



APPROPRIATE ASSESSMENT SCREENING REPORT

FOR

R198 BATTERY ROAD JUNCTION
IMPROVEMENT SCHEME 2020

AT

BATTERY ROAD,
LONGFORD TOWN,
CO LONGFORD

December 2020

ON BEHALF OF

LONGFORD COUNTY COUNCIL

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1 INTRODUCTION

1.1 Background

Enviroguide Consulting was commissioned by Longford County Council to carry out an Appropriate Assessment Screening Report in respect of the Proposed Development at Battery Road, Longford Town, Co. Longford. This report contains information to enable the planning authority to undertake Stage 1 Appropriate Assessment screening in respect of the Proposed Development.

1.2 Legislative Background

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats and wild fauna and flora by the designation of Special Areas of Conservation (SACs) and the Birds Directive (79/409/EEC) seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs). It is the responsibility of each member state to designate SPAs and SACs, both of which will form part of Natura 2000, a network of protected sites throughout the European Community. SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats. The annexed habitats and species for which each site is selected correspond to the qualifying interests of the sites; from these the conservation objectives of the site are derived.

An 'Appropriate Assessment' (AA) is a required assessment to determine the likelihood of significant effects, based on best scientific knowledge, of any plans or projects on Natura 2000 sites. A screening for AA determines whether a plan or project, either alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site, in view of its conservation objectives.

This AA Screening has been undertaken to assess the potential for significant effects on relevant Natura 2000 sites. The purpose of this assessment is to determine, the appropriateness, or otherwise, of the Proposed Development in the context of the conservation objectives of such sites.

1.2.1 Legislative Context

An Appropriate Assessment is required under Article 6 of the Habitats Directive where a project or plan may give rise to significant effects upon a Natura 2000 site, paragraphs 3 states that:

“6(3) 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.”

These obligations in relation to Appropriate Assessment have been implemented in Ireland under Part XAB of the Planning and Development Act 2000, as amended (“the 2000 Act”), and in particular Section 177U and Section 177V thereof. The relevant provisions of Section 177U in relation to AA screening have been set out below:

“177U.— (1) A screening for appropriate assessment of a draft Land use plan or application for consent for proposed development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that Land use plan or proposed development, individually or in combination with another plan or project is likely to have a significant effect on the European site.

(2)...

(3)...

(4) The competent authority shall determine that an appropriate assessment of a draft Land use plan or a proposed development, as the case may be, is required if it cannot be excluded, on the basis of objective information, that the draft Land use plan or proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site.

(5) The competent authority shall determine that an appropriate assessment of a draft Land use plan or a proposed development, as the case may be, is not required if it can be excluded, on the basis of objective information, that the draft Land use plan or proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site.”

This AA Screening Report was conducted within this legislative framework and the published Department of Environment, Heritage and Local Government 2010 guidelines - “Appropriate Assessment of Plans & Projects - Guidance for Planning Authorities”. The directives are transposed into Irish legislation by the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended).

As outlined, it is the responsibility of the proponent of the project to provide a comprehensive and objective Screening for Appropriate Assessment, which can then be used by the competent authority to conduct the Appropriate Assessment (DEHLG, 2010).

1.2.2 Stages of AA

This Appropriate Assessment Screening Report (the “**Screening Report**”) has been prepared by Enviroguide Consulting. It considers whether the Proposed Development is likely to have a significant effect on a Natura 2000 site and whether a Stage 2 Appropriate Assessment is required.

The AA process is a four-stage process, with issues and tests at each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

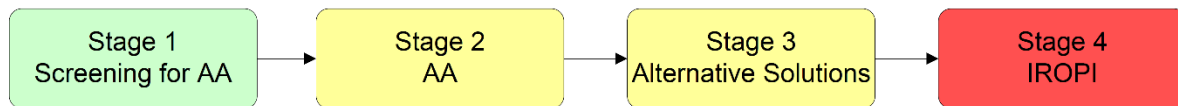


FIGURE 1. THE FOUR STAGES OF THE APPROPRIATE ASSESSMENT PROCESS (DEHLG, 2010).

The four stages of an AA can be summarised as follows:

- Stage 1 *Screening* addresses:
 - whether a plan or project is directly connected to or necessary for the management of the site, or
 - whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives.
- Stage 2: *Natura Impact Statement (NIS)*. The second stage of the AA process assesses the impact of the project or plan (either alone or in combination with other projects or plans) on the integrity of the Natura 2000 site, with respect to the conservation objectives of the site and its ecological structure and function. A Natura Impact Statement containing a professional scientific examination of the project or plan is required and includes any mitigation measures to avoid and reduce significant negative impacts.
- Stage 3: *Assessment of alternative solutions*. If the outcome of Stage 2 is negative i.e. adverse impacts to the sites cannot be scientifically ruled out, despite mitigation, the plan or project should proceed to Stage 3 or be abandoned. This stage examines alternative solutions to the proposal.
- Stage 4: *Assessment where no alternative solutions exist and where adverse impacts remain*. The final stage is the main derogation process examining whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project to adversely affect a Natura 2000 site, where no less damaging solution exists.

The purpose of Stage 1, the Screening Stage is to determine the necessity or otherwise for a NIS. Screening for AA examines the likely effects of a project or plan alone, and in combination with other projects or plans, upon a Natura 2000 site, and considers whether it can be objectively concluded that these effects will not be significant.

The need to apply the precautionary principle in making any key decisions in relation to the tests of AA has been confirmed by European Court of Justice case law. Therefore, where significant effects are likely, uncertain, or unknown at screening stage, AA will be required.

If it is determined during screening stage that the proposal has the potential to have a significant effect on a Natura 2000 site, then a NIS will be required.

2 METHODOLOGY

2.1 Screening Steps

This AA Screening Report has been undertaken in accordance with the European Communities Methodological Guidance on the provision of Article 6(3) and 6(4) of the

'Habitats' Directive 92/43/EEC (EC, 2002) and the European Commission Guidance 'Managing Natura 2000 sites' (EC, 2000). Screening for AA involves the following:

- Establish whether the plan is directly connected with or necessary for the management of a Natura 2000 site;
- Description of the plan or project and the description and characterisation of other projects or plans that in combination have the potential for having significant effects on the Natura 2000 site;
- Identification of Natura 2000 sites potentially affected;
- Identification and description of potential effects on the Natura 2000 site;
- Assessment of the likely significance of the impacts identified on the Natura 2000 site; and
- Exclusion of sites where it can be objectively concluded that there will be no significant effects.

This AA Screening Report examines whether any potential effects upon a Natura 2000 site will be significant and determines whether the AA process for the Proposed Development at Battery Road, Longford Town, Co. Longford, alone and in combination with other plans and projects in the area, is required to proceed to a Stage 2 Appropriate Assessment.

2.2 Desk Study

A desktop study was carried out to collate and review available information, datasets, and documentation sources relevant for the completion of this Screening Report. The desktop study relied on the following sources:

- Information on the network of Natura 2000 sites, boundaries, qualifying interests and conservation objectives, obtained from the National Parks and Wildlife Service (NPWS) at www.npws.ie;
- Text summaries of the relevant Natura 2000 sites taken from the respective Standard Data Forms and Site Synopses available at www.npws.ie;
- Information on species records and distributions, obtained from the National Biodiversity Data Centre (NBDC) at www.maps.biodiversityireland.ie;
- Information on waterbodies, catchment areas and hydrological connections obtained from the Environmental Protection Agency (EPA) at www.gis.epa.ie;
- Information on bedrock, groundwater, aquifers and their statuses, obtained from Geological Survey Ireland (GSI) at www.gsi.ie;
- Satellite imagery and mapping obtained from various sources and dates including Google, Digital Globe, Bing and Ordnance Survey Ireland;
- Information on the existence of permitted developments, or developments awaiting decision, in the vicinity of the Proposed Development from Longford County Council available at: <http://www.eplanning.ie/LongfordCC/searchexact>

For a complete list of the specific documents consulted as part of this assessment, see *Section 5 References*.

2.3 Assessment of Impacts

The potential for significant effects that may arise from the Proposed Development were considered through the use of key indicators, namely:

- Habitat loss or alteration
- Habitat/species fragmentation
- Disturbance and/or displacement of species
- Changes in population density
- Changes in water quality and resource

In addition, information pertaining to the conservation objectives of the Natura sites, the ecology of the designated habitats and species and known or perceived sensitivities of the habitats and species were considered.

3 STAGE 1 SCREENING

3.1 Management of Natura 2000 Sites

The Proposed Development at Battery Road, Longford Town, Co. Longford is not directly connected with or necessary to the management of Natura 2000 sites in Co. Longford or elsewhere.

3.2 Description of Proposed Development

3.2.1 Site location

The Proposed Development is located along a 775 m section of the R198 Battery Road in Longford Town, Co. Longford, south of the N4 and east of the N5, passing through the townlands of Aghadegnan, Lisbrack and Abbeycarton.

3.2.2 Description of Development

The Proposed Development will consist of a number of improvement works along a 775m section of the R198 Battery Road, Longford town, Co. Longford (Figure 3). The Proposed Development will comprise of the improvement of facilities for cyclists and pedestrians, the modification of existing staggered crossroads and mini roundabouts, the amendment of gully locations and accommodation works for properties that will be affected by the Proposed Development.

Kilgallen & Partners Consulting Engineers have prepared an outline Construction Environmental Management Plan (CEMP) in accordance with the 'Guidelines for the Creation and Maintenance of an Environmental Operating Plan' (TII) and 'The Management of Waste from National Road Construction Projects' (TII). This will aim to ensure that the impact of the construction stage is minimised and ensures that there will not be any adverse impact on the environment during the construction stage.

Surface water run-off from the Proposed Development will discharge to the existing surface water drainage network serving Battery Road, Lisbrack Avenue, Anneycarton Lane and

Demesne Lane. Amendments will be required to the gully locations along the area of the Proposed works but no amendments will be made to the existing surface water drainage as a result of the Proposed Development.

3.2.3 Construction Methodology

The works will include:

- Realigning the existing road gullies to suit the new alignment of the Battery Road junction;
- The improvement of facilities for pedestrians and cyclists;
- The replacement of existing mini roundabout at Lisbrack Avenue/Battery Road junction with a signalised junction;
- The modification of existing staggered crossroads at Demesne Lane/Battery Road/Abbeycarton Lane junction to provide right-turn lanes to both Abbeycarton Lane and Demesne Lane;
- Accommodation works for properties that will be affected by the Scheme.

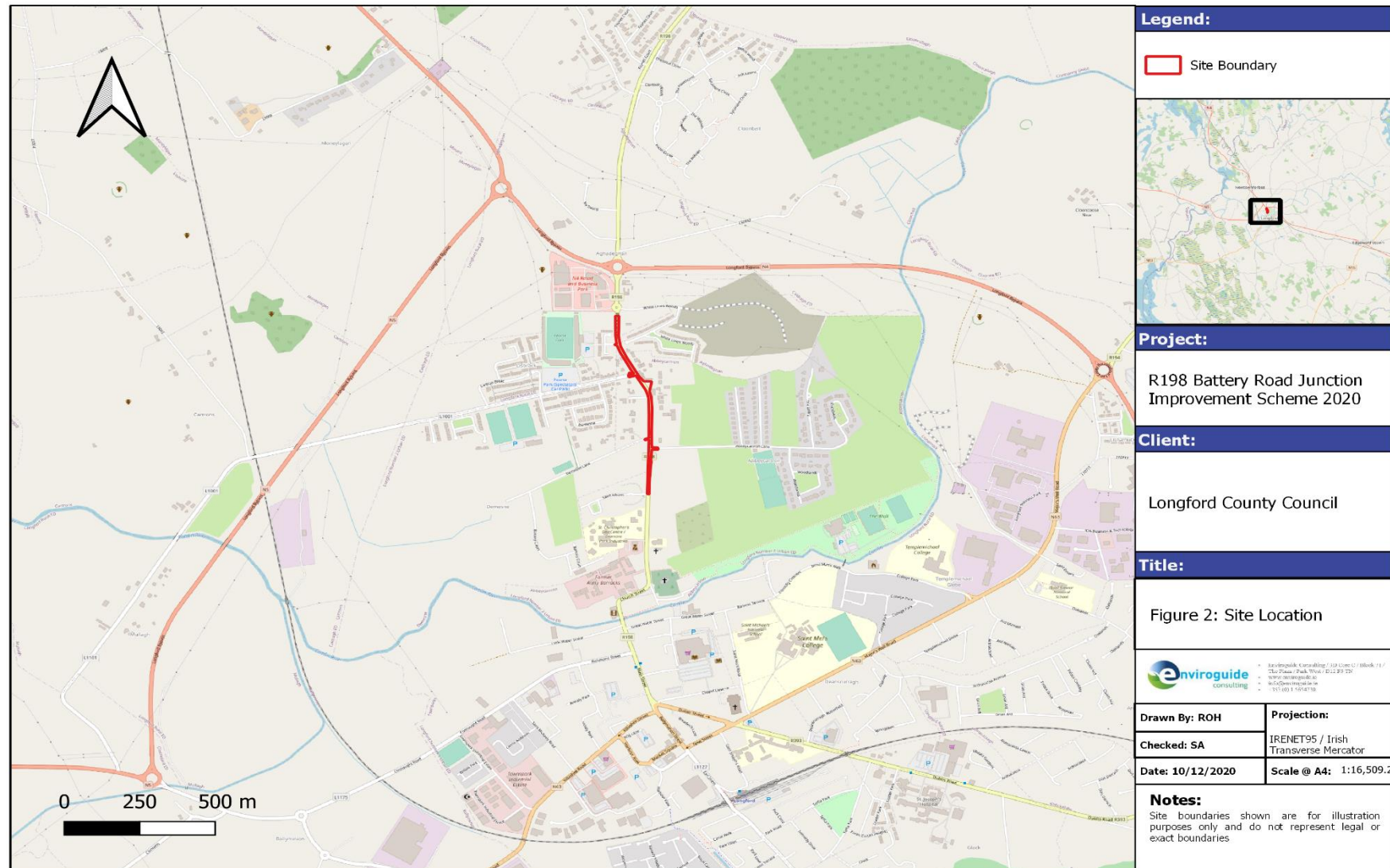


FIGURE 2. SITE LOCATION

3.3 Existing Environment

3.3.1 Surface Water

The Site of the Proposed Development is within the Upper Shannon catchment and sub catchment. There are no river waterbodies within the Site boundary of the Proposed Development.

The River Camlin_050, EPA code 26C01 (IE_SH_26C10800) is located 536m to the east and to the south of the Site, flowing past the R198 between Church Street and Main Street approximately 369m south of the Proposed Development. The River Lismore 26 EPA code 26L48 (IE_SH_26C010900) flows 528m west of the Site in a south westerly direction for 1.48 river km until it joins the River Camlin_060 (IE_SH_26C010900). The river Camlin then flows in a north westerly direction flowing into Lough Forbes Complex SAC and Ballykenny-Fishertown Bog SPA, 5.73 river km from the Proposed Development and joins the Shannon Upper River EPA code 26S02 (IE_SH_26S021510). The Shannon Upper then continues in a southern direction, flowing into Lough Ree SAC and SPA (22.8 river km from the Proposed Development) (EPA,2020).

The Status of the river Lismore is *Undefined* and the river is *At Risk* of not meeting its WFD objectives. The status of the river Camlin is *Good*, and the river is *Not At Risk* of not meeting its WFD objectives. There is an EPA monitoring station located on the River Camlin_050 south east of the Proposed Development before the River Camlin crosses the R198 Road, (Station Code RS26C010800) with a Q-Value score of 4, *Good* status. Another EPA monitoring station is located on the River Camlin further downstream of the Proposed Development, (Station Code RS26C010900) with a Q-Value score of 3-4, *Moderate* status (EPA,2020).

3.3.2 Geology, Hydrogeology and Soil

The northern section of the Proposed Development is situated on the Newtown Forbes groundwater body and the southern section is located on the Longford Ballinalee groundwater body. Newtown Forbes has a status of *Good* and is *Not At Risk* of not meeting its WFD objectives, Longford Ballinalee also has a status of *Good* and its Risk is currently under review. The Proposed Development also passes through two aquifer types, a *Regionally Important Aquifer – Karstified (conduit)* (Rkc) to the north of the site and a *Locally Important Aquifer* (LI) - Bedrock which is Moderately Productive only in Local Zones to the south of the Site (GSI,2020).

The groundwater rock units underlying the aquifer are classified as *Dinantian Pure Bedded Limestone* to the north of the Proposed Development, *Dinantian Upper Impure Limestone* in the centre section of the Proposed Development and *Dinantian Lower Impure Limestone* to the south of the Proposed Development (GSI,2020). The level of vulnerability to groundwater contamination from human activities is *High*. The subsoil is made ground (*Made*). The soil is classed as *urban* (EPA,2020).

3.4 Identification of Relevant Natura 2000 Sites

In order to identify potentially affected Natura 2000 sites, and adopting the precautionary principle, all SPAs and SACs within a 15km distance radius of the Proposed Development were considered with regard to whether they were within the zone of influence (ZOI) of the

Proposed Development (Figure 4). Natura 2000 sites outside of this 15km radius are either; located a considerable physical distance inland; separated by a substantial marine buffer; and/or located within different surface water catchment zones to the Proposed Development.

The result of this preliminary screening concluded that there is a total of five SACs and two SPAs located within the ZOI of the Proposed Development Site. The qualifying interests of these Natura 2000 sites are detailed in Table 1. The distances to each site listed are taken from the nearest possible point of the Proposed Development Site boundary to nearest possible point of each Natura 2000 site.

TABLE 1. NATURA 2000 SITES WITHIN THE ZONE OF INFLUENCE.

Site Name & Site Code	Qualifying Interests (*= priority habitats) & Status ¹	Distance to Site
Brown Bog SAC (002346)	Annex I Habitats: [7110] Active raised bogs* [7120] Degraded raised bogs still capable of natural regeneration [7150] Depressions on peat substrates of the Rhynchosporion	3.1 km
Lough Forbes Complex SAC (001818)	Annex I Habitats: [3150] Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [7110] Active raised bogs* [7120] Degraded raised bogs still capable of natural regeneration [7150] Depressions on peat substrates of the Rhynchosporion [91E0] Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)*	3.9 km
Mount Jessop Bog SAC (002202)	Annex I Habitats: [7120] Degraded raised bogs still capable of natural regeneration [91D0] Bog woodland*	5.6 km
Clooneen Bog SAC (002348)	Annex I Habitats: [7120] Degraded raised bogs still capable of natural regeneration [7150] Depressions on peat substrates of the Rhynchosporion [91D0] Bog woodland*	8.2 km
Lough Ree SAC (000440)	Annex I Habitats: [3150] Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [7120] Degraded raised bogs still capable of natural regeneration [7230] Alkaline fens [8240] Limestone pavements* [91A0] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91D0] Bog woodland*	14.3 km

¹ Status of qualifying interests of SACs are based on NPWS (2019) and status of qualifying interests of SPAs are based on Colhoun and Cummins (2013).

Site Name & Site Code	Qualifying Interests (*= priority habitats) & Status ¹	Distance to Site
	Annex II Species: [1355] Otter <i>Lutra lutra</i>	
Ballykenny-Fisherstown Bog SPA (004101)	Special Conservation Interest Species: [A395] Greenland White-fronted Goose <i>Anser albifrons flavirostris</i>	3.9 km
Lough Ree SPA (004064)	Special Conservation Interest Species: [A004] Little Grebe <i>Tachybaptus rufficollis</i> [A038] Whooper Swan <i>Cygnus cygnus</i> [A050] Wigeon <i>Anas penelope</i> [A052] Teal <i>Anas crecca</i> [A053] Mallard <i>Anas platyrhynchos</i> [A056] Shoveler <i>Anas clypeata</i> [A061] Tufted Duck <i>Arthya fuligula</i> [A065] Common Scoter <i>Melanitta nigra</i> [A067] Goldeneye <i>Bucephala clangula</i> [A125] Coot <i>Fulica atra</i> [A140] Golden Plover <i>Pluvialis apricaria</i> [A142] Lapwing <i>Vanellus vanellus</i> [A193] Common Tern <i>Sterna hirundo</i>	14.3 km

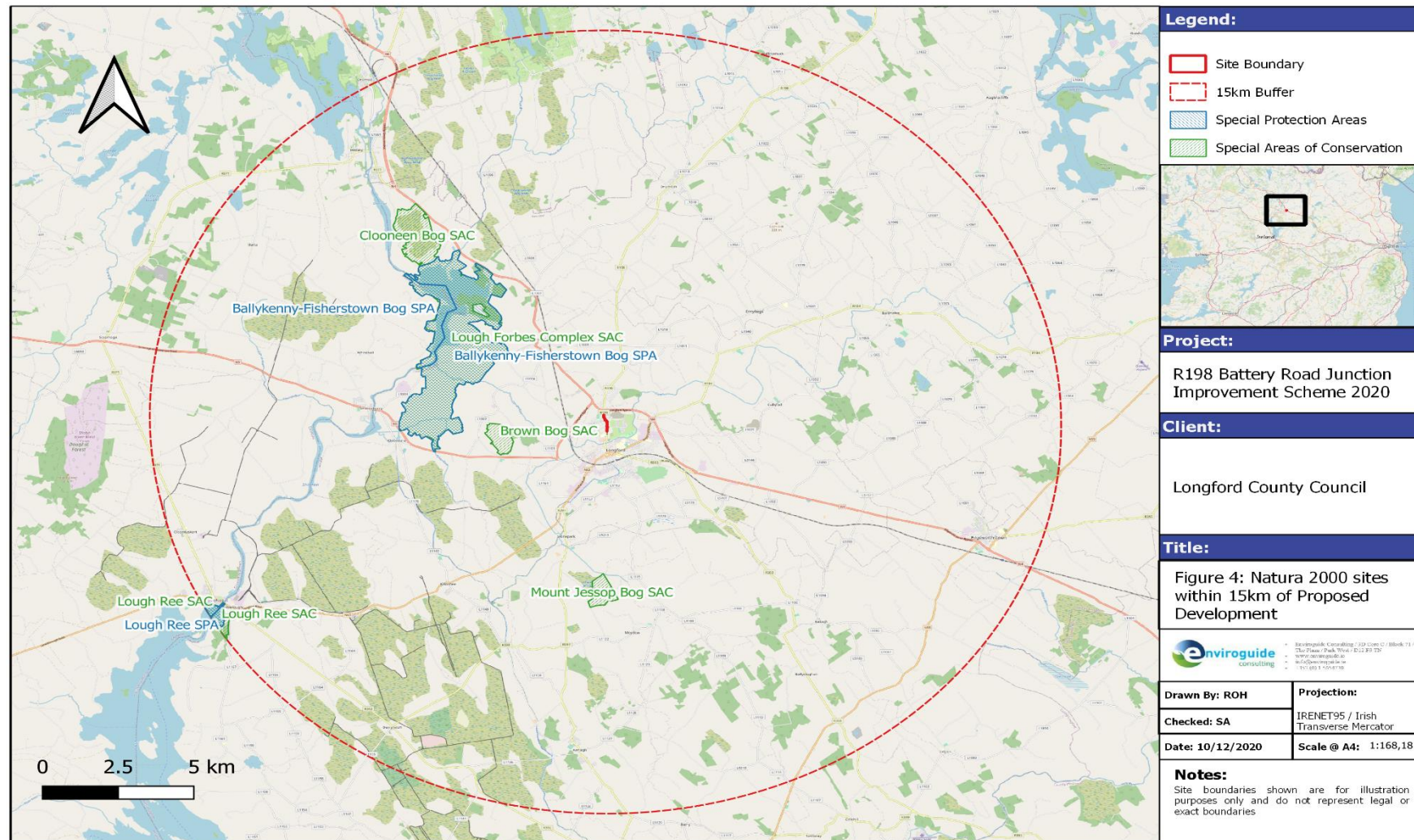


FIGURE 4. NATURA 2000 SITES WITHIN 15KM OF PROPOSED DEVELOPMENT

3.5 Conservation objectives

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them.

Site specific conservation objectives (SSCO) have been compiled for the following SACs: Brown Bog SAC (NPWS, 2016a), Clooneen Bog SAC (NPWS, 2016b), Lough Forbes Complex SAC (NPWS, 2016c) and Lough Ree SAC (NPWS, 2016d). Site-specific conservation objectives aim to define favourable conservation condition for habitats or species at a site.

Generic conservation objectives have been compiled for Mount Jessop Bog SAC (NPWS, 2020c) In addition, generic conservation objectives have been compiled for Ballykenny-Fisherstown Bog SPA (NPWS, 2020a) and Lough Ree SPA (NPWS, 2020b). These are based on maintaining/restoring the favourable conservation condition of the habitats and species for which sites are selected.

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

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing
- 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

3.6 Identification and Assessment of Potential Impacts

The conservation objectives of the Natura 2000 sites within the zone of influence were reviewed and assessed in order to establish whether the construction and operation of the Proposed Development has the potential to have a negative impact on any of the qualifying interests and/or conservation objectives of the Natura 2000 sites within the zone of influence of the project.

The assessment framework is taken from the best practice guidelines issued by the European Commission, i.e. "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".

TABLE 2. IDENTIFICATION OF POTENTIAL IMPACTS ON RELEVANT NATURA 2000 SITES.

Natura 2000 site	Potential for significant effects on Natura 2000 site
Special Areas of Conservation (SAC)	
Brown Bog SAC (002346)	No impacts on SAC envisaged due to: <ul style="list-style-type: none"> - the lack of any faunal species listed as qualifying interests for this SAC; - the small scale and nature of the Proposed Development and the lack of any direct hydrological connection, or other impact pathway, between the Proposed Development and the SAC; - the distance (3.1km) between the Proposed Development and the SAC.
Lough Forbes Complex SAC (001818)	No impacts on SAC envisaged due to: <ul style="list-style-type: none"> - the distance (3.9km) between the Proposed Development and the SAC; - the lack of any faunal species listed as qualifying interests for this SAC; - the small scale and nature of the Proposed Development; - the potential for dilution in the surface water network. Lough Forbes Complex SAC is located 5.73 river km from the closest point of the Camlin river where it passes the Proposed Development.
Mount Jessop Bog SAC (002202)	No impacts on SAC envisaged due to: <ul style="list-style-type: none"> - the distance (5.6km) between the Proposed Development and the SAC; - the lack of any faunal species listed as qualifying interests for this SAC; - the small scale and nature of the Proposed Development and the lack of any direct hydrological connection, or other impact pathway, between the Proposed Development and the SAC.
Clooneen Bog SAC (002348)	No impacts on SAC envisaged due to: <ul style="list-style-type: none"> - the distance (8.2km) between the Proposed Development and the SAC; - the lack of any faunal species listed as qualifying interests for this SAC; - the small scale and nature of the Proposed Development and the lack of any direct hydrological connection, or other impact pathway, between the Proposed Development and the SAC.
Lough Ree SAC (000440)	No impacts on SAC envisaged due to: <ul style="list-style-type: none"> - the distance (14.3km) between the Proposed Development and the SAC; - the small scale and nature of the Proposed Development and the lack of any direct hydrological connection, or other impact pathway, between the Proposed Development and the SAC. - the lack of <i>ex-situ</i> habitat considered suitable for Otter (<i>Lutra lutra</i>) within the Proposed Development site or surrounding area.
Special Protected Areas (SPA)	
Ballykenny-Fisherstown Bog SPA (004101)	No impacts on SPA envisaged due to: <ul style="list-style-type: none"> - the distance (3.9km) between the Proposed Development and the SPA; - the small scale and nature of the Proposed Development; - the lack of <i>ex-situ</i> feeding/breeding sites considered suitable for the qualifying interests of the SPA within the Site of the Proposed Development or surrounding areas; - The potential for dilution in the surface water network Ballykenny-Fisherstown Bog SPA is located 5.73 river km from the Proposed Development.

Lough Ree SPA (004064)	No impacts on SPA envisaged due to: <ul style="list-style-type: none">- the distance (14.3km) between the Proposed Development and the SPA;- the lack of <i>ex-situ</i> feeding/breeding sites considered suitable for the qualifying interests of the SPA within the Site of the Proposed Development;- the small scale and nature of the Proposed Development and the lack of a direct hydrological connection, or other impact pathway, between the Proposed Development and the SPA.
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3.7 Assessment of Potential Impacts

The potential for significant effects resulting from the Proposed Development during the Construction and Operational Phase was determined based on a range of indicators, including:

- Habitat loss or alteration;
- Habitat/species fragmentation;
- Disturbance and/or displacement of species;
- Changes in population density; and
- Changes in water quality and resource;

The following elements of the Proposed Development were assessed for their potential for likely significant effects on Natura 2000 sites.

- **Construction Phase** (estimated duration 3 months)
 - Uncontrolled releases of silt, sediments and/or other pollutants to air due to earthworks
 - Surface water run-off containing silt, sediments and/or other pollutants into nearby waterbodies;
 - Surface water run-off containing silt, sediments and/or other pollutants into the local groundwater;
 - Waste generation during the Construction Phase comprising soils, construction and demolition wastes
 - Increased noise, dust and/or vibrations as a result of construction activity;
 - Increased dust and air emissions from construction traffic;
 - Increased lighting in the vicinity as a result of construction activity;
- **Operational Phase** (estimated duration: indefinite)
 - Surface water drainage from the Site of the Proposed Development;
 - Increased lighting in the vicinity emitted from the Proposed Development; and
 - Increased human presence in the vicinity as a result of the Proposed Development.

3.7.1 Habitat Loss and Alteration

The Proposed Development is not located within any Natura 2000 site. It is therefore considered that there will be no loss or alteration of habitat as a result of the Proposed Development.

3.7.2 Habitat / Species Fragmentation

Habitat fragmentation has been defined as the 'reduction and isolation of patches of natural environment' (Hall *et al.*, 1997 cited in Franklin *et al.*, 2002) usually due to an external disturbance such that an alteration of the spatial composition of a habitat occurs that alters the habitat and 'create[s] isolated or tenuously connected patches of the original habitat' (Wiens, 1989 cited in Franklin *et al.*, 2002). This results in spatial separation of habitat units which had previously been in a state of greater continuity.

As there will be no direct habitat loss within any Natura 2000 sites, no habitat fragmentation will arise as a result of the Proposed Development.

3.7.3 Changes in Water Quality and Resource

There are no water courses or open drainage ditches within the Proposed Development Site and no deterioration in water quality of surface or groundwater is anticipated as a result of the Proposed Development. However, a potential indirect hydrological connection between the Proposed Development and Ballykenny-Fishermans Bog SPA and Lough Forbes Complex SAC exists through the river Camlin via the discharge of storm water.

The River Camlin flows in a southern direction 536m east of the site and then changes direction and flows to the south of the site in a westerly direction where it continues for 5.73 river km before entering Ballykenny-Fishermans Bog SPA and Lough Forbes Complex SAC. The river Lismore flows in a southern direction 528m west of the site and joins the River Camlin.

Storm water drainage will be realigned to accommodate the proposed works at Battery Road and storm water from the Proposed Development will discharge to an existing surface water pipe on Battery Road and discharge to an outfall point on the Camlin River. No change from the baseline situation with regard to storm water volume or contamination is anticipated when the improvement works are complete as there will be no significant change in the area of impermeable surfaces or volume of runoff and therefore no significant alteration of hydrology of the River Camlin.

Although, there is the potential for an increase in suspended solids during the Construction phase, the potential for surface water generated at the Site of the Proposed Development to reach Natura 2000 sites and cause significant adverse effects, is negligible due to:

- The potential for dilution in the surface water network. Lough Forbes Complex SAC and Ballykenny-Fishertown Bog SPA are located 5.73 river km from the closest point of the Camlin river where it passes the Proposed Development;
- The insignificant change in the area of impermeable surfaces or runoff volume as a result of the Proposed Development;
- The distance between the Proposed Development and the river Camlin (536m); and
- The relatively small size of the Proposed Development and the short duration of the Construction Phase (3 months);

Taking into account the Proposed Development at the Site in the context of the receiving water environment, it is considered that there will be no significant negative impacts on receiving groundwater or surface water quality and no potential for surface water generated at the Site

of the Proposed Development to reach a Natura 2000 site and cause significant adverse effects, during both the Construction and Operation phase

There is either a significant intervening distance or no hydrological or alternative pathway between the Site of the Proposed Development and the Natura 2000 sites in the zone of influence (Table 1). It is therefore deemed that the Proposed Development will not cause any changes in the water quality and resource associated with any Natura 2000 site.

3.7.4 Disturbance and / or Displacement of Species

The Proposed Development does not have the capacity to cause any significant disturbance and/or displacement to any species within any other Natura 2000 site due to:

- The intervening distances between the Site of the Proposed Development and the nearest Natura 2000 site. The closest SPA is located 3.9 km north west of the Site;
- The lack of any faunal species listed as a qualifying interest for the closest SAC to the Proposed Development, Brown Bog SAC;
- The lack of any suitable *ex-situ* habitat for QI/SCI species within, or within close proximity, to the Site of the Proposed Development given that the lands on both sides of Battery Road where the upgrades are proposed are largely comprised of residential dwellings and gardens.
- The lack of a direct hydrological connection between the Site of the Proposed Development and the nearest Natura 2000 site.

3.7.5 Changes in Population Density

The Proposed Development will not cause any reduction in the baseline population of species associated with any Natura 2000 site. There is one Annex II species listed for the SACs within the zone of influence, Otter *Lutra lutra*, which has a favourable conservation status and is listed for Lough Ree SAC located 14.3 km for the Proposed Development. The Proposed Development site is not a suitable *ex-situ* habitat for Otter and the significant intervening distance of 14.3 km is sufficient to exclude the possibility of the Proposed Development causing any reduction in the baseline population of Otter.

There is no potential for negative impacts on SCI species associated with any other SPAs within the zone of influence of the Proposed Development due:

- The intervening distances between the Site of the Proposed Development and the nearest Natura 2000 sites;
- The lack of any suitable *ex-situ* habitat for QI/SCI species within, or within close proximity, to the Site of the Proposed Development, as noted above; and
- The lack of any significant direct hydrological connections to any Natura 2000 sites within the 15km zone of influence of the Proposed Development.

3.7.6 Potential for the spread of invasive flora

As no works are proposed to take place in or close to a water body it is considered that there is no increased risk of the spread of invasive species through this source. The Proposed Development is located within the national 2km Grid Square N13174. The National Invasive

Species Database has listed one invasive species for this 2km grid square, Japanese Knotweed *Fallopia japonica*. Should this or any other non-native invasive flora species be encountered during the Proposed Works, they will be controlled/removed as per the appropriate best-practice guidelines and in consultation with the relevant qualified invasive species professional. Removal and disposal should be carried out in accordance with appropriate guidelines such as TII (formerly NRA) *Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads* (2010), with consideration given to the prevention of spread of these plants.

3.8 Potential for In-combination Effects

3.8.1 Existing Granted Planning Permissions

There are several existing granted planning permissions on record in the Battery Road area. Relatively large-scale projects which have been granted permission are outlined below:

Planning Application Reference: 20158. Donlon Coluriers Ltd.

The site is located at Little Water Street, Templemichael, Longford. The development will consist of the proposed construction of a warehousing unit, provision of hard surface area, amendments to rear entrance, new boundary fence and all associated ancillary site works. **(Decision date: 09/10/2020. Planning Permission granted with conditions).**

Planning Application Reference: 2048. Longford Athletics Club CLG.

The site is located at St. Mel's College, Deanscurragh, Templemichael, Longford. The development will consist of a proposed Sports Recreational & indoor athletics facility (1200sq.m) to include provision of new car parking area/drop off area, changes to existing internal access road with new pedestrian links, connections to existing foul drainage network, surface water drainage and utilities services and all ancillary site works. **(Decision date: 10/09/2020. Planning Permission granted with conditions).**

Planning Application Reference: 19276. Sean O'Hara

The site is located at St. Michael Road & Connaught Road, Townspark, Templemichael, Longford. Planning permission sought for the a) demolition of existing derelict dwelling house, car garage and ancillary buildings, b) construction of 4 no. 2 storey buildings to include 8 no. 2 bedroom and 8 no. 1 bedroom apartments with independent access to each unit, c) new pedestrian and vehicle access, d) provision of green open space & garden areas, boundary fences/walls with internal pedestrian pathways, e) connection to public services with sewer and water supply and all associated ancillary site works. **(Decision date: 01/09/2020. Planning permission granted with conditions).**

Planning Application Reference: 2059. B. O. M. St. Michaels Boys National School.

The site is located at St. Michaels Boys National School, St Mels Road, Longford. Planning permission was granted for the construction of an extension to the existing school, comprising of 2xNo.80msq classrooms, 1x10.5msq wc & 3x15msq SET rooms, circulation areas, connection to the existing school, connections to existing on-site

services, the formation of a new vehicular entrance and ancillary site works. **(Decision Date: 27/06/2020. Planning Permission Granted with Conditions).**

Planning Application Reference: 206. Beacon Assets Limited

The site is located at Block C, N4 Axis Centre, Aghadegnan, Longford. The Development will consist of the construction of a three storey extension over existing three storey building together with extending the existing ground floor unit & front porch in line with the existing building line of newly constructed PizzaHut extension which was granted full planning permission under planning reference number PL17/180 and constructing an additional stairwell to service the entire building. This proposed development will consist of a mixed use development of commercial/office/retail/leisure/medical accommodation, erection of relevant signage and all ancillary site works. **(Decision Date: 23/06/2020. Planning Permission granted with conditions).**

Planning Application Reference: 2041. Longford Rugby Club

The site is located at Demense, Longford, Co. Longford. The development will consist of the construction of a multi purposes artificial grass pitch to service existing clubhouse together with erection of a new wire mesh fence of 2.4m in height, upgrading of the existing pitch lighting and all ancillary works. **(Decision date: 31/03/2020. Planning Permission granted with conditions).**

Planning Application Reference: 18302. Omniplex Cork Ltd.

The site is located at Bridge Street & Little Water Street, Longford, Co. Longford. The development will consist of the demolition of the existing cinema building, the construction of a new urban space at the river walk level connected to Bridge Street by an external staircase and stepping up to a new main entrance to the Riverside Shopping Centre (formerly known as The Longford Shopping Centre) at first floor level, the construction of a small retail/coffee unit (total 14 sq.m) at the lower level of the new urban space, the construction of 2 no. retail units (total 225 sq/m) at the upper level of the urban space, the construction of 8 no. light features with feature canvas awnings, the construction of a new vertical glazed element to the west elevation of the existing shopping centre entrance atrium. **(Decision date: 24/05/2019. Planning Permission granted with conditions).**

Planning Application Reference: 17239. Eugene & Marie O'Reilly

The site is located at No. 29 Battery Road, Longford Town, Co. Longford. The development will consist of the demolition of an existing two-storey dwelling and garage, the construction of a new two-storey dwelling, connection to existing services, the modification of existing entrances and the carrying out of ancillary site works. **(Decision Date: 03/11/2017. Planning Permission granted with conditions).**

Planning Application Reference: 17222. Longford CLG County Board

The site is located at Pairc an Phiarsaigh (Pearse Park), Lisbrack, Longford town. The development will consist of the Structural upgrading works to the existing west stand seating structure to include partial demolitions and rebuilding of existing seating support structures; 2. Structural upgrading works to the existing south terrace structure

to include partial demolitions and rebuilding of existing terrace structure and rear access stairs and installation of new safety barriers; 3. Structural upgrading works to the existing southwest seating and undercroft area; 4. Alterations to, and extension of, the existing southwest undercroft area layout to accommodate the provision of additional toilet facilities and to facilitate crowd control; 5. Change of use of existing office to referees room with provision of associated secure access and egress route to and from pitch; 6. Provision of a new, stand alone, building to serve as additional toilets provision for the south terrace; 7. Provision of 8 nr additional turnstiles to facilitate crowd control; 8. Reconfiguration and partial relocation of existing security fencing and associated access/egress gates to facilitate crowd control including provision of 6 nr new double security gates; 9. Demolition and removal of an existing water tank; 10. Alterations and adjustments to existing services to facilitate the proposed development; and 11. The installation of new, high level, edge cladding to the pitch side of the existing roofs to south terrace and west stand. **(Decision Date: 13/10/2017. Planning Permission granted with conditions).**

3.8.2 Relevant Policies and Plans

The following policies and plans were reviewed and considered for possible in-combination effects with the Proposed Development.

- Longford County Development Plan 2015-2021
- County Longford Heritage Plan 2019-2024

Upon examination of the above listed plans and projects, it is concluded that there is no possibility for any in-combination effects between these plans and the Proposed Development due to the nature and location of the Proposed Development and the significant distance between the Proposed Development and the closest Natura 2000 site (3.1km). This significant urban buffer is sufficient to exclude the possibility of any significant effects on the Natura 2000 sites arising from the Proposed Development.

TABLE 3. SUMMARY OF IMPACT ASSESSMENT ON NATURA 2000 SITES AS A RESULT OF THE PROPOSED DEVELOPMENT.

Site	Habitat Loss / Alteration	Habitat or Species Fragmentation	Disturbance and/or Displacement of Species	Changes in Population Density	Changes in Water Quality and/or Resource	Stage 2 AA Required
SAC						
Brown Bog SAC (002346)	No	No	No	None	Yes	No
Lough Forbes Complex SAC (001818)	No	No	No	None	Yes	No
Mount Jessop Bog SAC (002202)	No	No	No	No	None	No
Clooneen Bog SAC (002348)	No	No	No	No	None	No
Lough Ree SAC (000440)	No	No	No	No	None	No
SPA						
Ballykenny-Fishertown Bog SPA (004101)	No	No	No	No	None	No
Lough Re SPA (004064)	No	No	No	No	None	No

4 APPROPRIATE ASSESSMENT SCREENING CONCLUSION

The Proposed Development at R198 Battery Road, Longford Town, Co. Longford has been assessed taking into account:

- the nature, size and location of the proposed works and possible impacts arising from the construction works.
- the qualifying interests and conservation objectives of the Natura sites
- the potential for in-combination effects arising from other plans and projects.

In conclusion, upon the examination, analysis and evaluation of the relevant information and applying the precautionary principle, it is concluded by the authors of this report that, on the basis of objective information; the possibility **may be excluded** that the Proposed Development will have a significant effect on any of the Natura 2000 sites listed below:

- Brown Bog SAC (002346)
- Lough Forbes Complex SAC (001818)
- Mount Jessop Bog SAC (002202)
- Clooneen Bog SAC (002348)
- Lough Ree SAC (000440)
- Ballykenny-Fishertown Bog SPA (004101)
- Lough Ree SPA (004064)

These complete, precise and definitive findings, based on the best available scientific evidence, remove all reasonable scientific doubt that the Proposed Development will have any significant effects on the Natura 2000 sites detailed above. It is also noted that, pursuant to the judgement in *C-323/17 People Over Wind and Peter Sweetman v Coillte*, no avoidance or preventative/mitigation measures have been taken into account in this Appropriate Assessment Screening Report and its conclusions.

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TII (formerly NRA) (2010). Guidelines on the Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads.

APPENDIX I - NATURA 2000 NPWS SITE SYNOPSES

Site Name: Brown Bog SAC

Site Code: 002346

Brown Bog NHA is located 5 km north-west of Longford town, mainly in the townlands of Tully, Lissanurlan and Cartronlebagh. The site comprises a raised bog that includes both areas of high bog and cutover bog. The bog margins are mainly surrounded by scrub/woodland.

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

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*).

This site is situated in a drumlin-filled valley and consists of a small raised bog characterised by a central wet depression with quaking mats of bog mosses and tear pools colonised by algae. Water flows through the pools and it is possible that there is a spring located in the bog centre. A flush area occurs in the north. Abandoned cutover is found around the northern, western and north-eastern bog margins. Remnant old deciduous woodland occurs to the north-west.

The site supports typical Midland Raised Bog communities, which include Heather (*Calluna vulgaris*), Carnation Sedge, Bog-rosemary (*Andromeda polifolia*) and occasional Cranberry (*Vaccinium oxycoccos*). The high bog supports extensive quaking carpets of bog mosses including *Sphagnum magellanicum*, *S. papillosum* and *S. capillifolium*. Pools occur frequently and support *Sphagnum auriculatum*, Bogbean (*Menyanthes trifoliata*) and Great Sundew (*Drosera anglica*). Bare pools and algal pools are also found. Hummocks of *Sphagnum imbricatum* and *S. fuscum* occur. The high

bog is drier around the margins, where Heather and lichens (*Cladonia* spp.) dominate. Scattered Downy Birch (*Betula pubescens*) occurs in association with the northern flush, along with Soft Rush (*Juncus effusus*). Quaking flats of Bog Asphodel and bog moss lawns dominate the inter-pool areas of the flush. One pool with obvious water flow supports Bog Pondweed (*Potamogeton polygonifolius*). Old cutover is mainly colonised by Gorse (*Ulex europaeus*), Downy Birch, Scots Pine (*Pinus sylvestris*) and Purple Moor-grass (*Molinia caerulea*). In the north-west, old deciduous woodland with Downy Birch, Scots Pine, Rowan (*Sorbus aucuparia*) and occasional the Beech (*Fagus sylvatica*) is found.

There are few land uses associated with this site. There are no high bog drains and only two sets of marginal drains are present in the cutover to the north-west. At present there is no active peat-cutting on the site. A large area of cutover to the east of the site has been recently afforested with Sitka Spruce (*Picea sitchensis*). The majority of the bog has not been burnt for some time, although recent localised burning has taken place along the southern margin. Overall there has been little damage to this bog, with only small areas of cutover present. Most of the extent of the original peat basin appears to be remaining. However, peat-cutting and burning are the two main threats to the site.

Brown Bog is a site of considerable conservation significance as it comprises a relatively little-damaged raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. Although the site is small it supports a good diversity of raised bog microhabitats including hummock/hollow complexes, pools and a flush system with surrounding tear pool complex, along with cutover which adds to the diversity and scientific value of the site. Active raised bog is listed as a priority habitat on Annex I of the E.U. Habitats Directive. Priority status is given to habitats and species that are threatened throughout the E.U. Ireland has a high proportion of the E.U. resource of this habitat type (over 60%) and so has a special responsibility for its conservation at an international level.



Site Name: Clooneen Bog SAC

Site Code: 002348

Clooneen Bog lies approximately 3 km south-east of Roosky in Co. Longford on the east bank of the River Shannon, just north of Lough Forbes. It is located almost entirely in the townlands of Clooneen, Bunanass, Edercloon and Cloonart (North and South). The site comprises areas of high bog, including bog woodland and cutover bog, and is bounded by a mineral ridge to the east and agricultural fields to the north. Although it would have originally adjoined the River Shannon to the west and Lough Forbes to the south, it is now separated from these by a road and agricultural fields.

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] Active Raised Bog*
[7120] Degraded Raised Bog
[7150] Rhynchosporion Vegetation
[91D0] Bog Woodland*

Active Raised Bog (ARB) habitat 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 (DRB) 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*).

This site consists of a narrow bog dome, with cutover bog to the north, south and west. An interesting feature is the extensive area of bog woodland growing on a flush in the northern section of the bog. There is also a large flush to the south-east associated with a marginal area which slopes relatively steeply towards an extensive region of old cutover. Wet grassland in this area floods from Lough Forbes.

Much of the high bog has vegetation typical of the Midland Raised Bog type, with Heather (*Calluna vulgaris*), Common Cottongrass (*Eriophorum angustifolium*) and Deergrass all occurring abundantly. Other species present include Cranberry

(*Vaccinium oxycoccos*), Cross-leaved Heath (*Erica tetralix*), White Beak-sedge and Bog Asphodel. In the narrow central region of the high bog there are small pools containing the bog moss *Sphagnum cuspidatum*, Great Sundew (*Drosera anglica*) and Bogbean (*Menyanthes trifoliata*). Bog mosses are plentiful between these pools, with *S. capillifolium*, *S. magellanicum* and *S. fuscum* noted. These pools are associated with a depression and become algal-filled tear pools towards the margins of the high bog.

Results from surveys of Clooneen Bog in 1999 indicate the area of ARB to be 10 ha, corresponding with sub-central ecotope, active flush (soak) and bog woodland. The open bog woodland is dominated by lichen encrusted Downy Birch (*Betula pubescens*), with a field layer of Purple Moor-grass (*Molinia caerulea*) and Hare's-tail Cottongrass (*Eriophorum vaginatum*) and ericaceous shrubs such as Heather, Crowberry (*Empetrum nigrum*), Bog-myrtle (*Myrica gale*) and Bilberry (*Vaccinium myrtillus*). Mosses such as *Hylocomium splendens* and *Breutelia chrysocoma* are also abundant. Species such as *Sphagnum recurvum*, *S. imbricatum* and *S. palustre* are less common. There are also several ferns present including Hard Fern (*Blechnum spicant*) and Broad Buckler-fern (*Dryopteris dilatata*). The flush to the south-east is dominated by Purple Moor-grass and may be associated with an area that has subsided. There are occasional clumps of Bog-myrtle, with some small Rhododendron (*Rhododendron ponticum*) bushes encroaching. This latter species is an invasive, non-native species. Common Reed (*Phragmites australis*) is associated with this flush, indicating some groundwater influence.

The current extent of DRB as estimated using a recently developed hydrological modelling technique, based largely on Light Detection and Ranging (LiDAR) data, is 7.6 ha.

Old cutover to the north is dominated by Purple Moor-grass, with cottongrass, Heather and Carnation Sedge. There is some active regeneration in the north-east, with cottongrass dominating over bog moss (*S. cuspidatum*). Birch and Gorse (*Ulex europaeus*) scrub occurs on old cut-away to the west and east. An extensive area of cut-away to the south is dominated by Purple Moor-grass and Heather, with Bog-myrtle occurring abundantly in places. This area forms a mosaic with wet grassland and there is some flooding from Lough Forbes.

Current land use on the site consists of mechanised peat-cutting to the north-west and south-west of the high bog. Some areas of cutover have been reclaimed for agriculture to the south-east and there are small conifer plantations to the east. Damaging activities associated with these land uses include drainage and burning. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site and pose a continuing threat to its viability. The bog is generally *Sphagnum*-poor due to burning, but regeneration is taking place.

Clooneen Bog is a site of considerable conservation significance as it consists of a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. Ireland has a high proportion of the total E.U. resource of this habitat type (over 60%) and so has a special responsibility for its conservation at

an international level. Bog woodland is listed as a priority habitat on Annex I of the E.U. Habitats Directive - priority status is given to habitats and species that are threatened throughout the E.U. The areas of degraded raised bog and Rhynchosporion are also of conservation importance, being habitats that are listed on Annex I of the E.U. Habitats Directive.

Site Name: Lough Forbes Complex SAC

Site Code: 001818

This site consists of a number of different habitats, and is centred around Lough Forbes, a lake formed by a broadening of the River Shannon. As well as the lake itself, there is also a series of raised bogs, callow grasslands and a variety of other aquatic and terrestrial habitats to the west of Newtown Forbes on the Longford/Roscommon boundary.

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):

[3150] Natural Eutrophic Lakes
[7110] Raised Bog (Active)*
[7120] Degraded Raised Bog
[7150] Rhynchosporion Vegetation
[91E0] Alluvial Forests*

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 raised bogs, located on the south-eastern shore of Lough Forbes, are known as the Ballykenny-Fishertown complex. These bogs are of international importance as unique examples of Shannon River edge bogs and they are also the most northerly intact bogs adjacent to the River Shannon. The central core areas of the bogs are quite wet and spongy, with a good complement of bog mosses and well developed hummocks. Ballykenny Bog is unusual in that some of its margins are intact, a rare feature in the Irish midlands. Between the Camlin River and this bog, a complete transition from raised bog to callow grasslands can be seen, while the interface between the bog and lake is colonised by a narrow band of deciduous woodland.

In the wetter areas of the bog surface, Rhynchosporion vegetation is sometimes found. *Sphagnum cuspidatum* is frequent, along with Bogbean (*Menyanthes trifoliata*), White Beak-sedge and Common Cottongrass (*Eriophorum angustifolium*). The relatively rare Brown Beak-sedge has also been recorded. Degraded raised bog is largely confined to the marginal areas of uncut high bog where drainage effects from adjoining turbary are most pronounced. The plant species composition of degraded raised bog is generally similar to that of active raised bog, however species typical of very wet bog conditions are either much reduced in abundance or absent. In general, the most frequent vascular species are Deergrass, Common Cottongrass, Hare's-tail Cottongrass (*E. vaginatum*), Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), Bog Asphodel and Carnation Sedge. The most frequent lower plant species present are the lichen *Cladonia portentosa* and the mosses *Hypnum cupressiforme* and *Sphagnum capillifolium*.

Lough Forbes is a medium sized lake underlain by limestone. It has extensive swamps of Common Reed (*Phragmites australis*) which provide good cover for wildfowl, although numbers have declined recently, possibly due to the increase in cruisers and other pleasure boats. Freshwater marshes are also a common feature along the lakeshore. These areas contain a good diversity of aquatic and emergent vegetation, comprised of species such as sedges (*Carex vesicaria*, *C. rostrata* and *C. acuta*), Bogbean, Common Spike-rush (*Eleocharis palustris*), Fine-leaved Water-dropwort (*Oenanthe aquatica*), Water Plantain (*Alisma plantago-aquatica*), Cowbane (*Cicuta virosa*), Common Club-rush (*Scirpus lacustris*) and Reed Canary-grass (*Phalaris arundinacea*).

The site contains extensive areas of woodland. The wet woodland types present include willow woodland, Ash-Alder woodland on slightly higher ground, Ash-oak woodland at the highest levels and birch woodlands on dried-out or cut-away bog. The principal woodland type, however, is a drier mixed oak-Ash woodland. The total area of woodland within the SAC is estimated at over 170 ha, of which at least 40 ha are alluvial woodland. Several individual woodlands exceed 40 ha and there is good continuity. There is little woodland on the Roscommon side of the lough. The majority of the woodland within the SAC is recorded as having been present in part or in full on the 1st edition Ordnance Survey maps from the 1840s. These may be considered therefore as potentially ancient or long-established woodlands, a conclusion reinforced by the presence of a number of relatively rare species and ancient woodland indicator species.

The dry Pedunculate Oak (*Quercus robur*) – Ash (*Fraxinus excelsior*) woodland is dominated by Pedunculate Oak and Ash, up to 20 m tall, with occasional Alder (*Alnus glutinosa*), Rowan (*Sorbus aucuparia*) and Yew (*Taxus baccata*), as well as a variety of exotic species, principally Sycamore (*Acer pseudoplatanus*), Beech (*Fagus sylvatica*) and lime (*Tilia* sp.). The shrub layer is variable in cover and species, with Hazel (*Corylus avellana*), Holly (*Ilex aquifolium*), Hawthorn (*Crataegus monogyna*), Spindle (*Eunonymus europaea*), willows (*Salix caprea* and *S. cinerea* subsp. *oleifolia*) and the relatively rare species Bird Cherry (*Prunus padus*), Buckthorn (*Rhamnus catharticus*) and Alder Buckthorn (*Frangula alnus*). The introduced and invasive

Cherry Laurel (*Prunus laurocerasus*) and Rhododendron (*Rhododendron ponticum*) are locally abundant. The herb layer consists of Bramble (*Rubus fruticosus* agg.), Enchanter's-nightshade (*Circaea lutetiana*), violet (*Viola* sp.), Bluebell (*Hyacinthoides non-scripta*) and several species of ferns, e.g. *Dryopteris filix-mas*, *D. affine*, *D. dilatata* and *Polystichum setiferum*.

Areas of birch woodland are dominated by birch, occasional Alder on more base-rich sites, Rowan, Holly and Scots Pine (*Pinus sylvestris*). Rhododendron forms thickets in some stands. The herb layer is relatively species-poor with Bramble, Purple Moor-grass (*Molinia caerulea*), Bracken (*Pteridium aquilinum*), Wood-sorrel (*Oxalis acetosella*) and abundant mosses, e.g. *Polytrichum* species.

Extensive areas of alluvial woodland fringe the shores of Lough Forbes and the Shannon, as well as extending along some of the tributaries. Three main types occur: willow woodlands, Alder-Ash woodlands and Ash-oak woodlands.

The willow woodland stands are generally found fringing the rivers and lake, and are usually quite narrow due to the hilly/boggy landscape which tends to rise steeply from the river. This results in a mostly narrow floodplain, but in places, lower lying ground may be flooded at times of high water levels. These woodlands are generally structurally complex stands of multi-stemmed Rusty Willow (*Salix cinerea* subsp. *oleifolia*), up to 8 m tall, where the roots are in permanently waterlogged, acidic to neutral, base-rich silty soils. Birch (*Betula* sp.) and Alder are occasional. A thin shrub layer of Hawthorn may be present in drier locations. Ivy (*Hedera helix*) and Bramble occur only in small amounts. The field layer consists of tall herbaceous species such as Reed Canary-grass, Yellow Loosestrife (*Lysimachia vulgaris*), Purple Loosestrife (*Lythrum salicaria*), Meadowsweet (*Filipendula ulmaria*), Marsh Ragwort (*Senecio aquaticus*), Yellow Iris (*Iris pseudacorus*) and Marsh-marigold (*Caltha palustris*). The moss layer is poorly developed with just a scattering of species such as *Rhizonmium punctatum* and *Mnium hornum*.

Alder-Ash woodland is the most extensive type of alluvial woodland at this site. This community occurs behind the willow woodland on slightly more elevated land that nonetheless is regularly flooded. The main canopy species are Alder and Ash, with occasional Pedunculate Oak, birch and Sycamore. Rusty Willow and Hawthorn are the principal shrub species, with a small amount of Guelder-rose (*Viburnum opulus*), Bird Cherry and Hazel. The herb flora is species-rich and is dominated by Meadowsweet, with Remote Sedge (*Carex remota*) and Golden Saxifrage (*Chrysosplenium oppositifolia*). Geophytes include Bluebell and Lesser Celandine (*Ranunculus ficaria*). Other characteristic species include Ivy, Enchanter's-nightshade, Reed Canary-grass, Yellow Iris, Cuckooflower (*Cardamine pratensis*), Yellow Loosestrife and Broad Buckler-fern (*Dryopteris dilatata*). Where grazing occurs, Creeping Bent (*Agrostis stolonifera*) is abundant. The moss layer is mostly poorly developed, with *Thamnobryum alopecurum*, *Calliergonella cuspidata* and *Conocephalum conicum* being the most frequent species. The rare Elongated Sedge (*Carex elongata*) occurs locally.

Ash-Pedunculate Oak alluvial woodland occurs behind the Alder-Ash woodland where the land is subject to occasional flooding or where the water-table is high. Ash and Pedunculate Oak are the dominant canopy species, with occasional Sycamore, Beech and Horse-chestnut (*Aesculus hippocastanum*). The shrub layer is formed chiefly from Hazel, with Elder (*Sambucus nigra*), Hawthorn and occasional Bird Cherry, along with regenerating Ash and Sycamore. It is essentially a wetter version of the Oak-Ash woodland described above, but the field layer is characterised by moisture-loving species such as Golden Saxifrage, Remote Sedge, Wood-sedge (*Carex sylvatica*) and Bugle (*Ajuga reptans*). While the field layer is diverse and species-rich, the moss layer is only moderately developed, the most common species being *Thamnobryum alopecurum*, *Thuidium tamariscinum* and *Rhytidiadelphus triquetrus*.

Areas of callows (winter-flooded grassland) along the Camlin River are also included within this site. Like the internationally important Shannon Callows, these wet grasslands are included for their botanical interest as well as for the waterbirds that they support. Both Lough Forbes and the callow grasslands provide good habitat for a range of wintering waterfowl species though most occur in relatively low numbers. Counts in two of the winters in the 1995/96 to 1999/00 period are as follows: Cormorant (51), Whooper Swan (40), Wigeon (419), Teal (444), Shoveler (6), Tufted Duck (49) and Goldeneye (11). The bogs were formerly used by part of the Loughs Kilglass and Forbes Greenland White-fronted Goose wintering population, but these appear to have now been abandoned in favour of grassland sites elsewhere. Merlin has been recorded within the site and may nest. Whooper Swan and Merlin are listed on Annex I of the E.U. Birds Directive. Red Grouse are known from the bogs. Red Grouse is a Red Listed species in Ireland as it has declined in numbers in recent decades.

The raised bogs are vulnerable to water loss from peat-cutting and drainage, though ongoing restoration work involving blocking of drains is occurring. There are no known threats to the wintering birds though the increased use of the River Shannon system by leisure craft could cause disturbance.

The importance of the Lough Forbes site lies in its excellent diversity of habitats, some of which, for example the raised bogs, are rare and threatened. The site is also of ornithological importance for its wintering waterfowl, breeding Merlin and Red Grouse. The presence of Whooper Swan and Merlin is of particular note as these species are listed on Annex I of the E.U. Birds Directive.

Site Name: Lough Ree SAC

Site Code: 000440

Lough Ree is the third largest lake in Ireland and is situated in an ice-deepened depression in Carboniferous limestone on the River Shannon system between Lanesborough and Athlone. The site spans Counties Longford, Roscommon and Westmeath. Some of its features (including the islands) are based on glacial drift. It has a very long, indented shoreline and hence has many sheltered bays. Although the main habitat, by area, is the lake itself, interesting shoreline, terrestrial and semi-aquatic habitats also occur.

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):

- | |
|--|
| [3150] Natural Eutrophic Lakes |
| [6210] Orchid-rich Calcareous Grassland* |
| [7110] Active Raised Bog* |
| [7120] Degraded Raised Bog |
| [7230] Alkaline Fens |
| [8240] Limestone Pavement* |
| [91D0] Bog Woodland* |
| [91E0] Alluvial Forests* |
| [1355] Otter (<i>Lutra lutra</i>) |

The greater part of Lough Ree is less than 10 m in depth, but there are six deep troughs running from north to south, reaching a maximum depth of about 36 m just west of Inchmore. The lake has been classified as mesotrophic in quality, but the size of the system means that a range of conditions prevail depending upon, for example, rock type. This gives rise to local variations in nutrient status and pH, which in turn results in variations in the phytoplankton and macrophyte flora. Therefore species indicative of oligotrophic, mesotrophic, eutrophic and base-rich situations occur. The water of Lough Ree tends to be strongly peat-stained, restricting macrophytes to depths of less than 2 m, and as a consequence, macrophytes are restricted to sheltered bays, where a typical Shannon flora occurs. Species present include Intermediate Bladderwort (*Utricularia intermedia*), pondweeds (*Potamogeton* spp.), Quillwort (*Isoetes lacustris*), Greater Duckweed (*Spirodela polyrhiza*), stoneworts (*Chara* spp., including *C. pedunculata*) and Arrowhead (*Sagittaria sagittifolia*). The latter is a scarce species which is almost confined in its occurrence to the Shannon Basin.

Reedbeds of Common Reed (*Phragmites australis*) are an extensive habitat in a number of more sheltered places around the lake, but single-species 'swamps' consisting of such species as Common Club-rush (*Scirpus lacustris*), Slender Sedge (*Carex lasiocarpa*), Great Fen-sedge (*Cladium mariscus*) and two scarce species of sedge (*Carex appropinquata* and *C. elata*) also occur in suitable places. Some of these grade up into species-rich alkaline fen with Black Bog-rush (*Schoenus nigricans*) and Whorl-grass (*Catabrosa aquatica*), or freshwater marsh with abundant Water Dock (*Rumex hydrolapathum*) and Hemp-agrimony (*Eupatorium cannabinum*).

Lowland wet grassland is found in abundance around the shore and occurs in two types. One is 'callowland', grassland which floods in winter. This provides feeding for winter waterfowl and breeding waders. The other is an unusual community on stony wet lake shore which is found in many places around the lake, and is characterized by Water Germander (*Teucrium scordium*), a scarce plant species almost confined to this lake and Lough Derg.

Dry calcareous grassland occurs scattered around the lake shore. This supports typical species such as Yellow-wort (*Blackstonia perfoliata*), Carlina Thistle (*Carlina vulgaris*) and Quaking-grass (*Briza media*). Orchids also feature in this habitat e.g. Bee Orchid (*Ophrys apifera*) and Common Spotted-orchid (*Dactylorhiza fuchsii*).

Limestone pavement occurs occasionally around the lake shore. The most substantial area is at Rathcline in the extreme north-east. While this has been planted with commercial forestry since the 1950s, it still displays a diverse representation of pavement types, from the typical clint-gryke system to large blocky pavements and scattered boulders. In all cases the pavement is covered by a bryophyte-rich flora, with abundant Ivy (*Hedera helix*), and a scrub layer dominated by Ash (*Fraxinus excelsior*), Hazel (*Corylus avellana*) and some Spindle (*Euonymus europaeus*). The ground flora is variable, though in places it is species-rich.

Dry broadleaved semi-natural woodland occurs in several places around the lake, most notably at St John's Wood and on Hare Island. St John's Wood is recognised as the largest and most natural woodland in the Midlands. Its canopy is dominated by Hazel, Pedunculate Oak (*Quercus robur*), Holly (*Ilex aquifolium*) and Ash, but a range of other trees and shrubs occur, including Wych Elm (*Ulmus glabra*), Yew (*Taxus baccata*), Wild Cherry (*Prunus avium*) and Irish Whitebeam (*Sorbus hibernica*). The ground flora of St John's Wood is species-rich, and is remarkable for the presence of two species, Toothwort (*Lathraea squamaria*) and Bird's-nest Orchid (*Neottia nidus-avis*), which tend to occur in sites with a long history of uninterrupted woodland cover. The tree species composition on Hare Island is similar to that in St John's Wood, with additional non-native species such as Sycamore (*Acer pseudoplatanus*) and Beech (*Fagus sylvatica*). This wood also has an exceptionally rich ground flora. Some of the smaller areas of woodland around Lough Ree are mixed woodland with a high percentage of exotics such as Beech. Some areas of well-developed Hazel scrub also occur.

At St John's Wood, patches of wet alluvial woodland are present along the lakeshore. They are dominated by Ash, Grey Willow (*Salix cinerea*), Alder (*Alnus glutinosa*) and, in places, Downy Birch (*Betula pubescens*). The ground flora includes Creeping Bent (*Agrostis stolonifera*), Wild Angelica (*Angelica sylvestris*), Meadowsweet (*Filipendula ulmaria*), Common Marsh-bedstraw (*Galium palustre*), Yellow Iris (*Iris pseudacorus*), Gipsywort (*Lycopus europaeus*), Water Mint (*Mentha aquatica*), Reed Canary-grass (*Phalaris arundinacea*), Creeping Buttercup (*Ranunculus repens*) and Wood Dock (*Rumex sanguineus*). Pockets of wet woodland occur elsewhere around the lake. Most of these are dominated by willows (*Salix* spp.), Alder and Downy Birch. In one such wood, at Ross Lough, the terrestrial alga, *Trentopohlia* sp., has a specialised niche on the willow trunks. The ground layer has a rich bryophyte flora (*Calliergon* spp. and *Sphagnum* spp.), scattered clumps of Greater Tussock-sedge (*Carex paniculata*) and a good diversity of herb species, including Water Dock and Fen Bedstraw (*Galium uliginosum*).

Small examples of raised bog occur, which are of interest in that they show a natural transition through wet woodland and/or swamp to lakeshore habitats. Active Raised Bog (ARB) habitat 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. Results from surveys of the raised bog habitat in 2003 indicate the presence of 5.9 ha of Active Raised Bog (ARB). Also present are examples of Degraded Raised Bog (DRB) capable of regeneration. In general the vegetation of these degraded areas is dominated by typical raised bog species such as Cross-leaved Heath (*Erica tetralix*), Heather (*Calluna vulgaris*), Hare's-tail Cottongrass (*Eriophorum vaginatum*), Bog Asphodel (*Narthecium ossifragum*) and Deergrass (*Scirpus cespitosus*). Typically the degraded bog areas have a low cover of peat-forming bog mosses (*Sphagnum* spp.). The current extent of DRB as estimated using a recently developed hydrological modelling technique, based largely on Light Detection And Ranging (LiDAR) data, is 44.7 ha.

Associated with the extensive raised bog system at Clooncraff/Clonlarge are areas of bog woodland. At least two small areas of woodland occur on the raised bog domes. However it would appear that this habitat is in the early stages of development. The largest area is dominated by low trees of Downy Birch and Lodgepole Pine (*Pinus contorta*). Occasional trees of Scots Pine (*Pinus sylvestris*) also occur. The ground layer is wet and quaking with a lush carpet of mosses present, including various species of *Sphagnum*, *Pleurozium schreberi* and *Aulacomium palustre*. The main vascular plant species in the ground flora are Bog-rosemary (*Andromeda polifolia*), Cranberry (*Vaccinium oxycoccos*), Bog-myrtle (*Vaccinium myrtillus*), Hare's-tail Cottongrass and Deergrass. Bog Woodland is of particular conservation importance and is listed with priority status on the E.U. Habitats Directive.

At St John's Wood, there is an interesting area of woodland that grows on cut-away peat. This is dominated by Downy Birch and Alder Buckthorn (*Frangula alnus*). The occurrence of the latter species in such abundance is unusual in Ireland.

Smaller lakes occur around the lake shore, especially on the east side, and these often have the full range of wetland habitats contained within and around them. A number of small rivers also pass through the site.

The site supports a number of rare plant species which are listed in the Irish Red Data Book. Alder Buckthorn and Bird Cherry (*Prunus padus*) are woodland components at St John's Wood and elsewhere. Narrow-leaved Helleborine (*Cephalanthera longifolia*) and Betony (*Stachys officinalis*), both of which are also legally protected under the Flora (Protection) Order, 1999, occur among the ground flora of Hare Island (where the former occurs in notable abundance). They also occur in a number of other woods. The stonewort *Chara tomentosa* is present in shallow water around the lake. The rare, though not legally protected, Marsh Pea (*Lathyrus palustris*) occurs on some of the callowland and in alluvial woodland at St John's Wood. The rare Myxomycete fungus, *Echinostelium colliculosum*, has been recorded from St John's Wood.

The lake itself contains one of only two populations in Ireland of the endangered fish species, Pollan (*Coregonus autumnalis*), which is genetically different from Continental European stock. The shrimp *Mysis relicta* (Class Crustacea) occurs in this lake and is a relict of the glacial period in Ireland.

Small flocks of Greenland White-fronted Goose, an Annex I species on the E.U. Birds Directive, use several areas of callowland around the lake in winter. An average spring count of 92 individuals was obtained for this species over the six seasons 1988/89 to 1993/94, indicating that Lough Ree is a nationally important site for the species. The following bird counts are derived from 6 counts during the period 1984/85 to 1986/87: nationally important populations of Golden Plover (1,350), an Annex I species; Wigeon (1,306); Teal (584); Tufted Duck (1,317) and Coot (798). Other winter visitors are Whooper Swan (32), an Annex I species, Mute Swan (91), Little Grebe (48), Cormorant (91), Mallard (362), Shoveler (40), Pochard (179), Goldeneye (97), Curlew (178), Lapwing (1,751) and Dunlin (48). The callowland is also used by Black-tailed Godwit and other species on migration.

Some of the lake islands provide nesting sites for Common Tern, a species listed on Annex I of the E.U. Birds Directive. The Lough Ree colony, 86 pairs in 1995, is estimated as one of the largest of this species on midland lakes. The lake also provides excellent breeding habitat for wildfowl, including Common Scoter (30-40 pairs), a rare breeding species listed as "Endangered" in the Red Data Book, and Tufted Duck (>200 pairs). The woodlands and scrub around the lake and on the islands are a stronghold of the Garden Warbler (74 territories in 1997), a bird species mainly confined to the Shannon lakes in Ireland.

There is a population of Otter around the lake. This species is listed in the Red Data Book as being threatened in Europe and is protected under Annex II of the E.U. Habitats Directive.

Land uses within the site include recreation in the form of cruiser hire, angling, camping, picnicking and shooting. Chalet accommodation occurs at a few locations around the lake. Low-intensity grazing occurs on dry and wet grassland around the shore, and some hay is made within the site. Some of these activities are damaging, but in a very localised way, and require careful planning. The main threat to the aquatic life in the lake comes from artificial enrichment of the waters by agricultural and domestic waste, and also by peat silt in suspension which is increasingly limiting the light penetration, and thus restricting aquatic flora to shallower waters. At present Lough Ree is less affected by eutrophication than Lough Derg.

Lough Ree and its adjacent habitats are of major ecological significance. Some of the woodlands around the lake are of excellent. St John's Wood is particularly important; it is one of the very few remaining ancient woodlands in Ireland. The lake itself is an excellent example of a mesotrophic to moderate-eutrophic system, supporting a rare fish species and a good diversity of breeding and wintering birds.



Site Name: Mount Jessop Bog SAC

Site Code: 002202

Mount Jessop Bog SAC occurs within the larger raised bog system that is designated as Mount Jessop Bog NHA (001450). It is situated 5 km south-west of Longford Town in the townland of Mount Jessop, Co. Longford. The site is part of a basin raised bog that includes both areas of high bog and cutover bog. The site is bordered by open high bog on its northern and western sides and by agricultural land on its eastern side and southern side. The underlying geology is carboniferous limestone.

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):

[7120] Degraded Raised Bog [91D0] Bog Woodland*
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Degraded Raised Bog corresponds to those areas of high bog where the hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration to Active Raised Bog within 30 years.

Bog Woodland develops on wet peaty soils, with a permanently high water level and it is generally dominated by Downy Birch (*Betula pubescens*) or Scots Pine (*Pinus sylvestris*), with the ground layer dominated by bog mosses and other characteristic species. It is a very rare habitat covering less than 150 ha in Ireland.

Mount Jessop Bog SAC consists of 71.91 ha of raised bog (25.7 ha of high bog and 46.21 ha cutover). In the SAC, approximately 31 ha (44%), both high bog and cutover, was afforested with conifer plantations between 1973 and 1975. Only 11% (8.0 ha) remained open high bog. The remainder of the cutover developed either into birch and willow scrub (19.5 ha) or remained open (12.5 ha) and dominated by heath and bog species.

On the remaining area of open high bog much of the vegetation is typical of Midland Raised Bog type, consisting of Heather (*Calluna vulgaris*), Bog Asphodel (*Narthecium ossifragum*), Hare's-tail Cottongrass (*Eriophorum vaginatum*), Cross-leaved Heath (*Erica tetralix*), White Beak-sedge (*Rhynchospora alba*) and bog mosses. There are wet spongy areas with hummock/hollow systems, which are mainly composed of bog mosses such as *Sphagnum capillifolium* and *S. subnitens*, but some small hummocks of

scarce *S. austinii* and *S. fuscum* occur. In places, *Sphagnum* hummocks support the Midland raised bog indicator species Bog Rosemary (*Andromeda polifolia*) and Cranberry (*Vaccinium oxycoccos*). There is also a record of one of the Western raised bog indicators, the liverwort *Pleurozia purpurea*, being present in the NHA suggesting that this bog has transitional features between the two types of raised bog in Ireland. Lodgepole Pine (*Pinus contorta*), which is invading the open bog, is being controlled as part of the restoration plan for the site.

The conifer plantations were all felled by 2012. All of the intensive drainage systems associated with the plantations were blocked by 2013 as part of an EU-funded LIFE project so as to raise the water table and restore Active Raised Bog (ARB) on the site. Prior to the felling, there were relatively few bog species present in the plantations except along fire breaks and at plantation margins. With the clear-felling of conifers and blocking of drains the high bog appears to be re-wetting, water-levels in some areas now remain high throughout the year and limited areas of wet flats and hollows are developing. As a consequence, raised bog vegetation has returned, with Heather and Hare's-tail Cottongrass dominating, while Common Cottongrass (*Eriophorum angustifolium*), Bog Asphodel and White Beak-sedge are locally common and small amounts of Bilberry (*Vaccinium myrtillus*) and Cross-leaved Heath are widespread. Purple Moor-grass (*Molinia caerulea*) and Soft Rush (*Juncus effuses*) are also present. Bog mosses are regenerating, including *Sphagnum papillosum*, *S. capillifolium*, *S. palustre* and *S. subnitens*, with *Sphagnum cuspidatum* and *S. recurvum* in drains. However, the majority of the restored areas have not yet developed vegetation characteristic of the wet bog conditions. Associated with the bog species there is the development of a considerable amount of ruderal vegetation such as Bramble (*Rubus fruticosus*) and willowherbs (*Epilobium* spp.) with conifer and birch regeneration. This situation is expected to improve over time as the bog surface becomes wetter.

Four small areas, covering 1.14 ha in the northern and western sections of the SAC, have been identified by hydrological modelling and ground survey as Degraded Raised Bog (7120) habitat and these are showing significant indications of recovery. The main areas are on the open bog in the west of the formerly afforested area and in the north-west of the clear-fell area. These areas now have standing surface water in the hollows and pools for most of the year and considerable areas of regenerating *Sphagnum* species. It is considered that these areas will support some areas of Active Raised Bog (7110) habitat within 10–20 years and that this habitat will continue to develop and spread over the following decades.

The unafforested cutover bog areas of the site are mainly overgrown with Downy Birch, Gorse (*Ulex europaeus*), and willow (*Salix* spp.) scrub with occasional Lodgepole Pine from adjacent forestry. There is an area of 0.23 ha of wet woodland on cutover bog to the south-east of the site. This contains depressions with pools and tree species such as Alder (*Alnus glutinosa*), Willow and Downy Birch, which has developed into Bog woodland (91D0). Water-levels remain high throughout the year and the bog moss *Sphagnum cuspidatum* dominates the wet hollows. It is anticipated that this habitat will mature and develop further over time as the cutover becomes

wetter. There is also an area of 0.29 ha of very wet clear-fell on cutover adjacent to the Bog Woodland habitat which is expected to develop into that habitat in the medium to long term.

Current landuse on the site consists of conservation management with the removal of conifer plantations and the blocking of drainage associated with these plantations. All the large area planted with coniferous forestry has been clear-felled and drain-blocked as part of the Coillte EU Life Project *Demonstrating Best Practice in Raised Bog Restoration in Ireland* and the control of regeneration of non-native species such as Lodgepole Pine is on-going. There is a small amount of peat-cutting, with its associated risks of drainage and fire in the NHA which, if allowed to continue, could cause some long term problems to the maintenance of the conservation values of the SAC.

Mount Jessop Bog SAC is a site of considerable conservation significance comprising raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. It contains good examples of the Habitats Directive Annex I habitat Degraded Raised Bog (capable of regeneration) which is reverting to the priority Annex 1 habitat Active Raised Bog (7110) and a small area of the Annex 1 priority habitat Bog Woodland which is developing on the cutover. The site already supports a good diversity of raised bog microhabitats, including some hummock/hollow complexes, and rewetted cutover bog. Red Grouse, a bird which is becoming increasingly rare in Ireland, has been recorded at this site, along with the Irish Hare — a Red Data Book species — which increases its overall scientific interest.

Ireland has a high proportion of the total E.U. resource of Atlantic raised bog (over 50%) and so has a special responsibility for its conservation at an international level. The site is being actively managed for conservation as part of the Coillte EU LIFE Project and most of the required major restoration measures have already been carried out. Those measures that remain, or are on-going, will be included in an After LIFE management plan which is being developed by Coillte for the future conservation management of the SAC. The SAC is located within the raised bog Mount Jessop Bog NHA, the conservation management of which should support the redevelopment of Active Raised Bog and Bog Woodland in the SAC. In addition, it is estimated that restoration works carried out on the SAC will benefit the conservation of 2 ha of Active Raised Bog and 0.25 ha of Degraded raised bog in the adjacent area of Mount Jessop Bog NHA (001450).

SITE SYNOPSIS

SITE NAME: BALLYKENNY-FISHERSTOWN BOG SPA

SITE CODE: 004101

Ballykenny-Fisherstown Bog SPA is located on the border between Counties Longford and Roscommon in the north-central midlands and is underlain by Carboniferous limestone. It is centered around Lough Forbes, a naturally eutrophic lake on the River Shannon system which is fed also from the north by the River Rinn. The lake has well-developed swamp vegetation and displays natural transitions to seasonally flooded grassland, marsh and raised bog. The raised bogs, known as the Ballykenny-Fishertown complex, are separated by the Camlin River, which has further areas of callow grassland. The central core areas of the bogs are quite wet with a good complement of bog mosses (*Sphagnum* spp.) and well-developed hummocks. Ballykenny Bog is unusual in that some of its margins are intact, a rare feature in the Irish midlands. Between the Camlin River and this bog, a complete transition from raised bog to callow grasslands can be seen, while the interface between the bog and lake is colonised by a narrow band of deciduous woodland.

At the time this site was designated as a Special Protection Area (SPA) it was being used by part of the Loughs Kilglass and Forbes Greenland White-fronted Goose population. The geese appear to have since abandoned the peatland sites in favour of grassland sites elsewhere. The site was regularly utilised during the 1980s and Greenland White-fronted Goose is regarded as a special conservation interest for this SPA. The last record of Greenland White-fronted Goose at this site was in 1990/91 (111 individuals).

Merlin and Red Grouse have also been recorded within the site.

The lake and callow grasslands provide good habitat for a range of wintering waterfowl species though most occur in relatively low numbers: Cormorant (51), Whooper Swan (40), Wigeon (419), Teal (444), Tufted Duck (49) and Goldeneye (11) – are counts are two year mean peaks for the period 1998/99 to 1999/2000.

SITE SYNOPSIS

SITE NAME: LOUGH REE SPA

SITE CODE: 004064

Situated on the River Shannon between Lanesborough and Athlone, Lough Ree is the third largest lake in the Republic of Ireland. It lies in an ice-deepened depression in Carboniferous Limestone. Some of its features (including the islands) are based on glacial drift. The main inflowing rivers are the Shannon, Inny and Hind, and the main outflowing river is the Shannon. The greater part of Lough Ree is less than 10 m in depth, but there are six deep troughs running from north to south, reaching a maximum depth of about 36 m just west of Inchmore. The lake has a very long, indented shoreline and hence has many sheltered bays. It also has a good scattering of islands, most of which are included in the site.

Beds of Common Reed (*Phragmites australis*) are an extensive habitat in a number of the more sheltered places around the lake; monodominant stands of Common Club-rush (*Scirpus lacustris*), Slender Sedge (*Carex lasiocarpa*) and Saw Sedge (*Cladium mariscus*) also occur as swamps in suitable places. Some of these grade into species-rich calcareous fen or freshwater marsh. Lowland wet grassland, some of which floods in winter, occurs frequently around the shore.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Whooper Swan, Wigeon, Teal, Mallard, Shoveler, Tufted Duck, Common Scoter, Goldeneye, Little Grebe, Coot, Golden Plover, Lapwing and Common Tern. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Lough Ree is one of the most important Midland sites for wintering waterfowl, with nationally important populations of Little Grebe (52), Whooper Swan (139), Wigeon (2,070), Teal (1,474), Mallard (1,087), Shoveler (54), Tufted Duck (1,012), Goldeneye (205), Coot (338), Golden Plover (3,058) and Lapwing (5,793) – all figures are three year mean peaks for the period 1997/98 to 1999/2000. Other species which occur in winter include Great Crested Grebe (29), Cormorant (99), Curlew (254) and Black-headed Gull (307) as well as the resident Mute Swan (85). Greenland White-fronted Goose has been recorded on occasion on the flooded margins of the site.

The site supports a nationally important population of Common Tern (90 pairs in 1995). It is a traditional breeding site for Black-headed Gull and whilst a full survey has not been carried out in recent years, substantial numbers of nesting birds were present on at least one island in 2003. Lesser Black-backed Gull and Common Gull have bred in the past and may still breed. Lough Ree is a noted site for breeding duck and grebes: Tufted Duck (202 pairs) and Great Crested Grebe (32 pairs) – records from 1995. Of particular note is that Lough Ree is one of the two main sites in the

country for breeding Common Scoter, a Red Data Book species. Surveys have recorded 39 pairs and 32 pairs in 1995 and 1999 respectively. Cormorant also breeds on some of the islands within the site – 86 nests were recorded in 2010. The woodland around the lake is a stronghold for Garden Warbler and this scarce species probably occurs on some of the islands within the site.

Lough Ree SPA is of high ornithological importance for both wintering and breeding birds. It supports nationally important populations of eleven wintering waterfowl species. The site has a range of breeding waterfowl species, notably nationally important populations of Common Scoter and Common Tern. Of particular note is the regular presence of three species, Whooper Swan, Golden Plover and Common Tern, which are listed on Annex I of the E.U. Birds Directive. Parts of Lough Ree SPA are Wildfowl Sanctuaries.