the NPWS website (www.npws.ie, accessed on 02/12/2014), is to maintain or restore the favourable conservation status of the Annex I habitats and the Annex II species for which the SAC has been selected (Table 3.1). The full text of the Site Synopsis is provided in **Appendix I**.

Table 3.1 Qualifying Interests of the Bellanagare Bog SAC (Site Code: 000592) and Assessment of Potential Impacts

Qualifying Interests		
Annex I Habitats	**Direct Impacts**	**Indirect Impacts**
Active raised bogs [7110]	Direct Impacts are not anticipated as the proposed works to do not traverse the SAC nor do they traverse any Annex listed habitat for which the SAC is designated.	This habitat is not found along the route of the proposed G.I. works. Given the nature and scale of the works, the lack of hydrological connectivity and the distance from the Natura 2000 Site; no complete source pathway-receptor chain could be identified between the proposed works and the Qualifying Interest.
Degraded raised bogs still capable of natural regeneration [7120]	Direct Impacts are not anticipated as the proposed works to do not traverse the SAC nor do they traverse any Annex listed habitat for which the SAC is	This habitat is not found along the route of the proposed G.I. works.

	designated.	
Depressions on peat substrates of the Rhynchosporion [7150]	Direct Impacts are not anticipated as the proposed works to do not traverse the SAC nor do they traverse any Annex listed habitat for which the SAC is designated.	Given the nature and scale of the works, the lack of hydrological connectivity and the distance from the Natura 2000 Site; no complete source pathway-receptor chain could be identified between the proposed works and the Qualifying Interest.
Annex II Species	**Direct Impacts**	**Indirect Impacts**
Marsh Fritillary (*Euphydryas aurinia*) [1065]	A dedicated Marsh Fritillary Larval Web Survey, of suitable habitat, as previously identified during general site walkover surveys, was conducted on the 11th September 2014, which falls inside the recognised optimum larval web survey period (i.e. Late august and September). The survey was conducted, in accordance with the Marsh Fritillary Euphydryas aurinia Survey - Specific Requirements, Northern Ireland Environment Agency (NIEA, 2011). No evidence of Marsh Fritillary was found during the dedicated surveys therefore the species is highly unlikely to be impacted by the proposed works in any regard.	Indirect Impacts are not anticipated.

***Annex I priority habitat**

3.1.2 Bellanagare Bog SPA (004105)

There are no conservation objectives available on the NPWS website in relation to Bellanagare Bog SPA (www.npws.ie, accessed on 02/12/2014). Consequently, the conservation objective has been extrapolated from a similar designated site in the vicinity i.e. Lough Ree SPA. The Special Conservation Interest of Bellanagare Bog SPA is listed in Table 3.2 below. The Site Synopsis for this designated site was not available on the NPWS website.

Table 3.2 Special Conservation Interests of Bellanagare Bog SPA (Site Code: 004105) and Assessment of Potential Impacts

Special Conservation Interests	Direct Impacts	Indirect Impacts
*Greenland White Fronted Goose (*Anser albifrons flavirostris*) (A395)	Direct impacts on the SCI are not anticipated given that the proposed works are set back a minimum distance of 750m from the SPA boundary.	Indirect impacts as a result of disturbance are not anticipated as the proposed works, in the vicinity of the SPA, are screened from the SPA by a network of treelines and hedgerows. In addition,

Special Conservation Interests	Direct Impacts	Indirect Impacts
		the proposed works are of a small size and are similar in scale to agricultural activity. Consequently indirect impacts on the SCI are not anticipated.

***Annex I Species**

3.1.3 Annaghmore Lough (Roscommon) SAC (001626)

The current Conservation Objective of Annaghmore Lough (Roscommon) SAC (001626) as published on the NPWS website (www.npws.ie, accessed on 02/12/2014), is to maintain or restore the favourable conservation status of the Annex I habitats and the Annex II species for which the SAC has been selected (Table 3.3). The full text of the Site Synopsis is provided in **Appendix I**.

Table 3.3 Qualifying Interests of the Annaghmore Lough (Roscommon) SAC (001626) and Assessment of Potential Impacts

Qualifying Interests		
Annex I Habitats	**Direct Impacts**	**Indirect Impacts**
Alkaline fens [7230]	Direct Impacts are not anticipated as the proposed works to do not traverse the SAC nor do they traverse any Annex listed habitat for which the SAC is designated.	Given the nature and scale of the works and the distance from the Natura 2000 Site; no complete source pathway-receptor chain could be identified between the proposed works and the Qualifying Interest.
Annex II Species		
Vertigo geyeri [1013]	The proposed works are located a minimum distance of 1.1km from the SAC. Consequently, no direct impacts are anticipated.	Given the nature and scale of the works, no complete source pathway-receptor chain could be identified between the proposed works and the Qualifying Interest.

***Annex I priority habitat**

3.2 General Article 6(3) Screening Assessment

The assessment for the potential of the proposed Ground Investigation works to impact on any Natura 2000 sites followed the criteria set out below and is based on published information regarding the Natura 2000 sites and a field assessment of the sites of the proposed works.

3.2.1 Description of the Individual Elements of the Project with Potential to give Rise to Impacts on the Natura 2000 Site

- The works involve ground investigation and include trial pits and slit trenches, rotary core boreholes, cable percussion boreholes, ground probing, geophysics, pressure probing and material testing. The contract period is 3.5 months.

3.2.2 Description of any Likely Direct, Indirect or Secondary Impacts of the Project on the Natura 2000 Site

Any likely direct, indirect or secondary impacts of the proposed works, both alone and in combination with other plans or projects, on the Natura 2000 Sites by virtue of the following criteria: size and scale, land-take, distance from the Natura 2000 sites or key features of the site, resource requirements (such as water abstraction), emissions (disposal to land, water or air), excavation requirements, transportation requirements and duration of construction, operation, decommissioning are presented in Table 3.4 below.

Table 3.4 Likely Impacts of the Project on the Natura 2000 Sites

Likely Direct, Indirect or Secondary Impacts of the Project on the Natura 2000 Sites	
Size and Scale	There will be no impact as a result of the size and scale of the proposed works. Given that these works are temporary and that the works will be located entirely outside any designated site and are similar in scale to agricultural activity.
Land-take	There will be no land take within the Natura 2000 sites.
Distance from the Natura 2000 Site or Key Features of the Site	The closest Natura 2000 site is located 0.45km from the proposed works. Significant impacts to the Natura 2000 Sites based on proximity are not anticipated. The works are small scale in nature and unlikely to result in any indirect impacts on Natura 2000 sites or any of their qualifying interests, conservation objectives or special conservation interests as a result of distance.
Resource Requirements	The proposed works will not exploit any resources within any Natura 2000 site.
Emissions	During the Ground investigation, emissions could include the run-off of silt-laden water, nutrients or hydrocarbon spillages resulting from ill maintained machinery or accidental spillage. The design of the project has taken into account that all necessary measures and best practice will be put in place to avoid harmful emissions as a result of the proposed works. It is unlikely therefore, that emissions will have a significant negative impact on any other Natura 2000 site.
Excavation Requirements	Small scale excavation will be required. Excavation works will be short-term and earth movements will be subject to best practice management. The best practice and mitigation measures outlined in this report include precautionary measures to avoid sediment run-off. Thus, no significant impact as a result of excavation or earth works is anticipated.

Likely Direct, Indirect or Secondary Impacts of the Project on the Natura 2000 Sites	
Transportation Requirements	All access to the site will be via the existing road network including the local access roads. Access to off road site will be gained via the existing access gates with minimal disturbance to linear landscape features. The No significant impacts are predicted as a result of transportation requirements.
Duration of Construction, Operation, Decommissioning	The construction phase of the proposed works will be short-term in duration and therefore there will be no significant impact in terms of length of the Ground investigation phase. The timescale for the entire project is 3.5 months. Individual elements of the works will only be active for short periods of time and all excavation will be backfilled shortly after testing is completed. The works are small scale in nature significant impacts as a result of the duration of the project are not anticipated.
Cumulative Impacts with other Projects or Plans	On the basis that the project as proposed will have no significant impacts on any Natura 2000 sites, cumulative impacts are not anticipated

3.2.3 Description of any Likely Changes to the Natura 2000 Sites

Any likely changes to the Natura 2000 Sites are described below in Table 3.5 with reference to the following criteria: reduction of habitat area, disturbance to key species, habitat or species fragmentation, reduction in species density, changes in key indicators of conservation value (e.g. water quality etc.) and climate change.

Table 3.5 Likely Changes to the Natura 2000 Sites

Likely Changes to the Natura 2000 Sites	
Reduction of Habitat Area	The proposed works are located a minimum distance of 0.45km from the nearest Natura 2000 Site. As no works are proposed within the boundary of any Natura 2000 site, and no significant indirect impacts are predicted, no reduction in habitat area is anticipated.
Disturbance to Key Species	Given that all the works associated with the proposed works are wholly located outside the boundaries of any Natura 2000 site and the nearest Natura 2000 Site is 0.45km away. It is considered that there will be no significant impacts on key species associated with any Natura 2000 site.
Habitat or Species Fragmentation	Given that all the works associated with the proposed works are wholly located outside the boundaries of any Natura 2000 site, It is considered that there will be no significant impacts with respect to habitat or species fragmentation.
Reduction in Species Density	Given the habitats upon which the proposed works are located and the lack of proposed works within any Natura 2000 site, no reduction in faunal species density is anticipated as a result of the proposed works.
Changes in Key Indicators of Conservation Value	Given the nature, scale and location of the proposed works, it is considered unlikely that there will be any changes to the key indicators of conservation value of any of the Natura 2000 sites.
Climate Change	Given the nature and scale of the proposed works, it is considered unlikely that there will be any significant resultant impact on climate change.

3.2.4 Description of any Likely Impacts on Natura 2000 Sites as a Whole

Given the nature and scale of the proposed works it is considered unlikely that there will be any significant effect on the Conservation Objectives of any Natura 2000 sites.

3.2.5 Indicators of Significance as a Result of the Identification of Effects

Indicators of significance are provided below for any impacts identified above in terms of loss, fragmentation, disruption, disturbance and changes to key elements of the site, such as water quality.

Table 3.6 Indicators of Significance as a Result of the Identification of Effects

Indicators of Significance as a Result of the Identification of Effects	
Loss	There will be no loss of habitat within any Natura 2000 site as a result of the proposed works.
Fragmentation	There will be no habitat fragmentation within any Natura 2000 site as a result of the proposed works.
Disruption	There will be no significant disruption to processes within any Natura 2000 site as a result of the proposed works.
Disturbance	There will be no significant disturbance to fauna within any Natura 2000 site as a result of the proposed works.
Changes to Key Elements of the Site	There will be no changes to key elements within any Natura 2000 site as a result of the proposed works.

3.2.6 Description of any Likely Significant Impacts or Indeterminate Impacts of the Project on Natura 2000 Sites

- No significant effects are likely as a result of the proposed works on the conservation objectives of any Natura 2000 site.

3.3 Findings of Article 6(3) Screening Assessment

Proposed Ground Investigation Works

Name and location of Natura 2000 sites

The location of Natura 2000 Sites within the 15km buffer of the proposed works is displayed in Figure 2.1. The distances between the proposed works and the Natura 2000 Sites are provided in Table 2.1. Bellanagare Bog SAC and SPA and Annaghmore Lough (Roscommon) SAC are the closest Natura 2000 Sites to the proposed G.I. works and are located a minimum distance of 0.45km, 0.75km and 1.1km respectively.

Description of Project

The works involve Ground investigation and include trial pits and slit trenches, rotary core boreholes, cable percussion boreholes, ground probing, geophysics, pressure probing and material testing. The contract period is 3.5 months.

Is the project directly connected with or necessary to the management of the sites?

- No

Are there any other projects or plans that together with the project being assessed could affect the sites?

- No, on the basis that the project as proposed will have no significant impacts on any Natura 2000 sites. Therefore cumulative impacts are not anticipated.

3.3.1 Assessment of Significance of Effects

Describe how the project is likely to affect the Natura 2000 sites

- The project as proposed will not significantly affect the sites.

Explain why these effects are not considered significant

- There are no Natura 2000 Sites located within 0.45km of the proposed works.
- The works themselves will involve little disturbance or disruption to the ecological processes in the area and therefore any significant indirect, secondary or cumulative impacts on any Natura 2000 sites can be excluded.
- The works will be conducted according to best construction practice and will be small scale in nature.

3.3.2 Data Collected to Carry Out Assessment

In preparation of the assessment, the following sources were used to gather information:

- Review of NPWS Site Synopses and Conservation Objectives for Natura 2000 sites
- Field surveys including habitat mapping completed on the 14th & 28th of July, 11th of September and 31st of October 2014.
- Desk study of relevant ecological information
- Desk study, field studies and associated reporting prepared by John Hynes (B Sc. M Sc. Grad CIEEM) and reviewed by Pat Roberts (B Sc. MCIEEM), McCarthy Keville O'Sullivan Ltd.

3.3.3 Overall Conclusions

The outcome of screening the proposed development is that it can be objectively concluded that there is no likelihood of any significant negative effects on any Natura 2000 sites. Therefore no further assessment is required.

The information in this Report provides a summary of the information gathered for this screening exercise and the conclusions made.

Appendix 1

NPWS Site Synopses

SITE SYNOPSIS

Site Name: Bellanagare Bog SAC

Site Code: 000592

Bellanagare Bog is a large bog situated 6 km north-north-east of Castlerea in Co. Roscommon. It is classified as a western, or intermediate, raised bog, because is shows features of both raised bog and blanket bog. The bog is underlain by muddy Carboniferous limestone with a low permeability. The sub-soil is predominantly of clayey limestone till. The site lies in an upland area at the top of a surface catchment divide. The surface of the bog is undulating and the peat is concentrated on ridges, with flushes occurring in between. A number of streams, including the Frances River, rise on the site. The bog is traversed by several tracks. A large section of the site is in state ownership.

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):

[7110] Raised Bog (Active)*
[7120] Degraded Raised Bog
[7150] Rhynchosporion Vegetation
[1065] Marsh Fritillary (*Euphydryas aurinia*)

Active raised bog comprises areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses (*Sphagnum* spp.) is high, and where some or all of the following features occur: hummocks, pools, wet flats, *Sphagnum* lawns, flushes and soaks. Degraded raised bog corresponds to those areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration. The Rhynchosporion habitat occurs in wet depressions, pool edges and erosion channels where the vegetation includes White Beak-sedge (*Rhynchospora alba*) and/or Brown Beak-sedge (*R. fusca*), and at least some of the following associated species, Bog Asphodel (*Narthecium ossifragum*), sundews (*Drosera* spp.), Deergrass (*Scirpus cespitosus*) and Carnation Sedge (*Carex panicea*).

The high bog at Bellanagare is predominantly comprised of degraded raised bog. This habitat tends to be drier that the active bog areas and species such as Cross-leaved Heath (*Erica tetralix*), Heather (*Calluna vulgaris*), Common Cottongrass (*Eriophorum angustifolium*), Bog Asphodel, Carnation Sedge and Deergrass tend to be the most frequent and conspicuous. Indicator species of midland raised bogs such as Bog-rosemary (*Andromeda polifolia*) and the bog moss *S. magellanicum* are present, though they are not as common as in raised bogs further east in the country. The

cover of bog mosses is relatively low in areas of degraded bog and there are few wet pool areas

Well-developed hummocks and several quaking areas occur in the active area of the high bog at this site. Rhynchosporion vegetation is best developed in the areas of active raised bog where there is deep and quaking peat. Such areas contain numerous pools and quaking flats which support a typical, species-poor vegetation that includes plant species such as *Sphagnum cuspidatum*, Bogbean (*Menyanthes trifoliata*), White Beak-sedge, Great Sundew (*Drosera anglica*) and Common Cottongrass. The rare moss *Sphagnum pulchrum* has been recorded from such areas recently, and Brown Beak-sedge, a relatively scarce species in Ireland, has also been recorded from wet pools. Bog-sedge (*Carex limosa*), a species more usually found on blanket bogs, occurs in some pools.

Bellanagare Bog is also notable for the range of flush types found. These occur quite frequently and are usually located in depressions. Flush types on the site include an in-filling lake, an extensive Purple Moor-grass (*Molinia caerulea*) flush with a high diversity of plant species, a large swallow-hole flush, and flushes associated with springs, rises and streams. One flush is coincident with a bog burst. The site also includes much cut-away bog, small areas of heath, scrub, wet grassland and several small conifer plantations.

The scarce butterfly, Marsh Fritillary, a species listed on Annex II of the E.U. Habitats Directive, is found at this site. This species has most commonly been recorded in areas where its food plant Devil's-bit Scabious (*Succisa pratensis*) occurs, such as in flushes, cutover bog and wet grassland.

The site provides habitat for a relatively large population of Red Grouse, a scarce and declining species in Ireland.

The site is vulnerable to water loss through the extensive drain network in its northern half, and from active peat- cutting which occurs in places all around the site. The site is also very vulnerable to burning because of it being quite a dry bog.

For a raised bog, Bellanagare Bog is floristically unusual, supporting species typically found on raised bogs as well as species more usually found on blanket bogs. Bellanagare Bog is of considerable scientific and conservation significance, in particular for its status as an intermediate raised bog, but also for the wide variety of flush types found, as well as for its large size and for the presence of scarce plant species. Raised bogs are rare and threatened in Europe, and are listed as a priority habitat on Annex I of the E.U. Habitats Directive.

SITE SYNOPSIS

Site Name: Annaghmore Lough (Roscommon) SAC

Site Code: 001626

Annaghmore Lough is located 5 km north-west of Strokestown, Co. Roscommon. It lies at the centre of a network of small lakes in a rolling, drift-covered landscape. The shoreline slopes gently to the lake and these low-lying margins are extensively flooded in winter. In summer, when water levels recede, substantial areas of this shallow calcareous lake dry out, leaving flat expanses of exposed marl. A smaller, less calcareous lake occurs to the south of the site.

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

[7230] Alkaline Fens
[1013] Geyer's Whorl Snail (*Vertigo geyeri*)

The main lake at this site is surrounded by Common Club-rush (*Scirpus lacustris*) backed by reedbeds of Common Reed (*Phragmites australis*). Extensive areas of alkaline fen, dominated by Black Bog-rush (*Schoenus nigricans*) occur around the shoreline. Damp calcareous grassland, subject to winter flooding, also occurs in association with the fen. Common Butterwort (*Pinguicula vulgaris*) is extremely abundant in this species-rich grassland, together with Common Sedge (*Carex nigra*), Carnation Sedge (*C. panicea*), Glaucous Sedge (*C. flacca*), Tawny Sedge (*C. hostiana*), Greater Bird's-foot-trefoil (*Lotus uliginosus*) and Few-flowered Spike-rush (*Eleocharis quinqueflora*). Several orchid species are found, including Early Marsh-orchid (*Dactylorhiza incarnata*) and Fragrant Orchid (*Gymnadenia canopsea*). A number of uncommon plants are found in the wet calcareous fen and surrounding grasslands. These include Broad-leaved Cottongrass (*Eriophorum latifolum*), Marsh Helleborine (*Epipactis palustris*), Marsh Hawk's-beard (*Crepis paludosa*), Bee Orchid (*Ophrys apifera*) and Fly Orchid (*O. insectifera*). The fen also hosts two rare moss species, *Bryum neodamense* and *B. uliginosum*, although the latter has not been seen at the site for several years.

A small area of limestone pavement with abundant White Stonecrop (*Sedum album*) and an old cutover bog add diversity to the site.

Two populations of the rare whorl snail *Vertigo geyeri* are found in association with Black Bog-rush in the alkaline fen on the northern shore of Annaghmore Lough. This species is rare in Europe and listed on Annex II of the E.U. Habitats Directive.

The site is important for wintering birds and is listed as a wildfowl sanctuary, with nationally important numbers of Teal (545) and Shoveler (55) (counts are average peaks for period 1998/99 – 2002/03). A good diversity of other species occur in local or regional concentrations, including Wigeon (402), Mallard (183), Pochard (28), Goldeneye (22), Lapwing (297) and Curlew (84). Of particular note is the occurrence, albeit in small numbers, of two species which are listed on Annex I of the E.U. Birds Directive, Whooper Swan (7) and Golden Plover (264).

This site is relatively intact with only minor damage caused by cattle poaching and some burning on the fen. Some infilling of wetland vegetation has occurred between the northern shore of the lake and the nearby road. Drainage is a potential threat to the site and associated floodlands.

This is a site of considerable conservation importance as it contains a range of uncommon plant species, supports significant bird numbers, and contains a good example of alkaline fen vegetation. It is also particularly noteworthy because it supports a population of the rare snail *Vertigo geyeri*.