Natura Impact Statement

Lime Quarry Theatre, Lanesborough, Co Longford

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1. Introduction

Flynn-Furney Environmental Consultants have been commissioned by De Blacam and Meagher Architects to carry out a Stage II Appropriate Assessment Report for proposed works due to be carried out at Lime Quarry, Lanesborough, Co Longford. The Stage I Screening Report examined the potential for the proposed works to significantly impact upon the conservation objectives and overall integrity of any Natura 2000 sites (see accompanying document, *Appropriate Assessment Screening Report, Lime Quarry Theatre, Lanesborough, Co Longford*). The report determined that two European Sites, *Lough Ree SAC* and *Lough Ree SPA*, had the potential to be significantly impacted by the proposed works. The present report is now required to provide the competent authority with the relevant information to conduct an Appropriate Assessment of the project, with regard to its impact on the specific conservation objectives of the above European sites. Negative impacts on the integrity of these objectives will require the implementation of mitigation measures to avoid progression to Stages 3 and 4 of the Appropriate Assessment process.

The following definitions are used for the terms "impact" and "effect":

Impact – Actions resulting in changes to an ecological feature, e.g., the construction activities of a development removing a hedgerow.

Effect – Outcome to an ecological feature from an impact, e.g., the effects on an animal population from loss of a hedgerow.

The Competent Authority is obliged to examine the likely significant effects individually or in combination, of the proposed development on European Designated Sites in light of their specific Qualifying Interests (QIs) and Conservation Objectives (COs). If AA screening determines that there is likely to be significant effects on one or more of these sites, or the impacts are uncertain, then full AA must be carried out for the proposed development, including the compilation of a Natura Impact Statement to inform the decision making.

For the purposes of this assessment, a "significant effect" is:

"...an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' ... or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity).

> Effects can be considered significant at a wide range of scales from international to local. A significant effect is an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project.
>
> In broad terms, significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution)."
>
> - CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (2018)

Sections 4 and 5 of the report comprises the AA Screening that specifically focuses on the potential for impacts on Natura 2000 sites deemed to be at risk from the proposed development.

2. Background to Screening for Appropriate Assessment

2.1. European Designated Sites

Sites designated for the conservation of nature in Ireland include:

- Special Areas of Conservation (SACs);
- Special Protection Areas (SPAs), and;
- Natural Heritage Areas (NHAs)

SPAs and SACs form the Natura 2000 network of sites. It is these sites that are of relevance to the screening process for this Appropriate Assessment Screening.

SPAs and SACs are prime wildlife conservation areas in the country, considered to be important on a European as well as Irish level. SPAs and SACs are designated under EU Habitats Directive, transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), as amended.

Natural Heritage Area (NHA) is the basic designation for wildlife in Ireland. These are areas considered important for their habitats or species of plants and animals whose habitat requires protection and are protected by the Wildlife (Amendment) Act of 2000.

All European Designated Sites (henceforth simply referred to as "Designated Sites") that are connected to the proposed development were considered during the desktop study in order to assess the potential for significant effects upon their QIs and COs. This stage of the process is used to determine the potential for impact of the proposed works on the individual conservation objectives of those Designated Sites that

were identified during Stage I, and to propose mitigation measures for any significant impacts on those objectives.

2.2. Legislative Context

The methodology for this screening statement is clearly set out in a document prepared for the Environment DG of the European Commission entitled 'Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6 paragraphs 3 and 4 of the Habitats Directive 92/43/EEC' (Oxford Brookes University, 2001). This report and contributory fieldwork were carried out in accordance with guidelines given by the Department of Environment, Heritage and Local Government (2009, amended February 2010).

The assessment process is given in Articles 6[3] and 6[4] of the Habitats Directive and is commonly referred to as "Appropriate Assessment" or AA.

Article 6 of the Habitats Directive sets out provisions which govern the conservation and management of Natura 2000 sites. Article 6[3] and 6[4] of the Habitats Directive set out the decision-making tests for plans and projects likely to affect Natura 2000 sites (Annex 1.1). Article 6[3] establishes the requirement for Appropriate Assessment:

> "Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implication 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."

Article 6[4] continues:

> "If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species the only considerations which may be raised are those relating to human health or public safety, to

beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.

It is the responsibility of the proponent of the plan or project to provide the relevant information (ecological surveys, research, analysis etc.) for submission to the 'competent national authority'. If satisfied that the information is complete and objective, the competent authority will use this information to screen the project, i.e. to determine if an AA is required and to carry out the AA, if one is deemed necessary. The competent authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned."

The appropriate assessment process has four stages. Each stage determines whether a further stage in the process is required. If, for example, the conclusions at the end of Stage One are that there will be no significant impacts on the Natura 2000 site, there is no requirement to proceed further. The four stages are:

1. Screening to determine if an appropriate assessment is required;
2. Appropriate Assessment;
3. Consideration of alternative solutions, and;
4. Imperative reasons of overriding public interest/derogation.

Stage 2: Appropriate Assessment

This report provides the information required for Stage 2: Appropriate Assessment in the form of a Natura Impact Statement. It provides a detailed examination of each of the conservation objectives of the Natura 2000 sites that were Screened In during Stage 1 – the individual habitats and species for which the European site is designated – and the potential for impact upon them by the proposed works. Where impact is likely, the significance of the impact and detailed proposals for mitigation are outlined, in order to allow the competent authority to determine whether the project itself, or in combination with other plans or projects, will adversely affect the integrity of the site, taking such mitigation into account.

3. Methodology

3.1. Desk Study

A desktop study was carried out as part of this screening process to gain an understanding of the surrounding human and natural environments. This included a review of available data from a range of sources on the site and its immediate environs.

3.2. Data Used to carry out the Assessment

The following sources of data were employed:

- Environmental Protection Agency (EPA) Appropriate Assessment Tool;
- EPA Maps (to identify watercourses, hydrology and Natura 2000 site boundaries);
- NPWS protected species database and online mapping;
- The Geological Survey of Ireland hydrological and lidar data and map viewer;
- The National Biodiversity Data Centre archives;
- Inland Fisheries Ireland, and;
- An Bord Pleanála's online database

3.3. Field Survey

The field survey was carried out on 2nd March 2022. Baseline ecological conditions were assessed. Habitats were classified according to A Guide to Habitats in Ireland (Fossitt, 2000). Where applicable, the habitat types and species usage were recorded (Smith et al. 2011; Scannell and Synnott, 1987; Wyse Jackson et al. 2016). Habitats were classified and dominant plant species noted according to the guidelines given by the JNCC (2010) with reference to best practice guidance for habitat survey and mapping (Smith et al., 2011) and Census Catalogue of the Flora of Ireland (Scannell & Synnott, 1987).

An additional site visit was conducted by Billy Flynn on 21st December 2022 in order to conduct a winter bird survey, an otter survey, and to further assess the habitat on the lakeshore.

3.4 Acoustic Modelling

As part of the preliminary work for this project, acoustic modelling of the works area and surrounds was conducted by Allegro Acoustics (See Kearney, 2022). This work was focused on the built receiving environment and human impacts and concluded that at the receiver locations noise levels resulting from normal operations of the project would not exceed the 55db threshold set out in the EPA guidelines (Fig. 3). It was recommended in the screening report that this modelling be extended to cover areas at the lake shore and approach to better inform the ecological assessment of the impacts of the project

operation; this work was completed on 21st December 2022 (Kearney, 2022b). This was done to assess in particular the potential for impact on the adjacent *Lough Ree SPA* and the SCI species for which it is designated.

3.5. Stakeholder Consultations

Table 1 Summary of stakeholder consultations

Stakeholder	Nature of Consultation	Outcome
De Blacam and Meagher Architects (the client)	Telephone and email consultation: Scope and scale of project discussed. Necessity for an Appropriate Assessment Screening Report agreed.	This report generated and submitted to Longford County Council.
Longford County Council	Discussion of original draft of screening report, amendments and additions requested. Discussion of original draft of NIS, amendments and additions requested.	This report generated and submitted to Longford County Council.
Brian Burke (BirdWatch Ireland)	Discussion of project and request for I-WeBS data to inform the assessment of the impact of disturbance on the SCI species for which Lough Ree SPA is designated	Provision of data for the last 5 years
Ciaran Kearney (Allegro Acoustics)	Discussion of acoustic impact of project on the surrounding environment and request for points additional to the original acoustic survey to be modelled to inform the NIS	Provision of acoustic modelling data on 21st December 2022
Susan Moles (NPWS)	Many attempts were made to contact the local NPWS ranger for input into the current assessment, particularly regarding data from winter bird surveys local to the area; no calls or emails were returned however.	None

4. Location and Receiving Environment

4.1. Site Location

The project is proposed to take place on an area of land of approximately 6200m^2 on the outskirts of Lanesborough, within an old quarry site in an area of mixed woodland on the shore of Lough Ree (Fig. 3). The surrounding landscape to the north and west is a mixture of semi-rural, residential, and agricultural land; to the south lies an area of deciduous woodland composed mostly of ash and hazel. The quarry itself is predominately bare ground with some recolonisation of vegetation; part of the floor of the quarry holds water and a shallow pond has formed. The rock wall of the quarry to the east is heavily vegetated with a mixture of ivy, bramble, and some small ash trees. The quarry is currently in use as a storage location for rubble/spoil and other construction material; it is proposed to convert the quarry bed into an outdoor amphitheatre suitable for community events and acoustic performances.

The works area lies within the Upper Shannon 26E catchment, Shannon (Upper)_SC_090 sub-catchment.

Figure 1 Overview of the works area

4.2. Receiving Environment

A description of the habitats of significant ecological value that were observed within the immediate surroundings of the works area are listed below, with descriptions adapted from "A Guide to Habitats in Ireland" by Julie A. Fossitt, 2000.

A description of the habitats of significant ecological value that were observed within the immediate surroundings of the works area are listed below and depicted in Figure 1.

The works area is an old quarry site which is in various stages of recolonisation, ranging from bare ground and grassland to scrub and woodland, with some mature trees around the perimeter of the site. See Fig. 2 for habitat map of the area. See Appendix I for photographs of the site.

The westernmost edge of the works area, away from the back wall of the quarry is an area of bare ground **ED2** with some piles of gravel and compost to the south. To the north of this is an area of **GS1** neutral/calcareous grassland on shallow soil, with vetch *Vicia sativa*, yarrow *Acillea millefolium*, creeping buttercup *Ranunculus repens*, ribwort plantain *Plantago lanceolata* and black knapweed *Centaurea nigra* all present. This habitat forms a mosaic throughout the site with ED3 recolonising bare ground, tending towards **WS1** scrub which is with cononeaster *Cotoneaster* sp., blackthorn *Prunus spinosa* and ash saplings *Fraxinus excelsior* present. This tends towards **WS1** scrub dominated by bramble *Rubus fruticosus* agg. and then a treeline **WL2** of mature ash trees which borders the northern edge of the works area.

Within the quarry, the quarry walls are composed of **ER2** exposed calcareous rock with extensive bramble scrub at the base of the wall in several areas. Also present are numerous mature ash trees growing from both the top and out from the cliff face. Cotoneaster is also present in many locations, and approximately 50% of the rock face is covered with ivy *Hedera* sp. The base of the quarry is a mosaic of **ED2** spoil and bare ground and **ED3** recolonising bare ground. Present are grasses such as cock's foot *Dactylis glomerata*, creeping buttercup, dandelion *Taraxacum vulgaria*, dock *Rumex* sp., creeping thistle *Cirsium arvense*, cow parsley *Anthriscus sylvestris*, meadow buttercup *Ranunculus acris* and ribwort plantain. A portion of the quarry floor to the southeast has become flooded and holds a shallow **FW8** pond. The pond has a small amount of soft rush *Juncus effusus* around the edges. Also present in the shallower areas to the north of the pond is floating sweet-grass *Glyceria fluitans* and some *Phalaris arundinacea*. Other species present at low abundance are water dock *Rumex hydrolapathum*, yellow flag-iris *Iris pseudacorus* and curled dock *Rumex crispus*.

At the time of the second survey in December 2022, the pond had been partially filled in, with the water level substantially lower; the location shows use as a depot for materials storage, with piles of spoil **ED2**

To the south of the works area the quarry floor gives way to **WS1** scrub, dominated by blackthorn and bramble, with occasional young and semi-mature ash up to 10m in height. Also present is some young and semi-mature willow *Salix* spp. and some occasional gorse *Ulex* sp. Interspersed with the scrub are areas of **ED2** spoil and **ED3** recolonising bare ground where some construction and demolition waste has

been dumped in piles. Some non-native species present that probably result from the dumping of waste are cotoneaster, montbretia *Crocosmia* spp. and box *Buxus* spp. Two plants of pendulous *sedge Carex pendulosa* which may also be horticultural in origin are also present. Ground flora in this part of the quarry includes tutsan *Hypericum androsaemum*, barren strawberry *Potentilla sterilis*, cleavers *Gallium aparine*, herb-robert *Geranium robertianum*, creeping buttercup and creeping cinquefoil *Potentilla reptans*.

The above scrub merges to the south into a **WN2** broadleaf woodland composed primarily of ash (up to 18m in height) with an understory of hazel *Corylus avellana* and hawthorn *Crataegus monogyna*. Some willow and shrubby cotoneaster are occasional. Ground flora throughout the woodland includes herb-robert, barren strawberry, ground ivy *Glechoma hederacea* and wood avens *Geum urbanum*.

To the northwest of the works area along the lake shore the area is heavily modified amenity grassland **GA2**. A slipway with associated parking **BL3** has been constructed with an asphalt path and concrete edge running from the slipway north towards Lanesborough.

Figure 2 Habitat map of the proposed works area (ED1 – exposed sand/gravel or till; ED3 – recolonising bare ground; ER2 – exposed rock face; FW8 – man-made pond; GS1 – dry calcareous/neutral grassland; WL2 – treelines; WN2 – oak/ash/hazel woodland; WS1 – scrub)

4.2.1. Surface water

No watercourses are present within the works area. The disused quarry functions like a bowl; surface water tends to collect in the pond in the centre of the area, rather than flow outwards to the wider receiving environment. Lough Ree lies ca50m from the works area; the potential does exist for improperly managed surface water within the works area to enter the lake, although the intervening space is heavily wooded, and no direct pathway exists.

4.2.2. Bird surveys

All species of wild bird that occur naturally in Ireland are fully protected at all times by the Wildlife Act and relevant amending legislation. Similarly, all birds naturally occurring in the wild state are afforded a measure of protection by the EU Birds Directive, but derogations may reduce protection for specific reasons. As such, any vegetation clearance must be carried out outside of the bird nesting season (March 1st - August 31st).

I-WeBS data from Lough Ree was requested from Birdwatch Ireland to assist in establishing the importance of the location of proposed works to any of the SCI species associated with the adjacent SPA. Two subsites are associated with the location; 0E536 Ballyclare, which includes the opposite shore from the works area and 0F029 Curreen, which includes the near shore out into the lake (see Fig. 3).

Figure 3 I-WeBS sub-units. Ballyclare (l) and Curreen (r) outlined in blue

The only data available during the last 5 years was from Winter 2018/2019. Table 2 below summarises the data from November 2018, January 2019 and March 2019. Both subsites extend a considerable distance to the south; a dedicated winter bird survey was therefore carried out on 21/12/22 to provide additional information on the area of the lake adjacent to the proposed works area.

Table 2 I-WeBS data from 2018/19 from Ballyclare and Curreen subsites on Lough Ree

Subsite	Species Name	winter	1% National	1% International	Nov	Jan	Mar
Ballyclare	Greylag Goose	2018/19	35	980		6	
Ballyclare	Mute Swan	2018/19	90	100	4	20	3
Ballyclare	Wigeon	2018/19	560	14000	93	134	
Ballyclare	Mallard	2018/19	280	53000	5	17	
Ballyclare	Teal	2018/19	360	5000		4	
Ballyclare	Tufted Duck	2018/19	270	8900		10	27
Ballyclare	Goldeneye	2018/19	40	11400			8
Ballyclare	Coot	2018/19	190	15500		11	9
Ballyclare	Little Grebe	2018/19	20	4700		3	2
Ballyclare	Great Crested Grebe	2018/19	30	6300		2	4
Ballyclare	Lapwing	2018/19	850	72300	80	297	
Ballyclare	Golden Plover	2018/19	920	9300		800	
Ballyclare	Black-headed Gull	2018/19			5	23	7
Curreen	Mute Swan	2018/19	90	100	40	13	
Curreen	Shoveler	2018/19	20	650	1		
Curreen	Wigeon	2018/19	560	14000	15	16	
Curreen	Mallard	2018/19	280	53000	96	90	
Curreen	Teal	2018/19	360	5000	17	65	
Curreen	Tufted Duck	2018/19	270	8900		13	
Curreen	Goldeneye	2018/19	40	11400	3	13	
Curreen	Coot	2018/19	190	15500	5	16	
Curreen	Little Grebe	2018/19	20	4700	1		
Curreen	Great Crested Grebe	2018/19	30	6300	4	5	1
Curreen	Lapwing	2018/19	850	72300	80		
Curreen	Black-headed Gull	2018/19			6	22	
Curreen	Cormorant	2018/19	110	1200		3	1

Conditions were very favourable for survey being mostly dry with only occasional showers, temperatures between 6-9OC, wind speed between 7-10 Km/hour and lightly cloudy to bright sunshine throughout the survey period.

The data from the survey is summarised below in Table 3 (more detailed information to be found in accompanying survey report (Flynn, 2022a)).

Table 3 Data summary from bird survey December 2022

Bird (Common Name)	Species Name	Annex I Species	SCI (L. Ree SPA)	Conservation Concern	Likely to be Impacted	Notes
Mallard	*Anas platyrynchos*	No	**Yes**	**Green**	No	No habitat for this species to be impacted.
Raven	*Corvus corax*	No	No	**Green**	No	Overflying site. Not likely to be nesting/roosting on site.
Hooded Crow	*Corvus cornix*	No	No	**Green**	No	No habitat for this species to be impacted.
Rook	*Corvus frugilegus*	No	No	**Green**	No	No habitat for this species to be impacted.
Jackdaw	*Corvus monedula*	No	No	**Green**	No	No habitat for this species to be impacted.
Whooper Swan	*Cygnus cygnus*	Yes	**Yes**	**Amber**	No	Overflying site. No pathways for impact identified.
Mute Swan	*Cygnus olor*	No	No	**Amber**	No	No habitat for this species to be impacted. No pathways for impact identified.
Black-headed Gull	*Larus ridibundus*	No	No	**Red**	No	No habitat for this species to be impacted. No pathways for impact identified.
Pied Wagtail	*Motacilla alba*	No	No	**Green**	No	No habitat for this species to be impacted.
Starling	*Sturnus vulgaris*	No	No	**Amber**	No	No habitat for this species to be impacted.
Wren	*Troglodytes troglodytes*	No	No	**Green**	No	No habitat for this species to be impacted.
Redwing	*Turdus iliacus*	No	No	**Green**	No	No habitat for this species to be impacted.
Blackbird	*Turdus merula*	No	No	**Green**	No	No habitat for this species to be impacted.
Song Thrush	*Turdus philomelos*	No	No	**Green**	No	No habitat for this species to be impacted.
Mistle Thrush	*Turdus viscivorus*	No	No	**Green**	No	No habitat for this species to be impacted.

A total of 15 no. species were recorded. Of these, 11 no. are 'green-listed' or are of 'least conservation concern' (Gilbert et al, 2021). Of the remainder, 3 no. are 'amber-listed,' being of 'medium conservation concern.' These are Whooper Swan, Mute Swan and Starling. Only one species - Black-headed Gull- is 'red-listed,' being of highest conservation concern.

Only one species, Whooper Swan *Cygnus cygnus*, recorded is an Annex I (Birds Directive) species. This species, along with Mallard, is a Special Conservation Interest of the adjacent Lough Ree Special Protection Area. 2 no. of this species were recorded overflying the site (flying north). It is not considered that these species were utilising the site at time of survey. No other species recorded are Special Conservation Interests of this designated site.

4.2.3. Amphibians

The survey took place concurrent with the amphibian spawning period. The pond in the quarry could provide suitable habitat for both breeding common frog *Rana temporaria* and smooth newt *Lissotriton vulgaris*. No sign of either species was found at the time of survey, however.

4.2.4 Mammals

An otter survey was carried out on 21/12/22 to determine the importance of the habitat in the vicinity of the works area to this species, particularly in light of it being a qualifying interest of *Lough Ree SAC* (Flynn, 2022b). While there was much suitable habitat for otters within the area under survey, no signs of otter activity were found. A very suitable couch site was found but no definitive evidence of its use. There was no suitable location for an Otter holt within the area proposed for development. However, suitable foraging/feeding habitat (wet woodland) occurs within 100m of the site.

The area under survey is an existing amenity area that is in frequent use. This includes walkers and dog-walkers. This would imply that there is an existing level of disturbance. However, it has been shown that Otters will often tolerate significant levels of anthropogenic disturbance (e.g., Ní Lamhna, 2008; Triturus, 2022).

Article 17 reporting data shows two records of otter within 1km of the proposed development, both dating from 2010 and lying in the River Shannon some 100m from where it enters Lough Ree to the north (Fig. 4).

4.2.5. Invasive Species

The Wildlife Acts, 1976 and 2000, contain a number of provisions relating to invasive non-native species (INNS), covering several sections and subsections of the Acts. It is prohibited, without licence, to plant or otherwise cause to grow in a wild state, in any place in the State, any species of flora, or the flowers, roots, seeds or spores of invasive flora listed on the Third Schedule. Articles 49 and 50 of the aforementioned Acts set out the legal implications associated with alien invasive species and Schedule 3 (the Third Schedule) of the regulations lists non-native species subject to the restrictions of Articles 49 and 50, which make it an offence to plant, disperse, allow dispersal or cause the spread of invasive species.

No 3rd schedule species were noted during the survey. A number of non-native species were observed, but were associated with the dumped spoil and should not require any specific management across the works area, namely cotoneaster *Cotoneaster* sp, montbretia *Crocosmia* sp. and box *Buxus* sp.

Figure 4 Article 17 reporting Otter records in the vicinity of the proposed works

4.3. Acoustic modelling

As part of the preliminary work for this project, acoustic modelling of the works area and surrounds was conducted by Allegro Acoustics (See Kearney, 2022a). This work was focused on the built receiving environment and human impacts and concluded that at the receiver locations noise levels resulting from normal operations of the project (i.e., acoustic performances) would not exceed the 55db threshold set out in the EPA guidelines (Fig. 5). It was recommended that this modelling be extended to cover areas at the lake shore and approach to better inform the ecological assessment of the impacts of the project operation.

Figure 5 Receiver locations for acoustic modelling (Source: Allegro Acoustics)

A total of eight further receiver locations (Fig. 6) were modelled to provide further information on how noise from the project would be transmitted out into the lake shore where it might present a source of disturbance impact to the SCI bird species associated with the adjacent SPA (Kearney, 2022b). The results concluded that the noise levels resulting from normal operations of the project, would not exceed the 55db threshold set out in the EPA guidelines, and indeed, within the SPA on the lake shore, did not exceed 45db, which is below normal conversational volume (Table 4). Acoustic modelling of the construction phase of the project was not carried out, given the relatively low impact nature of the proposed works and the short duration of construction.

Figure 6 Receiver locations for acoustic modelling with respect to the lake shore (Source: Allegro Acoustics)

Table 4 Modelled operational noise levels for the acoustic survey

Scenario 1: Talking + Clapping		Scenario 2: Amplified Performance	
Model Receiver	Predicted Noise Levels (dB L_{Aeq})	Model Receiver	Predicted Noise Levels (dB L_{Aeq})
E01	43	E01	52
E02	41	E02	50
E03	44	E03	52
E04	39	E04	44
E05	38	E05	42
E06	36	E06	39
E07	35	E07	39
E08	34	E08	38

4.4. Birds and Noise Disturbance

According to Cutts et al (2013), for auditory disturbance to qualify as being a high level of disturbance to water birds (encompassing a selection of waders, ducks and geese) from Britain and Ireland), it must constitute a sudden noise event at 60dB at the bird, and a more prolonged noise of 72dB. Moderate disturbance is considered to be occasional noise of >55dB, or regular noise of 60-72dBr, or long-term regular noise of >72dB where species have become habituated.

Noise levels of <55dB are considered to be low noise level effects. Noise levels of 55-72dB in some highly disturbed areas adjacent to roads or in industrial areas can potentially be considered low level disturbance provided noise levels are constant and birds show a high level of habituation to such noise (Cutts et al. 2013).

Irregular construction noises and other construction activity have been placed in the high to moderate category. Irregular piling noise above 70 dB as well as personnel on site were seen to cause, high and high to moderate effects of noise disturbance on birds (Cutts et al. 2009). The findings by Cutts et al. (2013), are largely similar to those reported by Cutts et al. (2009). Note, the approach distance of birds can vary depending on the type of visual disturbance, and noise disturbance.

Table 5 Noise Decay Rates. Acceptable 'dose' levels (e.g. for birds tolerant of 70dB) are shaded green with dark green unlikely to have any affect whilst the pale green might occasionally induce a low level behavioural response such as a heads-up; yellow to orange shading is where a response is likely but mitigation may be effective in reducing the disturbance risk; pale red where mitigation is necessary and might be of value, but with a remaining risk of effect; dark red where a flight response is almost certain to occur and would be increasingly difficult to mitigate through, based on the observed responses of waterbirds (primarily Mallard and Redshank) to various noise stimuli (Note, this Table and associated text are copied from Cutts et al. 2013).

Metres from Source	dB(A)										
0.67	120	110	100	95	90	85	80	75	70	65	60
1.33	114	104	94	89	84	79	74	69	64	59	54
2.67	108	98	88	83	78	73	68	63	58	53	48
5.33	102	92	82	77	72	67	62	57	52	47	42
10.67	96	86	76	71	66	61	56	51	46	41	36
20.67	90	80	70	65	60	55	50	45	40	35	30
42.67	84	74	64	59	54	49	44	39	34	29	24
85.33	78	68	58	53	48	43	38	33	28	23	
170.67	72	62	52	47	42	37	32	27	22		
341.33	66	56	46	41	36	31	26	21			
682.66	60	50	40	35	30	25	20				
1365.32	54	44	34	49	24						

4.4.1. Noise Decay Rates

Using Table 5 above, it is possible to calculate the likely disturbance effect for a noise level and distance of receptor from source. The acoustic modelling carried out by Allegro Acoustics shows that noise from the project in operation will not exceed 55db at the closest point on the lakeshore and are therefore unlikely to cause disturbance to birds using the lake.

As noted above, irregular sounds, at 60dB can also affect birds. A sound of 100dB at source, is likely to cause approximately 60dB of sound 85m from source (Table 5). Therefore, birds within the adjacent lake, 85m of the source area of a 100dB sound, may be disturbed by such noise, depending on their level of habituation and background noise levels. Occasional loud sounds during the construction phase of the project may constitute a temporary disturbance but given the screening properties of the intervening woodland and the distance from the works area to the lake, this is unlikely to be significant.

Table 6 Impacts of various activities on estuarine birds (Copied from Cutts et al. 2013)

Personnel and plant on mudflat:	High (and should be restricted at all times)
Third party on mudflat:	High (but difficult to restrict)
Personnel and plant on seaward toe and face:	High to Moderate
Intermittent plant and personnel on crest:	High to Moderate
Third party on bank:	High to Moderate
Irregular piling noise (above 70db):	High to Moderate
Long-term plant and personnel on crest:	Moderate
Regular piling noise (above 70db):	Moderate
Irregular noise (50db - 70db):	Moderate
Regular noise (50db - 70db):	Moderate to Low
Occasional movement of crane:	Moderate to Low
Noise below 50db:	Low
Long-term plant only on crest:	Low
Activity behind flood bank (inland):	Low

4.5. Proposed Works

It is proposed to construct an outdoor amphitheatre in an old quarry site on the east shore of Lough Ree just outside Lanesborough (Fig. 7).

4.5.1. Construction Phase

The works, with a total footprint of 0.62ha, are expected to include:

- Outdoor amphitheatre comprising **475 seats** in 12 tiered rows.
- Stage with tensile fabric roof covering.
- Sloped landscaping to rear of tiered seating.
- Sound booth.

Ancillary accommodation

- 1 no. 40 foot container for bar and first aid room.
- 1 no. 20 foot container for 'back-stage' accommodation for acts.
- Provision for 8 no. portable toilet cabins.

Site services

- Site lighting.
- Stage lighting and sound system.
- New power supply to the site serving all containers, stage and site lighting.
- Toilets will be portable type with own drainage to be removed off site after events.

Site landscaping

- Gravel finish to paths and new access areas.
- 3m high wire mesh fencing to perimeter.
- New soft landscaping to sloped areas around amphitheatre.
- All associated site development works.

Of note is that no additional car parking is proposed (existing parking in the car park in Lanesborough to the north), and that no additional works are proposed to the access pathways leading to the site.

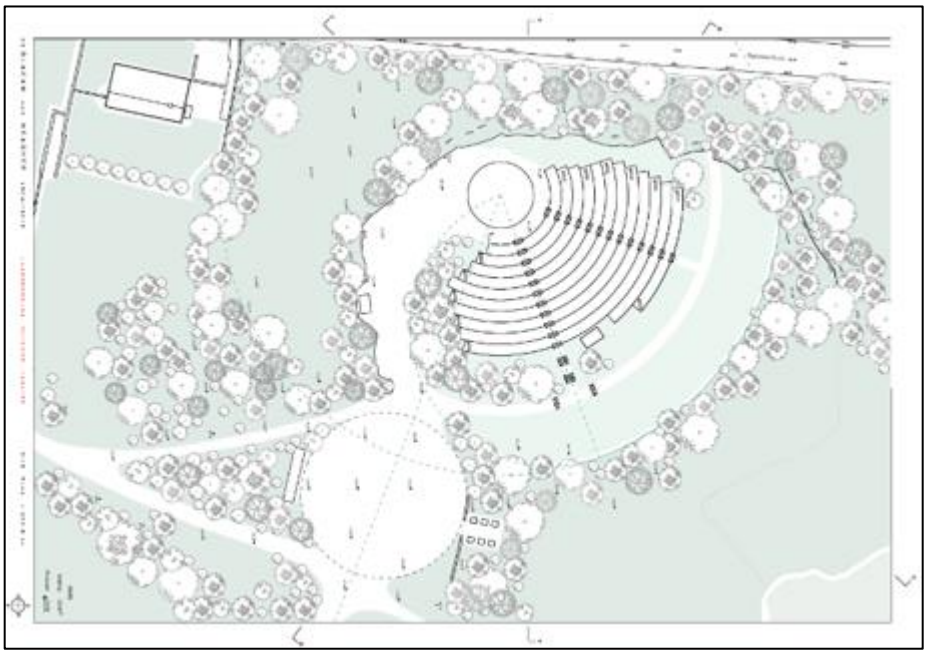

Figure 7 Overview of proposed works

4.5.2. Operational Phase

It is envisaged that the amphitheatre will host a variety of outdoor events ranging from community events to spoken word and amplified musical performances. The acoustic modelling carried out by Allegro Acoustics was done with this range of uses in mind (see Section 4.3).

4.6. Designated sites for assessment

The two European sites that were identified during the screening process as having the potential for being significantly impacted by the proposed works were *Lough Ree SAC 000440* and *Lough Ree SPA 004064* (Fig. 8)

4.6.1 Lough Ree SAC

The works area lies entirely within this very large European Site, the third largest lake in Ireland. The main feature of the SAC is the lake itself, but due to its nature as a shallow, glacial lake on Carboniferous limestone, the site encompasses other interesting shoreline, terrestrial and semi-aquatic habitats. Of immediate relevance to the project is a small area of limestone pavement on the lake shore between the works area and the lake, one of the Qualifying Interests of the SAC. See Table 7 for the full list of qualifying interests of the site, and https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY000440.pdf for a full site synopsis.

Table 7 Qualifying Interests of Lough Ree SAC

Qualifying interest	Natura Code
Natural Eutrophic Lakes	3150
Orchid-rich Calcareous Grassland	6210
Degraded Raised Bog	7120
Active Raised Bog	7110
Alkaline Fens	7230
Limestone Pavement	8240
Bog Woodland	91D0
Old sessile oak woods with Ilex and Blechnum in the British Isles	91A0
Otter (*Lutra lutra*)	1355

4.6.2 Lough Ree SPA

Lough Ree is an important site for wintering wildfowl with nationally important populations of species such as Little Grebe, Whooper Swan, Goldeneye, Golden Plover, and Lapwing. Greenland White-fronted Goose has been recorded in some of the flooded margins of the lake. As a breeding site, it supports a nationally important population of Common Tern, and is a traditional breeding site for Black-headed Gull. Of relevance to the project, the woodland around the lake margins is a stronghold for the scarce Garden Warbler. See Table 8 for the full list of SCI species for the site, and https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004064.pdf for a full site synopsis.

Table 8 Qualifying Interests for Lough Ree SPA

Qualifying interest	Natura Code
Little Grebe (*Tachybaptus ruficollis*)	A004
Whooper Swan (*Cygnus cygnus*)	A038
Wigeon (*Anas penelope*)	A050
Teal (*Anas crecca*)	A052
Mallard (*Anas platyrhynchos*)	A053
Common Scoter (*Melanitta nigra*)	A065
Tufted Duck (*Aythya fuligula*)	A061
Shoveler (*Anas clypeata*)	A056
Goldeneye (*Bucephala clangula*)	A067
Coot (*Fulica atra*)	A125
Golden Plover (*Pluvialis apricaria*)	A140
Lapwing (*Vanellus vanellus*)	A142
Common Tern (*Sterna hirundo*)	A193
Wetland and Waterbirds	A999

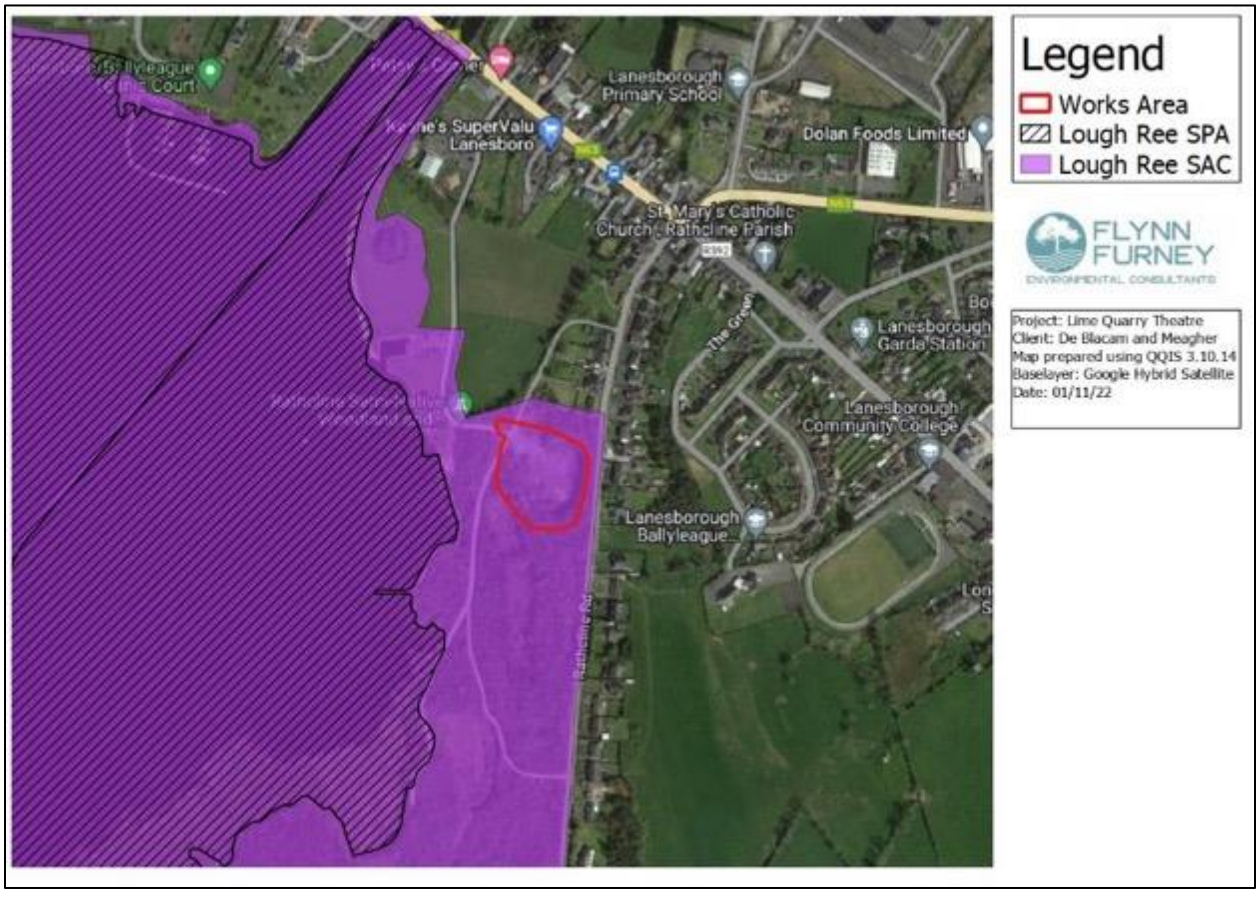

Figure 8 Natura 2000 sites in proximity to the proposed works

5. ECOLOGICAL ASSESSMENT

This section of the report, Tables 9 and 10, comprises the consideration of the individual conservation objectives of *Lough Ree SAC 00440* and *Lough Ree SPA 004064*, pathways for impact on each and outlines mitigation if necessary to eliminate significant impacts on each.

Table 9 Lough Ree SAC 00440 - qualifying interests, potential for impact and proposed mitigation

Qualifying Interest	Conservation Objectives	Impact Significance	Mitigation
3150 Natural Eutrophic Lakes	To restore the favourable conservation condition of Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation in Lough Ree SAC	This habitat type is potentially vulnerable to changes in water quality resulting from surface water runoff, and changes in water level and direct disturbance from works. The works footprint lies 50m from the lake shore with no direct pathway connecting the two. Much of the intervening space is taken up with riparian woodland which would further buffer any surface water runoff. Additionally, the ground profile of the quarry itself is bowl-shaped, which directs surface water back into itself rather than directing it outward. The risk of surface water contamination of the lake is considered to be very low. See Fig. 9 Appendix I for maps	The risk of surface water contamination of the lake during the construction phase of the proposed works is considered to be low, however measures should be taken, particularly at the ingress point to the quarry where machinery passes relatively close to the lake, although it is assumed that plant will be using the pathway to the east to enter the works area. • Shuttering to be erected along the pathway south of the harbour area, between the lake and the path, at the south end where the path runs adjacent to the area of limestone pavement. This will not only restrict the possibility of surface water runoff to the lake, but also screen the works area further in terms of noise/visual disturbance and provide additional protection to the area of *8240 Limestone Pavement*. • Silt fencing to be erected around the perimeter of the quarry area, to prevent surface water runoff entering the woodland
7230 Alkaline Fens	To maintain the favourable conservation condition of	This habitat type is potentially vulnerable to changes in water	

	Alkaline fens in Lough Ree SAC, which is defined by the following list of attributes and targets	quality resulting from surface water runoff, and changes in water level and direct disturbance from works. The full extent of this QI is not known, however it mostly associated with St. John's Wood on the western side of the lake. The risk of impact on this habitat type given the distance of the works area to the lake and the lack of direct connection is considered to be very low; mitigation measures outlined opposite will further reduce.	• Any in-situ concrete work to be lined and areas bunded (where possible) to stop any accidental spillage. • Any spoil or waste material generated from the construction process is to be temporarily stored at an approved location on site, before being removed to an accepting licensed waste disposal facility. • No concrete is to be washed-out on site at any location
8240 Limestone Pavement	To maintain the favourable conservation condition of Limestone pavements in Lough Ree SAC	The main area mapped within the SAC containing this QI habitat is further south on the east side of the lake (Fig. 10 Appendix I); a small area of pavement approximately 100m² is found however 50m from the works area. The risk to the QI habitat is considered to be low, given the distance from the works footprint and the nature of the works.	The risk of impact to this QI is considered to be low; however, if movement of machinery or personnel is necessary along the path leading from the lake, then shuttering should be erected as outlined above to protect this area from direct impact, dust or surface water runoff.
1355 Otter (*Lutra lutra*)	To maintain the favourable conservation condition of Otter in Lough Ree SAC	Otter is vulnerable to disturbance and direct impact on foraging/commuting habitats and on changes in water quality impacting their prey/forage in fluvial habitats. No otter records exist in the immediate vicinity of the works area, and no signs of	The risk of impact to this QI is considered to be low; care should be taken however to minimize any potential impacts on the riparian woodland to the south of the works area. Surface water protection measures as outlined above should suffice, given the lack of the need for direct disturbance of the habitat from the proposed works.

		otter were found during the otter survey carried out as part of this study. The woodland and lakeshore to the south did constitute good potential habitat for Otter (see Flynn, 2022b), but the risk of impact to this habitat is considered to be extremely low, given the nature of the works.	
6210 Orchid-rich Calcareous Grassland	To restore the favourable conservation condition of Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) in Lough Ree SAC	This habitat is terrestrial in nature, is not found within the works footprint, and has only been mapped from a location on the west shore of the lake. No reasonable pathway for impact exists (Fig. 11 Appendix I)	None required
7110 Active Raised Bog		The area of potential Active Raised Bog is found on the western lakeshore and is a terrestrial habitat at a raised elevation. No reasonable pathway for impact exists (Fig. 12 Appendix I)	None required
7120 Degraded Raised Bog	To restore the favourable conservation condition of Degraded raised bogs still capable of natural regeneration in Lough Ree SAC	See above.	None required
91D0 Bog Woodland	To restore the favourable conservation condition of	See above	None required

	Bog woodland in Lough Ree SAC		
91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles	The status of Old sessile oak woods with Ilex and Blechnum in the British Isles as a qualifying Annex I habitat for the Lough Ree SAC is currently under review.	None of this habitat type exists within the works footprint or in the vicinity. The riparian wet woodland surrounding the works area provides important habitat for many species, particularly Otter, but will not be impacted by the proposed works.	None required

Table 10 Lough Ree SPA 004064 - qualifying interests, potential for impact and proposed mitigation

Qualifying Interest	**Conservation Objectives**	**Impact Significance**	**Mitigation**
Little Grebe (*Tachybaptus ruficollis*)	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA	As outlined in Section 4.2.2 above, a winter bird survey carried out found none of the SCI species for which the site is designated, with the exception of Whooper Swan, which was observed flying overhead. The survey noted that the area of lakeshore to the west/northwest of the works area was heavily modified, and that the marginal habitat to the south between the woodland and the lakeshore was narrow; the region in the vicinity of the proposed	As noted in Sections 4.2.2, 4.3 and 4.4, the risk of disturbance impact on any SCI species of *Lough Ree SPA* is considered to be very low, as long as the proposed works are constructed as designed. Additional mitigation is more than likely not required, but the erection of shuttering along the lake shore where the path enters the quarry is recommended, since it will further screen the lake from occasional loud noises from construction and additional footfall, as well as protecting the QI habitats that are associated with the overlapping *Lough Ree SAC*.
Whooper Swan (*Cygnus cygnus*)			
Wigeon (*Anas penelope*)			
Teal (*Anas crecca*)			
Mallard (*Anas platyrhynchos*)			
Common Scoter (*Melanitta nigra*)			

Tufted Duck (*Aythya fuligula*) Shoveler (*Anas clypeata*) Goldeneye (*Bucephala clangula*) Coot (*Fulica atra*) Golden Plover (*Pluvialis apricaria*) Lapwing (*Vanellus vanellus*) Common Tern (*Sterna hirundo*) Wetland and Waterbirds		works was not of particular value to any wintering species (Flynn, 2022a). The acoustic modelling that was carried out by Allegro Acoustics showed that noise levels from the **operationa**l phase of the project would not exceed 50db at any point on the lakeshore; work by Cutts *et al.* (2009; 2013) showed that noise levels below 50db were unlikely to constitute a disturbance to wetland bird species. At a distance of 50+ metres, occasional loud noises/plant noise from the **construction** phase equally should not constitute a disturbance, given the buffering nature of the intervening woodland. (Sections 4.3 and 4.4 above for more detail). The risk of visual disturbance of birds on the SPA is likewise considered to be minimal, given the screening nature of the intervening woodland.	

5.1 Residual Effects

The project design, together with adherence to the relevant site-specific mitigation measures set out above will ensure that potential residual impacts do not arise and that the project itself (i.e., individually) will not prevent or obstruct the Qualifying Interests or Special Conservation Interests of *Lough Ree SAC* or *Lough Ree SPA* from reaching or maintaining favourable conservation status.

5.2 In-Combination Effects

A search of Longford County Council's planning database on 22/12/22 showed no projects in the vicinity of the proposed works that could contribute to a cumulative impact on the receiving Natura 2000 sites.

Two significant applications were noted, associated with Lough Ree Power Station to the north (Planning refs 2275 and 22275), for the construction of battery storage, a condenser and cable works linking permitted solar farms to the transformer complex at the power station. Given the nature of the above applications and the nature of the present project, no cumulative or in-combination impacts are predicted.

5.3 NIS Conclusion

This Natura Impact Statement has considered the potential for significant impacts arising from the proposed project that would have the potential to adversely affect any Natura 2000 site with regard to their qualifying interests and conservation objectives, specifically *Lough Ree SAC 00440* and *Lough Ree SPA 004064.*

The potential for direct, indirect, and cumulative impacts affecting the above designated features have been assessed within the report, informed by project-specific site surveys and specialist reporting with reference to the ecological communities and habitats potentially affected by the proposed development in order to provide a scientific basis for evaluations.

It must be noted that the proposed works area is of small scale relative to the adjacent Natura 2000 sites, and while it does lie within the boundary of *Lough Ree SAC*, no qualifying habitats lie within the works area or in the immediate vicinity. No direct pathway for surface water impacts exists between the works area and the receiving lake. The nature and design of the project and the nature of the intervening woodland habitat minimises the potential for disturbance impacts on bird species associated with *Lough Ree SPA*.

The works therefore pose little risk of significant impact on any of the qualifying interests of the European site. Measures for further impact reduction have been proposed in the NIS, the implementation of which will remove any potential to adversely affect the conservation objectives of *Lough Ree SAC 00440* and *Lough Ree SPA 004064*

It is therefore objectively concluded, in light of the above objective scientific information, that, when the above mitigation measures are implemented, the project, individually or in combination with other plans and projects, will not have an adverse effect on the integrity of any Natura 2000 site, in view of their conservation objectives and in view of best scientific knowledge.

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Appendix I: Supporting Maps

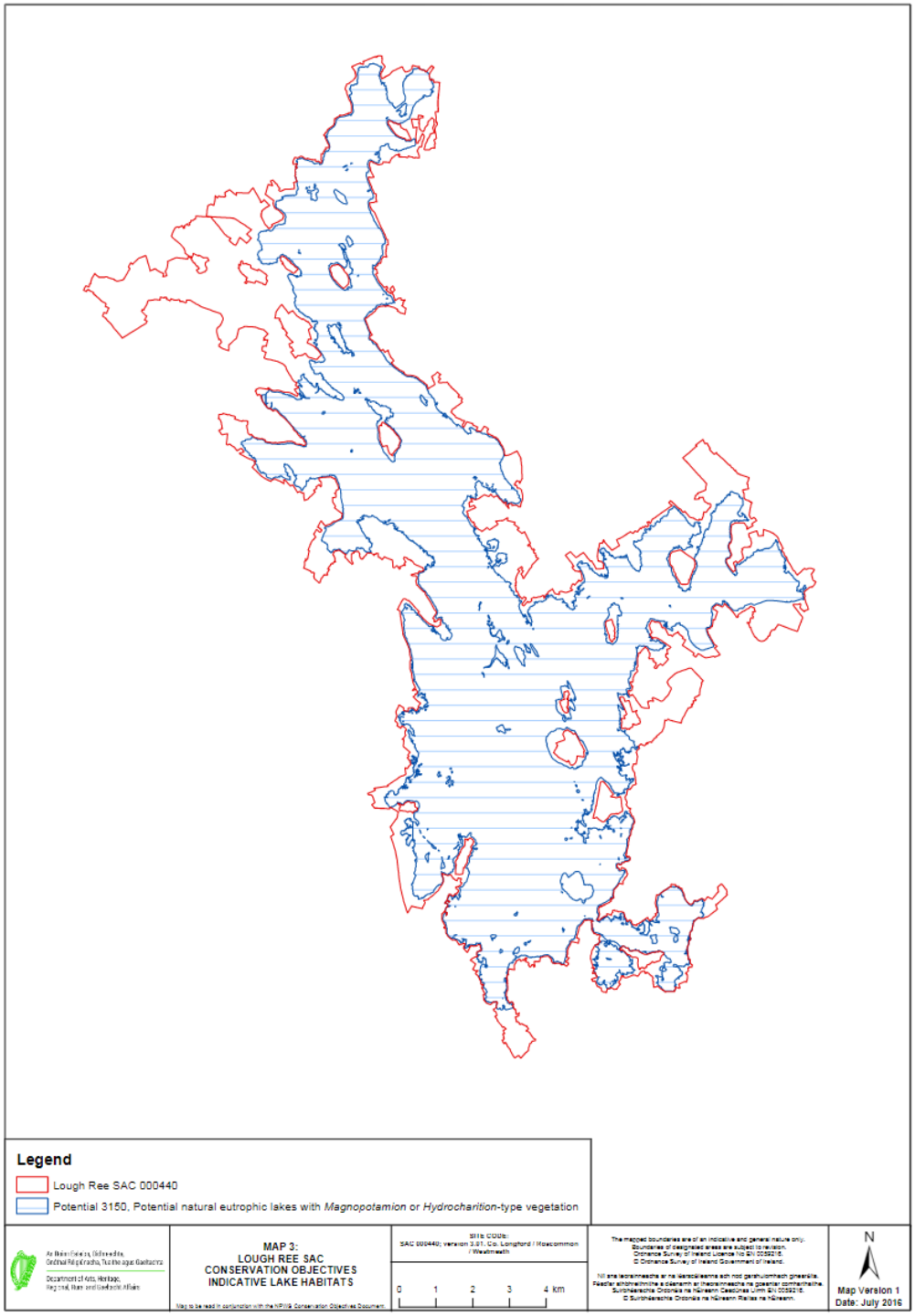

Figure 9 Extent of Natural Eutrophic Lakes QI in Lough Ree SAC

Figure 10 Limestone Pavement within Lough Ree SAC

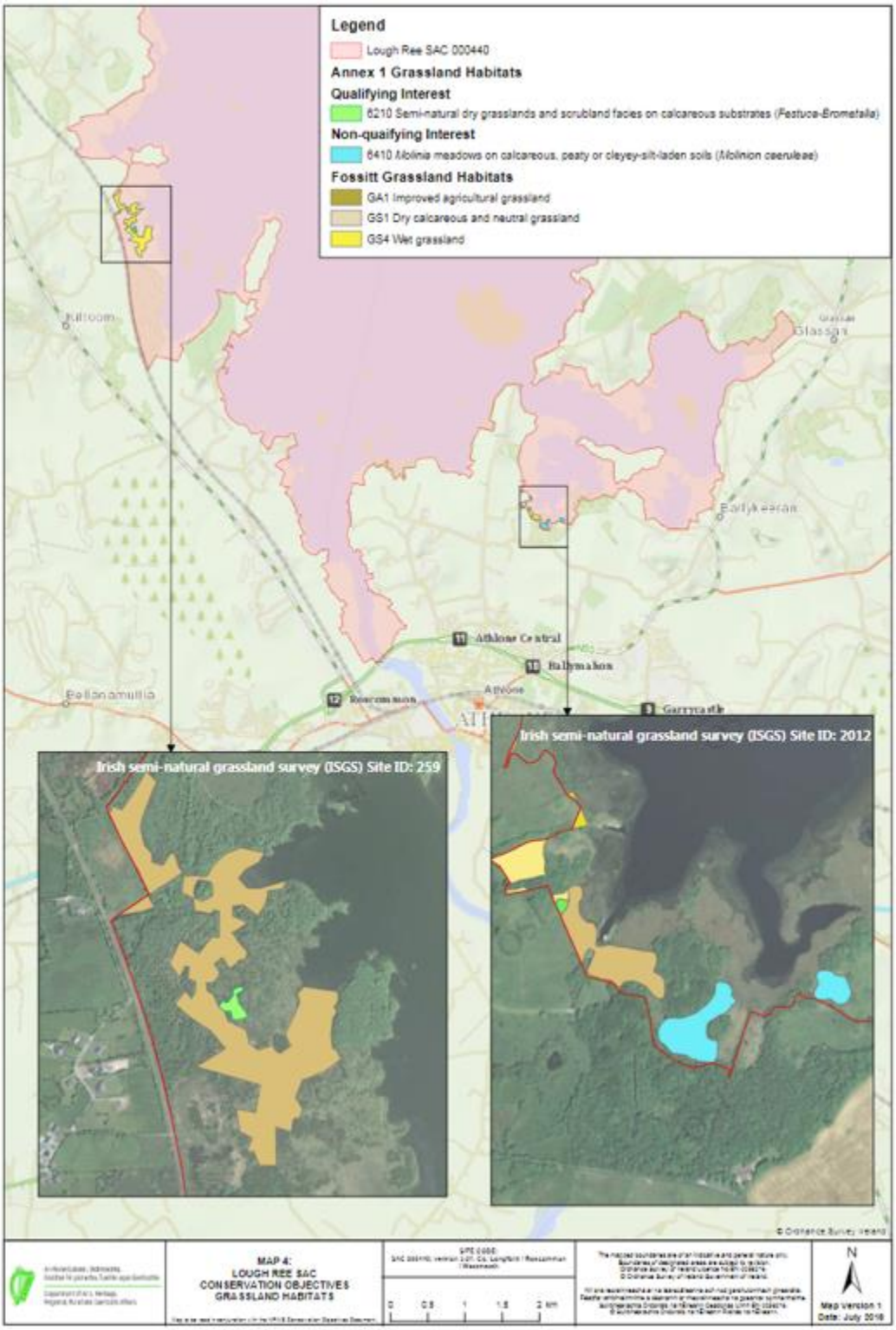

Figure 11 Terrestrial Annexed Habitats within the Lough Ree SAC

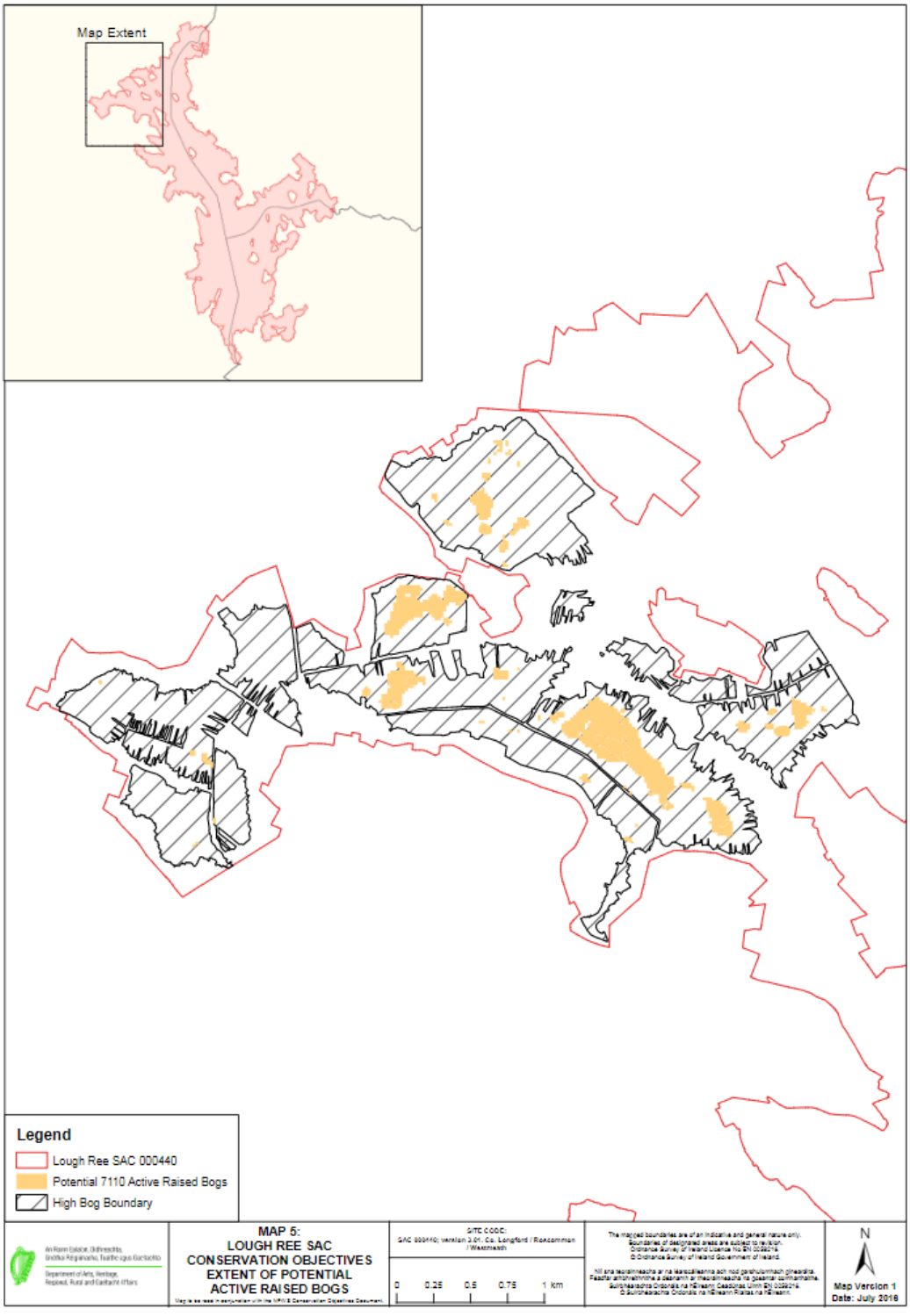

Figure 12 Bog Habitat location within Lough Ree SAC

Appendix II: Photos

Figure 13 Bare ground and spoil heaps to north of works area

Figure 14 FW8 pond in the southeast of the quarry floor

Figure 15 Back wall of the quarry

Figure 16 Transitional scrub at edges of quarry floor

Figure 17 Adjoining woodland

Figure 18 Small area of limestone pavement close to the works area

Appendix III: Glossary of Acronyms & Terms

1. Acronyms

AA	Appropriate Assessment
CDP	City or County Development Plan
cSAC	candidate Special Area of Conservation
DEHLG	Department of Environment, Heritage and Local Government
EC	European Commission
ECJ	European Court of Justice
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EC	European Commission
IROPI	Imperative Reasons of Overriding Public Interest
LAP	Local Area Plan
NGO	Non Governmental Organisation
NPWS	National Parks and Wildlife Service
OSI	Ordnance Survey of Ireland
RPG	Regional Planning Guidelines
SAC	Special Area of Conservation
SDZ	Strategic Development Zones
SEA	Strategic Environmental Assessment
S.I.	Statutory Instrument
SPA	Special Protected Area

2. Glossary of Terms

Annex I habitat: A habitat listed in Annex I of the Habitats Directive.

Appropriate Assessment: An assessment carried out under Article 6(3) of the Habitats Directive of the implications of a plan or project, either individually or in combination with other plans and projects, on a Natura 2000 site in view of the site's conservation objectives.

Appropriate Assessment Conclusion Statement:
The statement of a competent authority of its decision on an appropriate assessment, and the reasons for its decision.

Biodiversity: The variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (UN Convention on Biological Diversity 1992).

Birds Directive: Council Directive 79/409/EEC on the conservation of wild birds **European Commission:** The Commission of the European Communities.

Ecology: The study of the inter-relationships between living organisms and their environment.

***Ex situ*:** Outside – usually in the context of *ex situ* effects (or outside effects) on a Natura 2000 site. For example, abstraction of water from a river upstream of a Natura 2000 site located on the river could have an *ex situ* effect on the site.

Habitat: A place in which a particular plant or animal lives. Often used in a wider sense, referring to major assemblages of plants and animals found together such as woodlands or grassland.

Habitats Directive: Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive).

***In situ*:** Inside or within – usually in the context of *in situ* effects (or effects within) on a Natura 2000 site. For example, constructing a marina on the lakeshore in a Natura 2000 site could have an *in situ* effect.

Natura 2000: Network of Special Areas of Conservation and Special Protection Areas. For the purposes of this guidance, it includes candidate SACs and notified SPAs.

NIS: Natura Impact Statement. The report of a scientific examination of a plan or project and the relevant Natura 2000 sites, to identify and characterise any possible implications for the site in view of the site's conservation objectives, to enable a consent authority to carry out an appropriate assessment.

Precautionary principle: A principle underlying the concept of sustainable development which implies that **prudent action** be taken to protect the environment even in the **absence of scientific certainty**.

Priority habitat: Natural habitat types on Annex I of the Habitats Directive, and indicated by an asterisk (*), which are in danger of disappearance, and for which the Community has particular responsibility in view of the proportion of their natural range which falls within the territory.

Priority species: Species for the conservation of which the Community has particular responsibility in view of the proportion of their natural range which falls within the territory, these priority species are indicated by an asterisk (*) in Annex II of the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. At present, Ireland does not have any priority species.

Screening for appropriate assessment: the screening of a plan or project to establish if an appropriate assessment of the plan or project is required. Unless the screening assessment can establish that there is no likelihood of any significant effect on a Natura 2000 site, then an AA must be carried out.

Special Areas of Conservation (SACs): are sites designated under European Communities Directive 92/43/EEC known as the 'Habitats Directive'. This requires the conservation of important, rare or threatened habitats and species (not birds, which are protected by Special Protection Areas) across Europe.

Special Protection Areas (SPAs): are sites designated under the European Communities Directive 79/409/EEC, known as the 'Birds Directive', to conserve the habitats of certain migratory or rare birds.

[Statement for Appropriate Assessment: This term, used in the 10 December 2009 version of this Guidance, has, from 11 February 2010, been replaced by "**Natura Impact Statement**" (see below).]

Natura Impact Statement (NIS): The report of a scientific examination of a plan or project and the relevant Natura 2000 sites, to identify and characterise any possible implications for the site in view of the site's conservation objectives, to enable a consent authority to carry out an appropriate assessment.