Balliemeanoch Pumped Storage Hydro

Environmental Impact Assessment Report

Volume 5: Appendices
Appendix 6.2: Statement to Inform Habitats Regulations Appraisal

ILI (Borders PSH) Ltd

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Quality information

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Appendix 6.2 Statement to Inform Habitats Regulations Appraisal

6.2.1 Introduction

6.2.1.1 Background

This appendix accompanies Chapters 6, 7, 8 and 9 of the EIAR (*Volume 2 Main Report*). It describes the assessment of potential effects from the Development on Special Areas of Conservation (SAC) and Special Protection Areas (SPA) (collectively referred to as 'European sites'). European Sites within the zone of influence of the Development can be found on *Figure 6.2.1* at the end of this Appendix. Although it is presented as an appendix to the EIAR, this Statement to Inform Habitat Regulations Appraisal addresses separate legislative requirements which relate solely to European sites. Further information on the legislative context is given below.

6.2.1.2 Description of the Development

The Development is located at central national grid reference NN 03615 17578 approximately 4.4 km to the south of the village of Portsonachan and 9 km northwest of Inveraray in Argyll and Bute.

The Development comprises a pumped storage hydro scheme with two Embankments retaining the Headpond reservoir at Lochan Airigh. Water is pumped from the Tailpond, Loch Awe, via the Tailpond inlet / outlet structure to the Headpond using excess available energy. Once the water is stored in the Headpond (as potential energy), it can then be discharged through turbines when required to create electricity during times of peak demand. The Development will also comprise Access Tracks, Waterways, Power Cavern Complex and other associated permanent and temporary infrastructure. A temporary Marine Facility with jetty will also be constructed on Loch Fyne to allow for the delivery of abnormal indivisible loads during the construction period. The Development can be viewed on *Figure 2.3 Above Ground Infrastructure (Sheet 1 & 2) and Figure 2.4 Below Ground Infrastructure, in Volume 3 Figures.*

The total area within the red line boundary is approximately 3,115 hectares (ha). Not all of the area within the red line boundary will be developed. The Development will have a storage capacity of approximately 45,000 gigawatt hours (GWh) with approximately 1,500 MW installed electrical generation capacity.

6.2.1.3 Legislative Context

Under the Habitats Regulations[1], a network of sites has been designated across Scotland for the purposes of nature conservation. This network comprises sites known as Special Areas of Conservation and Special Protection Areas. SACs are designated for the protection of habitats and non-avian animal species of conservation concern. SPAs are designated to protect rare or vulnerable species of bird, as well as certain regularly occurring migratory bird species.

Prior to the UK's exit from the European Union (EU), Scotland's SAC and SPA were part of a wider network of such sites known as the 'Natura 2000' network. They were consequently referred to as 'European sites'. Now that the UK has left the EU, Scotland's SACs and SPAs are no longer part of the Natura 2000 network but form part of a UK-wide network of designated sites referred to as the 'UK site network'. However, it is current Scottish Government policy to retain the term 'European sites' to refer collectively to SAC and SPA (including any which are designated following the UK's exit from the EU) (Scottish Government, 2020).

The Habitats Regulations or, for reserved matters, Conservation of Habitats and Species Regulations 2017 (as amended), require that any plan or project which is not directly connected with or necessary to the conservation of a European site, and which is likely to have a significant effect on such a site, either alone or in-combination with other plans or projects, must be subject to an 'appropriate assessment' of the implications for the Conservation Objectives of that site. Generally, such proposals may only be approved if the 'Competent Authority' has

[1] The Conservation (Natural Habitats, & c.) Regulations 1994 (as amended), more commonly referred to as the 'Habitats Regulations'.

ascertained, by means of an appropriate assessment, that there will be no adverse effect on the integrity of the European site(s). The procedure to be applied is known as 'Habitats Regulations Appraisal' (HRA)[2].

In addition to fully designated European sites, the Habitats Regulations also apply to those sites in the earlier stages of the designation process, including:

- Sites of Community Interest (SCI);
- Candidate Special Areas of Conservation (cSAC);
- Possible / proposed Special Areas of Conservation (pSAC);
- Potential / proposed Special Protection Areas (pSPA).

For the remainder of this document, the term 'European site' is used to refer to fully designated SACs, SPAs, and candidate, possible and proposed SACs / SPAs, and SCI.

In the context of the Habitats Regulations, the Development constitutes a 'project'. Therefore, unless otherwise necessary, for example when considering in-combination effects, no further reference to plans is made.

The Competent Authority responsible for carrying out a HRA is the relevant consenting body for a particular plan or project – in this case the Energy Consents Unit (ECU) of Scottish Government. The Competent Authority is required to apply the Precautionary Principle (UNESCO, 2005) and can only grant consent once it has been ascertained that there will be no adverse effect on the integrity of the European site(s) concerned. However, the Habitats Regulations provide that, even if adverse effects on European site integrity are predicted, and in the absence of a suitable alternative solution, the project can still be carried forward for imperative reasons of over-riding public interest (IROPI). In such cases, compensatory measures must be implemented.

Although the UK is no longer part of the EU, a series of prior rulings of the Court of Justice of the European Union (CJEU) are relevant and must be considered when conducting HRA. Some of the rulings which are of relevance and which have been considered when preparing this Statement to Inform Habitats Regulations Appraisal are described in NatureScot guidance (SNH, 2014; SNH, 2015; SNH, 2019).

6.2.1.4 Overview of the HRA Process

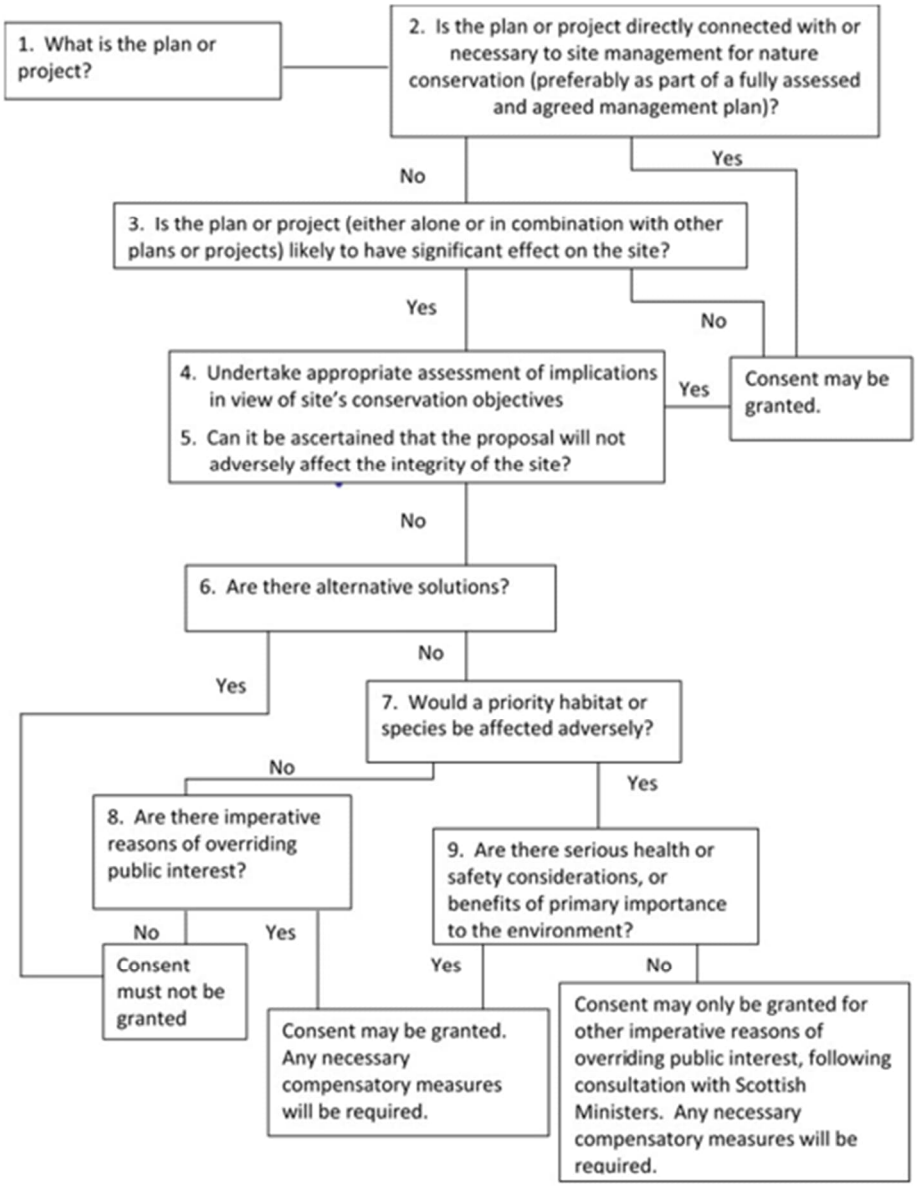
As a consequence of the UK's exit from the EU, it was necessary for various amendments to be made to the Habitats Regulations. These changes were required to ensure that Scotland continues to maintain the same standard of protection afforded to European sites. The Habitats Regulations remain in force, including the general provisions for the protection of European sites and the procedural requirements to undertake HRA. The changes made were only those necessary to ensure that they remain operable following the UK's exit from the EU.

The Habitats Regulations set out a step-by-step sequence of statutory procedures to be followed when conducting an HRA. The steps are designed to test the potential effects of a project on a European site and must be followed in the correct and particular order.

NatureScot recommends an approach, as described in SNH (2015), for HRA of plans, which is outlined as a series of thirteen steps. However, with cognisance of case law clarifying when mitigation can be taken into account in the HRA process[3], this has been revised and a flow chart is provided on the NatureScot website, and which is reproduced as Diagram 1. Further guidance published by NatureScot on HRA (SNH, 2014) also sets out the methods for assessing whether plans or projects will affect a European site.

[2] In the past, the term 'Appropriate Assessment' has been used to describe both the overall process and a particular stage of that process. The term 'Habitat Regulations Appraisal' has come into use in order to refer to the process that leads to an appropriate assessment, thus avoiding confusion. Throughout this document, HRA is used to refer to the overall procedure required by the Habitats Regulations.
[33] People Over Wind and Sweetman v Coillte Teoranta (C-323/17).

Diagram 1. Stages of the HRA Process (from NatureScot online HRA guidance[4])



In accordance with the process recommended by NatureScot and relevant case law, the methodology for the HRA of a project can comprise four main activities:

- HRA Activity 1: Screening (including a 'likely significant effect' judgement);
- HRA Activity 2: Appropriate Assessment;
- HRA Activity 3: assessment of alternative solutions;
- HRA Activity 4: assessment of IROPI, where no alternative solutions exist and where adverse effects remain.

Should the HRA Screening stage not rule out the possibility likely significant effects on the qualifying features of any European site then the second activity in the HRA process – Appropriate Assessment (AA) – will be required.

AA considers in more detail the possibility of the impacts of a project identified at the HRA Screening stage as having likely significant effects resulting in adverse effects on the integrity of the European sites, in view of the Conservation Objectives of those sites. It introduces to the assessment mitigation measures designed specifically

[4] https://www.nature.scot/professional-advice/planning-and-development/environmental-assessment/habitats-regulations-appraisal-hra.

to avoid adverse effects on European sites – the HRA Screening stage must be carried out without consideration of mitigation measures.

6.2.1.5 Purpose of this Document

Whilst the various steps involved in the assessment process must be carried out by a Competent Authority, consultants may provide the information that the Competent Authority requires to undertake an HRA. This Statement to Inform Habitats Regulations Appraisal has therefore been written to provide the ECU, in their role as Competent Authority, with the information needed to conduct an HRA of the Development. It has been prepared with regard to best scientific knowledge and an examination of all of the potential impacts of the Development on European sites.

6.2.2 Methodology

6.2.2.1 Sources of Guidance and Data

This Statement to Inform Habitats Regulations Appraisal has been prepared with cognisance of the following guidance published by the European Commission (EC) and NatureScot:

- *Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (European Commission, 2021);
- *Managing Natura 2000 sites – The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC* (European Commission, 2019);
- *Natura Casework Guidance: How to consider plans and projects affective Special Areas of Conservation (SACs) and Special Protection Areas (SPAs)* (SNH, 2014);
- *Habitats Regulations Appraisal of Plans. Guidance for Plan-making bodies in Scotland* (SNH, 2015);
- *SNH Guidance Note. The handling of mitigation in Habitats Regulations Appraisal – the People Over Wind CJEU judgement* (SNH, 2019).

Information on relevant European sites, including qualifying features, the latest assessed condition of those features, and the Conservation Objectives for each site was obtained from the NatureScot SiteLink website (https://sitelink.nature.scot/home).

Plans and projects (where relevant to in-combination assessment) were searched for via the Argyll and Bute Council website (https://www.argyll-bute.gov.uk/planning-and-building/find-and-comment-planning-applications) and planning portal and ECU website (https://www.energyconsents.scot/ApplicationSearch.aspx).

6.2.2.2 Desk Study and Field Survey

Desk study and targeted field survey was carried out to determine the baseline ecological conditions potentially relevant to this Statement to Inform Habitats Regulations Appraisal. A description of the relevant methods is given under the following sub-headings, and the results which have been used to inform the assessment in this document are provided in the Baseline Conditions section, further below.

6.2.2.3 Desk Study

A desk study was carried out to identify European sites and records of qualifying species of such sites within at least 1km of the Development, extended to 6km for eagle species. The desk study was carried out using the data sources detailed in Table 1.

Table 1: Desk Study Data Sources

Data Source	Date Last Accessed	Data Obtained
NatureScot SiteLink website (https://sitelink.nature.scot/home)	24 January 2024	• Information on international and national statutory designations within the ZoI of the Development.
Ordnance Survey (OS) 1:25,000 maps	24 January 2024	• Habitats and connectivity relevant to interpretation of planning policy and potential presence of important ornithological features.
Bing Maps aerial imagery (https://www.bing.com/maps/)	24 January 2024	
Argyll and Bute Council website (https://www.argyll-bute.gov.uk/)	24 January 2024	• Local Development Plan policies relevant to nature conservation. • Argyll and Bute LBAP information.

Data Source	Date Last Accessed	Data Obtained
Argyll and Bute Council Open Data website (https://data-argyll-bute.opendata.arcgis.com/datasets/d05f7337b41e48b4af933404dc0592a2/explore)	06 July 2023	• Local non-statutory nature conservation designations within 1km of the Development Site.
NatureScot	19 December 2018	• Confidential reports on golden eagle ranges within the potential ZoI of the Development.
Argyll Raptor Study Group	28 October 2023	• Information on the breeding locations of raptors within approximately 2km of the Development Site, extended to approximately 6km for golden eagle.
Natural Research	08 February 2024	• Data from two satellite tagged golden eagles referred to as 512 and 816, which have home ranges overlapping the Development Site, were obtained.

The proposed jetty location on Loch Fyne lies within a vacant British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) core count area referred to as 'Loch Fyne SE Otter Ferry to Inverary'. According to the BTO website (https://app.bto.org/webs-reporting/numbers.jsp?locid=LOC650733), no data for this site have been submitted since 1987, making any data very old and unreliable for the purposes of HRA. No WeBS data were therefore obtained as part of the desk study.

6.2.2.4 Field Survey

A range of ecological and ornithological field surveys were carried out for the Development. Those relevant to the HRA were survey for otter *Lutra lutra* and survey for golden eagle. A description of the survey methods used for these species is given below.

Otter Survey

Otter surveys were carried out along suitable watercourses and waterbodies within 200m of proposed above ground infrastructure, as far as access was feasible and safe. A few additional incidental records were made during other ecological surveys on intervening dates (April-September 2019, 2021, and 2023). The survey followed guidance in published literature (Chanin, 2003; Liles, 2003; Strachan, 2007; Strachan *et al*, 2011; Dean *et al*, 2016). Evidence of otter searched for included refuges (holts and lay-ups[5]), spraints (faeces), footprints, trails and foraging signs. Where found, spraints were recorded as fresh, recent or old, according to their apparent age.

An attempt was also made to classify the holts as non-natal or as having the potential for natal use. Although there is limited available information on natal holts, they are typically difficult to find, since breeding female otters tend to be secretive and locate them in the most well-hidden and secure holts (or sometimes 'nests' in reedbeds) that minimise risk of disturbance and cub predation (see, for example, Liles (2003) and Harris and Yalden (2008)). Infanticide by unrelated adult male otters is known to occur (Kruuk, 2006), and since male and female otters share the same watercourses for foraging and commuting, this is likely a significant risk to breeding females, and probably part of the reason that natal holts are typically more secure. Whilst natal holts have been known up to 100m from water, they have had direct covered habitat connectivity (such as continuous woodland) to water. Some natal holts have been found beside watercourses or lakes, but these (or the paths to them) were provided security by being situated amongst reedbed, in hollow trees, amongst or through dense scrub, or in terrain of difficult access (such as high up an inaccessible and undisturbed wooded slope). Thus, typical and more obvious holts in riverbanks that are not particularly well-hidden and relatively accessible (and also if likely to frequently flood) are unlikely to be natal holts.

The surveys took place in several distinct areas which, together, make up the Development Site. These are:

- **Moorland Zone** – the extensive upland area within which the proposed Headpond and associated permanent infrastructure (including compounds and Access Tracks) and temporary infrastructure (Construction Compounds and Access Tracks) will be located. This area includes the higher parts of the Balliemeanoch Farm track, above the moorland edge (i.e., above the enclosed pastures);
- **Loch Awe** – the bank of Loch Awe, adjacent and nearby woodland, and open habitat (primarily pasture) in a lowland setting, within which lies the proposed Tailpond and associated permanent infrastructure, the

[5] A holt is a well-enclosed otter refuge, such as a burrow. A lay-up (also called a couch) is semi-enclosed and of lesser importance.

western-most tunnel portal, temporary Construction Compounds and the Temporary B840 Realignment. It includes the lower part of the Balliemeanoch Farm track;

- **Inveraray** – includes Inveraray north-east, along an existing track running north and east of Inveraray, and Inveraray south-west, also primarily along an existing track running west and south of Inveraray and including the proposed jetty area;
- **Upper Sonachan** – an existing Access Track from the A819 in the north-east through commercial forestry.

Surveys took place on the following dates:

- **Moorland Zone** - Initial survey took place in 2019 on the 09-10 April, 04, 11-13 June and 17-18 July. Surveys in 2019 did not cover the whole survey area within the Moorland Zone. These were repeated in 2021 on 27 April, 10-12 and 18-19 August and 30 September, and again in 2023 on 10-11 and 16-18 May;
- **Loch Awe** - Initial survey took place in 2021 on the 12 May 2021 August. Update surveys were carried out on 18 May 2023;
- **Inveraray** - Initial survey took place in 2021 on the 12, 14 and 28-30 April, and on the 09 and 13 of August. Update surveys were carried out on 09, 15 and 19 May 2023;
- **Upper Sonachan** - Initial survey took place in 2021 on 12 August and 28 and 30 September. Surveys in 2023 were limited to larger watercourses as smaller burns and ditches offered sub-optimal habitat for otter and presented safety issues caused by accessing watercourses running through dense conifer plantation (see Limitations).

Golden Eagle Survey

Ornithology field surveys were carried out in the vicinity of the Headpond, Access Tracks and associated infrastructure between November 2018 and October 2019. All surveys followed the *Recommended bird survey methods to inform impact assessment of onshore wind farms* (SNH, 2017). This included a programme of vantage point (VP) survey and moorland breeding bird survey. Golden eagles observed during these surveys were recorded, including notes on behaviour which may indicate breeding activity.

In addition, targeted searches for breeding golden eagles were carried out in all areas of suitable habitat within 6km of proposed infrastructure associated with the Development (but not including land to the west of Loch Awe, where direct impacts from the Development are not considered possible), following guidance in Hardey *et al* (2013). Surveys were carried out between February and August 2019, inclusive, and were conducted under favourable weather conditions, in particular avoiding persistent heavy rainfall. Survey details are provided in Table 2.

Table 2 Breeding Golden Eagle Survey Visit Details

Date	Survey Visit	Start Time / End Time	Surveyor	Weather
18/02/2019	1	10:40 – 17:30	TG	Wind 3-4 SW, Precipitation light to heavy showers, Cloud Cover 7-8, Visibility > 3km, Frost: none, Snow: none, Temperature 7°C
18/02/2019	1	11:00 – 17:55	AF	Wind 0-3 S to SW, Precipitation light showers to heavy rain, Cloud Cover 8, Visibility usually > 3km but hazy, Frost: none, Snow: none, Temperature 8°C
19/02/2019	1	09:25 – 16:40	AF	Wind 2 SW, Precipitation:0, Cloud Cover: 8, Cloud Height 150-900m, Temperature 8°C, Frost: none, Snow: none
19/02/2019	1	09:30 – 16:25	TG	Wind 1-3 S, Precipitation: 0, Cloud Cover: 8, Cloud Height >900m, Temperature 6-7°C, Frost: none, Snow: none
02/04/2019	2	12:00 – 19:25	AF	Wind 1-4 W, Precipitation rain and hail showers, Cloud Cover 8, Cloud height 150-900m, Visibility mainly >3km, Temperature 6-8°C
02/04/2019	2	11:30 – 17:00	ND	Wind 1-4 W, Precipitation rain and hail showers, Cloud Cover 8, Cloud height 150-900m, Visibility mainly >3km, Temperature 6-8°C
04/04/2019	2	10:30 – 16:00	TM	Wind 3-4 E, Precipitation snow and hard showers, Cloud cover 6-8°C
05/04/2019	2	10:00 – 14:00	AF	Wind 1-2 SE, Precipitation 0, Cloud Cover 4, Cloud Height >900m, Visibility >3km, Temperature 12-13°C, Frost: 0, Snow 0

Date	Survey Visit	Start Time / End Time	Surveyor	Weather
25/04/2019	2	11:00 – 14:00	CN	Wind 2-3 E, Precipitation 0, Cloud Cover 2-3, Cloud Height >900m, Visibility >3km, No Snow or Frost
07/05/2019	3	13:25 – 18:30	AF	Wind, 1-2 SW, Precipitation 0, Cloud Cover 5-7, Cloud Height >900m, Visibility >3km, Temp: 13ºC, Frost: none, Snow 0
21/05/2019	3	08:30 – 14:30	AF	Wind 2-4 W, Precipitation 0, Cloud Cover 6-7, Cloud Height >900m, Visibility >3km, Temperature 13ºC, Frost: 0, Snow 0
23/05/2019	3	12:25 – 17:10	AF	Wind 1-2 W, Precipitation none, Cloud Cover 6-8, Cloud Height >900m, Visibility >3km, Temperature 10ºC, Frost: 0, Snow 0
28/05/2019	3	15:20 – 20:30	AF	Wind, 1-3 S, Precipitation 0,Cloud Cover 2-4, Cloud Height >900m, Visibility >3km, Temp: 14ºC, Frost: none, Snow 0
16/07/2019	4	10:20 – 17:00	AF	Wind, 1-2 SW, Precipitation 0,Cloud Cover 2-6, Cloud Height ?, Visibility >3km, Temp: 21-23ºC, Frost: none, Snow 0
05/08/2019	4	14:35 – 16:05	AF	Wind, 1-2 S, Precipitation 0,Cloud Cover 6-7, Cloud Height >900m, Visibility >3km, Temp: 18-19ºC, Frost: none, Snow 0

During preliminary visits, all suitable nesting habitats (particularly rocky crags) within the survey area were searched for signs of occupancy. This involved a walkover of the survey area, with short *ad hoc* vantage point watches being made from suitable locations to observe birds and any behaviour indicative of breeding (for example, displaying, alarm calling, etc.). Searches were also made in potentially suitable locations for evidence of raptor presence, including prey remains, plucking posts, pellets, etc. Any golden eagle observations (or evidence) were recorded and mapped on to suitably scaled OS maps. Any suspected or confirmed nest sites were also described and accurately mapped. Extended vantage point watches were made from a suitable distance to avoid disturbance. Observations of activity and behaviour were made.

6.2.2.5 Limitations

Otter surveys were constrained in the Inveraray sections, particularly to the far north-east and far south-west, due to dense and impenetrable rhododendron *Rhododendron ponticum* and other scrub, which prevented access to some watercourses and into localised parts of the woodland.

The limited extent of the bank of Loch Fyne within 100m of the Development was not surveyed north-east of Inveraray for safety reasons associated with proximity to the A83 (a fast road with poor visibility in this area). However, any otter features that might be present (which could include otter holts, although there is limited potential owing to a high degree of exposure and limited habitat suitability) will already be subject to disturbance from the existing road, and the Development in this area comprises only the use of an existing track for access, situated beyond the road with intervening screening woodland. Therefore, this is not a significant limitation to the assessment.

Full otter survey could not be carried out around the entirety of the existing reservoir south-west of the proposed Headpond. This was because the peripheral substrate and vegetation, which is inundated frequently, is often treacherous. However, given the regularly and severely fluctuating water level and lack of suitability of immediately adjacent habitat, it is unlikely that there would be otter refuges immediately around the reservoir.

High water levels and storm conditions on the River Aray and other watercourses within the Development Site in October 2023 may have destroyed some otter holts / lie-ups. The assessment has been undertaken according to the features present at the time of survey.

Survey of a location suggested by the 2015 National Golden Eagle Survey to be a possible breeding location could not be surveyed during the main breeding season without significant risk of disturbing any birds present. However, visits prior to and towards the end of the breeding season provided strong evidence that this location was not used for breeding by golden eagles in 2019.

6.2.2.6 Golden Eagle Topographic Modelling

Fielding *et al* (2019), developed a model, known as the Golden Eagle Topographical (GET) model, to predict habitat use by golden eagles. The model was developed using data from 92 satellite tagged golden eagles which were tagged as nestlings between 2007 and 2016 and subsequently dispersed from nest sites. The model found that young golden eagles preferred, or used according to availability, space above slopes greater than 10º, at an altitude of 300m or greater, and within 300m of a ridge. The GET model uses predicted use-class values of between 1-10

for habitats. Habitat valued at 1-5 is considered to be unfavourable for golden eagles, while habitat scored as 6 or above is considered to be suitable.

The GET model is recommended by NatureScot as a tool for estimating loss of this preferred habitat to range holding golden eagles (https://www.nature.scot/doc/naturescot-statement-modelling-support-assessment-forestry-and-wind-farm-impacts-golden-eagles), and NatureScot also recommended that GET modelling be carried out for the Development.

Full details of the GET model methodology are provided in Appendix 9.2: Golden Eagle Topographical Modelling of the EIAR. However, in summary, all habitat within the footprint of proposed above-ground infrastructure plus a 300m buffer was assigned a use value of 1-10, based on topographical characteristics. Any habitat with a score of 6 or greater, and which is not currently afforested or within the red line boundary of the operational Carraig Gheal Wind Farm, was assumed to be suitable habitat for golden eagles and will be lost to any birds occupying a territory which overlaps this area.

6.2.3 Establishing the Zone of Influence

6.2.3.1 Approach

There is no pre-defined guidance on the physical scope of a HRA in all circumstances. When seeking to identify relevant European sites, consideration was therefore given primarily to potential impact pathways and the source-pathway-receptor approach, rather than adopting a purely 'zones'-based approach. The source-pathway-receptor model is a standard tool in environmental assessment. In order for an impact to occur, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism means there is no possibility for an effect to occur. Furthermore, even where an impact is predicted to occur, it may not result in significant effects. It is also important to distinguish between an 'impact' and an 'effect'. An impact is defined as an action resulting in changes to an ecological feature, while an effect is the outcome to an ecological feature arising from an impact (CIEEM, 2022). For example, an impact may be the disturbance of a roost of wintering waders as a result of construction activities; the effect would be how the population or conservation status of the species disturbed by the works changes as a consequence.

The likely zone of impact (also referred to as the likely 'zone of influence') (ZoI) of a project is the geographic extent over which ecological effects are likely to occur. The ZoI of a project will vary depending on the specifics of a particular proposal and must be determined on a case-by-case basis with reference to a variety of criteria, including:

- The nature, size / scale and location of the plan or project;
- The connectivity between the plan or project and European sites, for example through hydrological connections or because of the natural movement of qualifying species;
- The sensitivity of ecological features under consideration;
- The potential for in-combination effects.

There is no geographical limit beyond which European sites need not be considered by HRA of a project.

The process of determining which (if any) European sites are within the ZoI of the Development was therefore a progressive appraisal of the potential for each impact source which could arise from its construction and operation[6] to affect the qualifying features of such sites. This process is set out in Table 3, and was conducted with cognisance of all of the impact sources described below.

6.2.3.2 Sources of Impact from the Development

A number of impacts could arise from the construction and operation of the Development. A description of each, and their potential relevance to the qualifying features of European sites, is given under the following sub-headings.

6.2.3.3 Direct Loss of or Damage to Habitat Within a European Site

Construction works which take place within or adjacent to the boundary of a European site could result in the damage or loss of habitat. In the case of the SACs, this may include habitat which is a qualifying feature of the

[6] Decommissioning has been scoped out of assessment as the decommissioning of large-scale pumped storage hydro projects is extremely rare due to the long operational lifespan of the facility. Potential decommissioning effects are therefore considered to be similar to, and associated with the components described in the construction project phase, and are not separately assessed.

designation. However, even where this is not the case, for both SACs and SPAs, habitat which is damaged or lost could be essential to supporting the qualifying plant or animal species, or to the normal functioning of the site.

6.2.3.4 Loss of Habitat Outside of a European Site Which Supports Qualifying Species

Habitat outside of the boundary of a European site, but which supports the qualifying species of such a site, is defined as being 'functionally-linked' to it. The ruling in the Holohan and Others v An Bord Pleanála case (C-461/17) concluded that the loss of functionally-linked habitat could result in significant effects on the qualifying features of a European site, if this prevented the site from meeting its Conservation Objectives.

To determine whether habitat may be functionally-linked to a European site requires some level of detailed study, often including targeted field survey. However, this impact can only occur on mobile animal species which could be present outside of the European site for which they are designated. For several bird species in Scotland, NatureScot has published guidance on the distances up to which qualifying species may use functionally-linked habitat outside of European sites (SNH, 2016). The distances given in this guidance were used when searching for SPAs designated for birds, but not seabirds, which may be within the ZoI of the Development. Accordingly, SPAs up to 20km were searched for, as this is given as the largest core foraging range for any species (non-breeding pink-footed goose *Anser brachyrhynchus* and greylag goose *Anser anser*).

Seabirds range over very large distances, and the Joint Nature Conservation Committee (JNCC) advises that data presented in Woodward *et al* (2019) be used when considering potential connectivity to developments. The foraging range of several species given in Woodward *et al* (2019) extends over hundreds kilometres, up to 2,365km for Manx shearwater *Puffinus puffinus*. The only element of the Development which is located in the marine environment is the proposed jetty in Loch Fyne at Inveraray. The jetty infrastructure is extremely limited in extent, and considering the massive foraging ranges of seabird species, adopting a ZoI extending hundreds of kilometres from the Development Site would be disproportionate as there is clearly no possibility of a significant effect on seabirds over this distance. Consequently, the ZoI for loss of functionally-linked habitat used by seabirds was considered to extend to a maximum of 20km from SPAs designated for these species.

For other mobile terrestrial, aquatic or amphibious animals for which SACs are designated in Scotland, the following distances were used when searching for sites which could be impacted by loss of functionally-linked habitat:

- marsh fritillary *Euphydryas aurinia* – research by Wahlberg *et al* (2002) found that the average dispersal distance of male marsh fritillaries was 1.3km, and up to 510m for females. On a precautionary basis, therefore, a distance of 1.5km was adopted;
- great crested newt *Triturus cristatus* – it is generally considered that great crested newts can occur up to 500m from breeding ponds (SNH, undated(a)). Therefore, on the assumption that any SAC designated for this species would encompass all breeding ponds used by a meta-population, a buffer of 500m surrounding the site should be sufficient to account for all terrestrial habitat which may be functionally-linked to these features;
- otter – studies quoted in Harris and Yalden (2008) suggest that the mean liner range size for four male otters in north-east Scotland was 48km. For one male in Perthshire the maximum range was 39km and for another male in Suffolk the range was also 39km. Female otters generally have smaller ranges, quoted in Harris and Yalden (2008) as being between 16-21km. A buffer of 40km, and only where there is direct hydrological connectivity to the Proposed Development, was used when searching for SACs designated for otter;
- all fish species – no set distance was used when considering potential impacts on fish species. Where a direct hydrological link exists between the Development and an SAC designated for fish species, it was considered that there could be impacts on these qualifying features.

Freshwater pearl mussel *Margaritifera margaritifera* is not a mobile species. However, it relies upon salmonid fish for part of its lifecycle. Therefore, in cases where a direct hydrological connection exists between the Development and an SAC designated for freshwater pearl mussel, the potential impacts on this species were considered.

Narrow-mouthed whorl snail *Vertigo angustior* is also the qualifying species of a single SAC in Scotland, situated in Aberdeenshire. This is a highly immobile species and there is no possible pathway for impacts from the Development to affect this site. They are not considered further in this Statement to Inform Habitats Regulations Appraisal.

6.2.3.5 Disturbance and Displacement of Qualifying Species

Construction and operational activities have the potential to cause disturbance of qualifying animal species. Disturbance can be caused visually (for example by the presence of personnel and plant, or as a result of artificial illumination of habitats) and/or by the noise and vibration generated by works. This could impact qualifying species when inside the boundary of a European site, or outside of a European site when using functionally-linked habitat.

The potential for disturbance to be caused will depend on the location and nature of construction / operational activities, the distribution of the qualifying species, and the sensitivity of the species to noise and visual disturbance from human activities. This may need to be determined through detailed study, including field survey, to establish the distribution of the relevant species. However, where disturbance is caused, it can have multiple adverse effects on species, including increased energy expenditure, reduced feeding time, behavioural changes, and displacement.

Based on the published guidance referenced below, the following distances were used when considering how far construction and operational activities may disturb qualifying species:

- otter – 200m, in accordance with SNH (undated(b)) which suggests this distance for otter breeding sites, reduced to 30m for other resting sites not used for breeding purposes;
- non-breeding waterbirds – the Waterbird Disturbance Mitigation Toolkit (Cutts *et al*, 2003) provides species-specific information on the sensitivity of several bird species which are qualifying features of SPAs. However, it suggests that, in general, disturbance of non-breeding waterbirds can occur up to distances of around 300m from construction works;
- breeding birds – 1km, this being the maximum distance at which Goodship and Furness (2022) consider disturbance could occur on the most sensitive species for which SPAs are designated.

Marine mammals, including grey seal *Halichoerus grypus*, harbour seal *Phoca vitulina* and harbour porpoise *Phocoena phocoena* can range over very large distances. For example, a search distance of 135km from SACs designated for grey seal was used in the HRA of National Planning Framework 4 (NPF4) (AECOM, 2022), and a distance of 50km for harbour porpoise and harbour seal. These distances were therefore used when searching for sites designated for these species in relation to the proposed jetty on Loch Fyne. Distances were measured hydrologically and not in a straight line ('as the crow flies') to account for the distance these animals would actually need to travel.

6.2.3.6 Injury or Mortality of Qualifying Species

The direct injury or mortality of qualifying species could occur where construction works take place within the boundary of a European site, or where the species in question may be using functionally-linked habitat outside of a European site boundary. When considering the latter possibility, the only relevant terrestrial or amphibious animal species which are sufficiently mobile to be at risk are otter, great crested newt and marsh fritillary. These species could occur up to the distances set out under 'Loss of habitat outside of European sites but which supports qualifying species', above.

Construction works which take place directly within or adjacent to a watercourse or waterbody, including for example construction of the Inlet / Outlet structure in Loch Awe, could also result in injury or mortality of qualifying fish species. Fish could also become entrained on or drawn into the Inlet / Outlet structure on Loch Awe. The ZoI for freshwater qualifying animals (i.e. fish and freshwater pearl mussel) was considered to encompass any SAC designated for these species for which a direct hydrological connection to the Development exists.

Except where nesting, birds are not considered to be vulnerable to injury or mortality as a result of construction works as they are readily able to move away from works activities. There is no realistic possibility of mortality of bird species during operation.

6.2.3.7 Prevention of Migratory Movements of Qualifying Species

The creation of permanent or temporary barriers in a watercourse (e.g. a new culvert), pollution of a watercourse, or noise / visual disturbance could all act to prevent the migratory movement of the qualifying fish species of SACs. Entrainment of fish on the Inlet / Outlet structure, or the possibility of fish being attracted to the flow of water out of the Outlet could interfere with or prevent the normal migratory movement of these species.

Although otter could be impacted by works in watercourses or waterbodies, this species is readily able to navigate overland. There is consequently no mechanism by which the Development could prevent the regular movements, including migration, of qualifying species other than fish.

The ZoI for this impact was therefore taken to be any SAC designated for fish species (or freshwater pearl mussel) for which a direct hydrological connection to the Development exists.

6.2.3.8 Changes to Surface Water or Groundwater Hydrology

Changes to surface water hydrology can occur as a result of engineering activities during the construction phase. For example, the construction or replacement of water crossings can change hydrological conditions within a watercourse. Abstraction of water (e.g. for use in dust suppression or other construction works) can also reduce water levels, as can changes to the existing flows of surface water to a watercourse. These impacts can occur either within a European site or can impact on the qualifying species of a European site if they pass through or occur within the relevant part of the watercourse. Therefore, any European site with direct freshwater hydrological connectivity (i.e. not including marine sites) could be impacted by changes to surface water hydrology.

Changes to groundwater conditions can occur as a result of excavations or the installation of piled structures (for example by interrupting groundwater flows). Guidance published by the Scottish Environment Protection Agency (SEPA) suggests that such activities could impact on groundwater dependent terrestrial ecosystems (GWDTE) up to 100 m from excavations less than 1 m in depth, extending up to 250m for deeper excavations (SEPA, 2017). Therefore any European site within South Lanarkshire and a 250m buffer is considered to be within the potential ZoI of this impact.

During the operational phase, water levels in Loch Awe will will be maintained within the current historical levels however may fluctuate more frequently than the current baseline..

6.2.3.9 Waterborne Pollution

Construction and operational activities have the potential to pollute watercourses and/or waterbodies. These could themselves represent qualifying features of a European site, may be within a European site and support the qualifying features of that site, or may be outside of a European site but be functionally-linked to such a site if used by the qualifying animals. Waterborne pollution may arise through spillages of fuels, oils, chemicals or other pollutants, or from the uncontrolled released of sediment. Discharges of effluent, which could increase the nutrient levels in the water would also fall under this category of impact.

Waterborne pollution can degrade habitats and can lead to the direct mortality of qualifying species such as fish and freshwater pearl mussel. The distance over which such impacts could have effects would depend on the severity of the pollution. However, any European site which has a direct hydrological connection to the Development, but not including estuarine or marine designations (where a huge dilution effect on any pollution would occur from the massive volume of the sea), has the potential to be within the ZoI.

6.2.3.10 Airborne Pollution

Airborne pollution could occur during the construction phase of the Development. During operation, emissions to air will be very minor, and limited to the small number of vehicles involved in the running of the Development. As for waterborne pollution, above, airborne pollution could impact on qualifying, supporting or functionally-linked habitats.

Dust generated during construction activities can directly impact vegetation or aquatic environments, and can indirectly impact animal species (for example where these habitats are used by them for foraging). During extended periods of dry weather, dust can cover plant foliage and adversely affect photosynthesis or other biological functions. Rainfall can then remove deposited dust and rapidly leach chemicals into the soil (Holman *et al*, 2014). Guidance published by the Institute of Air Quality Management (IAQM) advises that consideration should be given to construction-related air quality impacts on nature conservation sites within 50m of works, including any access routes, extending to 500m from the entrance to the construction site (Holman *et al*, 2014).

Vehicles and plant which operate via internal combustion engines emit airborne pollutants. The most important of these for European sites are oxides of nitrogen (NO_x). At close distances to source, NO_x can have a directly toxic effect on vegetation at very high concentrations. However, likely to be of greater concern is the contribution NO_x makes to the deposition of nitrogen to soils. Increases in nitrogen deposition from the atmosphere can, if sufficiently great, enhance soil fertility and lead to eutrophication. This can have adverse effects on community composition and quality of semi-natural, nitrogen-limited terrestrial and aquatic habitats (e.g. Wolseley *et al*, 2006; Dijk, 2001; http://www.apis.ac.uk/search-pollutant-impacts). Both the IAQM and the Design Manual for Roads and Bridges (DMRB) advise that such impacts are only likely to extend to a maximum of 200m from a road (or works area), and that air pollution levels fall sharply within the first few tens of metres (Holman *et al*, 2019; Highways England *et al*, 2019).

6.2.3.11 Spread of Invasive Non-native Species

Invasive non-native species can have detrimental effects on native flora and fauna. The construction of the Development is unlikely to result in the spread of any non-native animal species. Furthermore, during operation of the Development, there will be no transfer of water between catchments, so there is no possibility of aquatic invasive non-native species being spread to or between surface water systems.

Construction activities have the potential to cause the spread of invasive non-native plant species. Where works take place near to a European site, this could introduce such species to the site and have impacts on habitats and species. It has been assumed that the spread of invasive non-native plants could occur where construction works take place up to a distance of 50m from a European site, or where there is otherwise a direct hydrological connection between the Development and a European site. As for animal species, there is no way in which the operation of the Development could cause the spread of invasive non-native plant species.

6.2.3.12 European Sites Within the Zone of Influence

With cognisance of the impact sources described above, the ZoI for the Development, and all of the European sites within it, was determined. This is set out in Table 3.

The locations of the two European sites determined to be within the ZoI – Glen Etive and Glen Fyne SPA, and Loch Etive Woods SAC – are shown on Figure 6.2.1. Further details on each European site, including their qualifying features and Conservation Objectives, are given in Annex A.

Not all impacts will have pathways for effects on the qualifying features of all European sites within the ZoI. Consequently, some sites may be within the ZoI for certain impacts, but not for others.

Table 3: Establishing the Zone of Influence of the Development

Impact Source	Pathway(s) to European Site(s)	European Sites Within the Potential Zone of Influence
Construction Phase		
Direct loss of or damage to habitat within a European site	The direct loss of or damage to habitat within the boundary of a European site is only possible where the Development passes through, over or immediately adjacent to an SAC or SPA. On a precautionary basis, any European site within 50m of the Development is considered to be sufficiently close that there is a risk of direct damage or loss of habitat. There are no European sites within 50m of the Development Site. Part of the Glen Etive and Glen Fyne SPA is situated immediately adjacent to the A819 road, which will be used by vehicles associated with the Development. However, no works to the road in this area are proposed.	None.
Loss of functionally-linked habitat	On a precautionary basis, and in accordance with SNH (2016), an initial worst-case ZoI of 20km from the Development has been used when considering the loss of functionally-linked habitat for bird species. The following distances were used when searching for SACs for the mobile qualifying species of SACs: • marsh fritillary – 1.5km; • great crested newt – 500m; • otter – 40km (only where a direct hydrological connection exists); • marine mammals – 135km (in the marine environment, so relevant only to the proposed jetty in Loch Fyne). When considering fish species and freshwater pearl mussel, the ZoI is considered to include any watercourse which has a direct hydrological connection to the Development Site. Glen Shira SAC is located approximately 5.5km from the Development, 'as the crow flies'. However, it is in a separate water catchment to the Development and would it require significant over-land travelling by otter to move between the Development Site and the SAC. It is thus not considered to be substantially connected to it via a direct hydrological pathway.	• Glen Etive and Glen Fyne SPA • Loch Etive Woods SAC
Disturbance and displacement of qualifying species	Disturbance of qualifying animal species could occur when they occur within the boundary of a European site, or when using functionally-linked habitat outside the of the boundary of a European site. The potential ZoI for this impact is therefore considered to be the same as for the loss of functionally-linked habitat, above.	• Glen Etive and Glen Fyne SPA • Loch Etive Woods SAC
Injury or mortality of qualifying species	The qualifying bird species of SPAs are not considered to be vulnerable to injury or mortality except where nesting. Although the Development does not lie within any site designated for breeding birds, any golden eagles which breed near to the Development may be associated with the Glen Etive and Glen Fyne SPA. The damage or destruction of golden eagle nests, and potential injury or mortality of chicks, could therefore have effects on the golden eagle population of this SPA. Other animal species may be vulnerable to injury or mortality during the construction phase. This could occur where works take place within a European site boundary (or within 50m of the boundary of an SAC, on a precautionary basis), or if these species occur in functionally-linked habitat away from a European site.	• Glen Etive and Glen Fyne SPA • Loch Etive Woods SAC

Impact Source	Pathway(s) to European Site(s)	European Sites Within the Potential Zone of Influence
Prevention of migratory movements of qualifying species	There are no SACs designated for fish or freshwater pearl mussel which are hydrologically connected to the Development.	None.
Changes to surface water or groundwater hydrology	During the construction phase, any site crossed by, adjacent to (i.e. within 50m) or with a direct hydrological connection to the Development could be impacted by changes to surface water hydrology. Any terrestrial European site within 250m of the Development could be impacted by changes to groundwater conditions.	• Glen Etive and Glen Fyne SPA
Waterborne pollution	Any European site directly crossed by or adjacent (taken to mean within 50m) to the Development has the potential to be impacted by waterborne pollution. Any other site which has a direct downstream hydrological connection to the Development (but not including estuarine or marine sites) could also be impacted by pollution affecting habitats or aquatic species. Although Loch Etive Woods SAC potentially has hydrological connection to the Development, the nearest component area of this site is on the opposite side of Loch Awe, and uphill of the A85 road. There is consequently no realistic pathway by which waterborne pollution from the Development could be transported to this SAC due to dilution effects in Loch Awe, and because the site is not 'downstream' of the Development. Although Glen Etive and Glen Fyne SPA has a hydrological connection to the Development, with watercourses flowing from the Development Site into the component area east of the A819 road, the qualifying golden eagle population is not sensitive to this impact source. There is consequently no realistic way in which effects on the qualifying species could arise from the pollution of watercourses within this European site.	None.
Airborne pollution	On a precautionary basis, all European sites (with the exception of estuarine and marine sites which are not vulnerable to airborne pollution (e.g. http://www.apis.ac.uk/node/968)) within 500m (to account for IAQM guidance in relation to construction site entrances) were considered at this stage to be within the potential ZoI of this impact.	• Glen Etive and Glen Fyne SPA
Spread of invasive non-native species	The spread of invasive non-native plants could occur where construction works take place up to a distance of 50m from a European site, or where there is otherwise a direct hydrological connection between the Development and a European site (not including entirely marine sites, which are not vulnerable to this impact). As described in relation to waterborne pollution, Loch Etive Woods SAC is not 'downstream' of the Development, and there is no potential for invasive non-native plants to be spread to this site. Construction activities do not have the potential to cause the spread of invasive non-native animals.	• Glen Etive and Glen Fyne SPA
Operational Phase		
Direct loss of or damage to habitat within a European site	There is no mechanism by which operation of the Development could result in a loss of or damage to habitat within the boundary of a European site.	None.
Loss of functionally-linked habitat	There is no mechanism by which operation of the Development could result in a loss of or damage to functionally-linked habitat outside of the boundary of a European site.	None.
Disturbance and displacement of qualifying species	The intensity of activities during the operational phase of the Development will be considerably lower than during. However, the presence of personnel and vehicles has the potential to cause disturbance of qualifying bird species, especially when breeding (at which time birds are generally considered to be more sensitive to human disturbance). Consequently, the ZoI of this impact is considered to extend up to 20km from the Development Site for bird species (to account for the possibility of disturbance of birds using functionally-linked habitat).	• Glen Etive and Glen Fyne SPA • Loch Etive Woods SAC

Impact Source	Pathway(s) to European Site(s)	European Sites Within the Potential Zone of Influence
	For qualifying animals of SACs, the ZoI for disturbance is also considered to be the same as for the construction phase, described above.	
Injury or mortality of qualifying species	Injury or mortality of fish species could occur through entrainment on the Inlet / Outlet structure. However, there is no hydrological connection between the Development and any SAC designated for fish species.	None.
Prevention of migratory movements of qualifying species	As described in the row above, there is no hydrological connection between the Development and any SAC designated for fish species or freshwater pearl mussel. There is no possibility of the Development preventing the regular movements, including migration, of any qualifying species.	None.
Changes to surface water or groundwater hydrology	The operation of the Development will cause water levels in Loch Awe to fluctuate within current historical levels, however this fluctuation may occur more frequently.. Changes to hydrology can alter humidity in Atlantic woodlands, such as those for which Loch Etive Woods SAC is designated. This can lead to a direct loss of epiphytes, especially bryophytes, but also lichens that require more humid conditions such as jelly lichens (Plantlife, 2010). Glen Shira SAC is approximately 5.5km from the Development and in a completely different water catchment. There is consequently no possibility of changes to surface or groundwater hydrology in this European site.	• Loch Etive Woods SAC
Waterborne pollution	The likelihood of operational activities resulting in pollution of surface water is much reduced compared to construction. Furthermore, as described for those phases, there is no connection between the Development and any European site which is sensitive to this impact source.	None.
Airborne pollution	Operation of the Development will generate negligible emissions to air and there is no possibility of this having significant effects on qualifying or supporting habitats of any European site.	None.
Spread of invasive non-native species	The operation of the Development will not involve the transfer of water between catchments. There is consequently no possibility of non-native animal species being spread. There is also no mechanism by which the operation of the Development could cause the spread of invasive non-native plant species.	None.

6.2.4 Test of Likely Significant Effects

6.2.4.1 Overview

This section assesses the potential for the identified construction and operational phase impacts, for which pathways exist to European sites, to have likely significant effects on those sites. In accordance with case law (Waddenzee (C-127/02)) 'likely' in this context is taken to mean 'possible', while a 'significant' effect is one which could undermine the Conservation Objectives of a European site (SNH, 2015).

The purpose of HRA Screening is to determine those elements of a project regarding which it can be stated, without detailed appraisal, that significant effects on a European site are unlikely. In line with case law (People Over Wind and Sweetman v Coillte Teoranta (C-323/17)), consideration cannot be given at this stage to specific mitigation measures designed to avoid significant effects on a European site. However, NatureScot has published guidance on the handling of mitigation when carrying out HRA (SNH, 2019). NatureScot advises that, although mitigation designed specifically to avoid significant effects on the qualifying features of a European site cannot be referred to at the HRA Screening stage, it is reasonable to consider the 'intrinsic elements' of a development, including those which can be regarded as 'good practice' or 'best practice' for development of that type. Standard good practice works methods which would be adopted by the Development, regardless of the presence of European sites, would include the implementation of pollution prevention measures following SEPA Guidance on Pollution Prevention (GPP) and Pollution Prevention Guidelines (PPG). Furthermore, under the Wildlife and Countryside Act 1981 (the 'WCA'), as amended by the Wildlife and Natural Environment (Scotland) Act 2011, it is an offence in Scotland to cause any animal or plant to spread or grow in the wild outside of its native range. Appropriate biosecurity measures will therefore also be implemented during works carried out during the construction and operational phases to prevent the spread of invasive non-native species. Such measures would be set out in a Biosecurity Management Plan, Construction Method Statement and/or other similar document(s).

The test of likely significant effects in this section is necessarily a high-level appraisal, with a precautionary approach adopted when reaching a conclusion. For those impacts for which likely significant effects cannot be 'screened out', further appraisal at the Appropriate Assessment stage of the HRA of the Development will be required.

6.2.4.1 Impacts With Pathways to European Sites

Impacts Screened Out of Further Appraisal

On the basis of the initial assessment described in Table 3, and considering NatureScot's guidance on the handling of mitigation in HRA, the following possible impacts have been screened out of further appraisal because: a) there is clearly no potential for them to occur, b) because such impacts would clearly not result in any significant effects on the qualifying features of any European site, and/or c) because standard good practice measures will be implemented which will incidentally (i.e. it is not their primary purpose) avoid significant adverse effects on the qualifying features of European sites:

- During the construction phase:
  - Direct loss of or damage to habitat within a European site;
  - Prevention of migratory movements of qualifying species;
  - Waterborne pollution;
  - Spread of invasive non-native species[7];
- During the operational phase:
  - Direct loss of or damage to habitat within a European site;
  - Loss of functionally-linked habitat;
  - Injury or mortality of qualifying species;
  - Prevention of migratory movements of qualifying species;

[7] Although Glen Etive and Glen Fyne SPA is identified as being in the potential ZoI of this impact, standard good practice in relation to the prevention of spread of invasive non-native species, to be set out in a Biosecurity Management Plan, will avoid any significant effect on the qualifying species of this European site.

- Airborne pollution;
- Spread of invasive non-native species.

Impacts Tested for Likely Significant Effects

For all other construction phase and operational phase impacts given in Table 3, the European sites within the potential zone of influence of the Development was established. Possible impacts are as follows:

- During the construction phase:
  - Loss of functionally-linked habitat;
  - Disturbance and displacement of qualifying species;
  - Injury or mortality of qualifying species;
  - Airborne pollution;
  - Changes to surface water or groundwater hydrology;
- During the operational phase:
  - Disturbance and displacement of qualifying species;
  - Changes to surface water or groundwater hydrology.

6.2.5 Screening Assessment

For each European site, the construction and/or operational phase impacts for which that site was determined to be within the ZoI of the Development are examined in Table 4 and 5 for their potential to result in significant effects on the qualifying features.

Information on each European site relevant to the test of likely significant effects, including the list of qualifying features, Conservation Objectives, and known existing threats or pressures, was obtained from NatureScot SiteLink website. A summary of this information for each European site is presented in Annex A.

Table 4: HRA Screening Assessment for Glen Etive and Glen Fyne SPA

Impact Source	Potential Effects	Likely Significant Effects?
Construction Phase		
Loss of functionally-linked habitat	Golden eagles forage over open moorland of the type present across the upland parts of the Development Site (e.g., Ratcliffe, 1990). According to SNH (2016), the core foraging range of golden eagles extends up to 6km from a nest location. Consequently, golden eagles nesting inside the boundary of Glen Etive and Glen Fyne SPA, at closest approximately 230m to the east, could forage in suitable habitat within the Development Site boundary. Furthermore, golden eagles nesting close to but outside of the European site boundary could also contribute to the maintenance of the SPA population, for example through mortality replacement. Construction of the Headpond and other above-ground infrastructure will therefore result in the loss of habitat which could support foraging golden eagles which are associated with Glen Etive and Glen Fyne SPA, whether they nest inside or just outside of boundary of this European site. Without further appraisal, likely significant effects on the qualifying golden eagle population of Glen Etive and Glen Fyne SPA from this impact cannot be excluded.	**Yes**
Disturbance and displacement of qualifying species	According to Goodship and Furness (2022), breeding golden eagles may be disturbed by anthropogenic activities taking place up to a distance of 1km from the nest location, this being extended to 1.5km for particularly intrusive works. There are two known golden eagle territories with historically-used nest crags located within this distance of the Development Site. Construction works could therefore disturb birds nesting at these locations. Although this would constitute an offence under the WCA and must therefore be avoided to comply with this legislation (irrespective of the potential for effects on a European site), on a precautionary basis and to allow for mitigation measures to be described and committed to in this Statement to Inform Habitats Regulations Appraisal, this impact has been screened into the Appropriate Assessment stage. Furthermore, golden eagles present away from the nest could also be subject to disturbance and consequently be displaced from areas of habitat that they would otherwise use for other activities such as foraging or roosting. The possibility of likely significant effects from any such disturbance displacement can also not be excluded at this stage.	**Yes**
Injury or mortality of qualifying species	In Scotland, the vast majority of golden eagle nests are sited on crags / cliffs, with tree nesting being relatively rare and almost all tree nests being in old growth Caledonian pinewoods, a habitat absence from the Development Site and surrounding area (Whitfield *et al*, 2008). Crag features suitable for nesting by golden eagles are not present within the construction footprint of the Development, so there is no potential for damage or destruction of golden eagle nests (which could lead to the injury or mortality of immobile chicks). Once birds have fledged the nest and are mobile, there is no risk of injury or mortality being caused as they will be readily able to move away from sources of such danger. The potential for significant effects from this impact source can therefore be excluded as there is no likelihood of any golden eagle nest site being damaged or destroyed.	No
Changes to surface water or groundwater hydrology	Although there is a hydrological connection between the Development and Glen Etive and Glen Fyne SPA, there are no works which will result in changes to surface water hydrology within the European site. Watercourses crossed by the northern Access Track off the A819, and which flow into the SPA, are either already crossed by existing forest roads, or will be crossed in such a way that surface water hydrology is maintained (watercourse crossing design is an inherent part of the Development and will require compliance with legislation covering engineering in the water environment). Moreover, golden eagles are very unlikely to be sensitive to any impacts associated with changes to surface water hydrology. There are no significant excavations required within 250m of the SPA and therefore no changes to groundwater conditions within the SPA are likely.	No

Airborne pollution	At closest – at the entrance to the northern Access Track off the A819 – the Development Site is approximately 230m from the boundary of Glen Etive and Glen Fyne SPA. However, although not within the Development Site (because no works are proposed), the A819 will be used by construction traffic associated with the Development. The A819 forms the boundary of the Glen Etive and Glen Fyne SPA along a stretch of approximately 1.3km in length. As set out above, emissions from vehicles can have adverse effects on habitats up to a distance of approximately 200m, while dust generated at construction site entrances can have impacts up to a distance of 500m. However, for the following reasons, there will be no significant effects from airborne emissions on qualifying golden eagles of Glen Etive and Glen Fyne SPA: • No habitat is a qualifying feature of the SPA. Therefore, the concern is whether or not impacts on habitats could affect golden eagles; • Golden eagles are unlikely to regularly use habitats within 200m of the A819 road, or 500m of the Access Track off the A819, because they are either unsuitable (e.g. afforested), the topography is unsuitable for soaring, and/or because golden eagles are displaced by the presence of the road itself and traffic using it; • The number of construction vehicles using the A819 will be low when compared to the number of vehicles using major trunk roads. It is therefore highly unlikely that there will be sufficient levels of pollution to result in changes to vegetation composition in the habitats within 200m of the road; • There will be no significant construction works and no Construction Compound at the entrance to the Access Track off the A819. There is already a forestry road at this location which will be used, potentially subject to upgrading, by the Development. These relatively minor works will not have significant effects on vegetation composition within 500m of the Development Site; • To comply with other relevant legislation, dust suppression will be carried out, where necessary, at the Access Track entrance off the A819.	No
Operational Phase		
Disturbance and displacement of qualifying species	As described for the construction phase. Although activities during the operational phase will be of much lower intensity, there remains the possibility of birds at the nest being disturbed and/or of foraging birds being displaced as a result of the presence of personnel.	**Yes**

Table 5: HRA Screening Assessment for Loch Etive Woods SAC

Impact Source	Potential Effects	Likely Significant Effects?
Construction Phase		
Loss of functionally-linked habitat	The only qualifying animal species of Loch Etive Woods SAC is otter. Otter is a wide-ranging species, with home ranges extending up to around 40km for males, and 16-21km for females (Harris and Yalden, 2008). At closest, Loch Etive Woods SAC is approximately 7km from the Development Site, however this is at a location where no works within a watercourse or waterbody are proposed. It is approximately 14km between the Inlet / Outlet structure on Loch Awe and the component part of the SAC adjacent the A85. Following Loch Awe and watercourses onto the Development Site, it is approximately 12km from the SAC to the Headpond location. Therefore, although separated by some distance, based on the home ranges given in Harris and Yalden (2008), otter associated with Loch Etive Woods SAC could potentially occur within the Development Site. Construction of the Headpond will result in the loss of one waterbody – Lochan Airigh - as well as terrestrial habitat which could support amphibians, which at certain times of year can be an important prey resource to otter. A non-breeding otter holt was also found to be present at Lochan Airigh during fieldwork; on subsequent visits to this feature, it was found to have collapsed. This resting site will be lost to the construction of the Headpond However, for the following reasons, no significant effects on the qualifying otter population of Loch Etive Woods SAC are predicted: • Although the Development lies within the potential home range of otter associated with Loch Etive Woods SAC, given the substantial distances involved, it is unlikely that individuals would regularly commute between the two locations; • The loss of habitat from the Development will be small, especially in the context of the size of otter home ranges; • The otter resting site at Lochan Airigh was assessed as being a non-breeding holt. Otters have numerous such resting sites across their home ranges (e.g. Harris and Yalden (2008) refer to research which found that male otters used 37 and female otters 23 different holts for temporary over-day stops). For this reason, and due to the fact that this feature was found to have collapsed, its importance to otters will be minimal; • There is a very large area of suitable habitat which is likely to be of much greater importance to otter between the Development Site and the Loch Etive Woods SAC. In particular this includes Loch Awe. With specific reference to the Conservation Objectives of the site, therefore, the minor loss of potentially functionally-linked habitat is highly unlikely to affect the population or distribution of otters within Loch Etive Woods SAC.	No
Disturbance and displacement of qualifying species	There is no possibility of construction works disturbing otters when present inside the boundary of Loch Etive Woods SAC given the minimum separation distance of 7km. For the reasons given above in relation to functionally-linked habitat, otters associated with Loch Etive Woods SAC are unlikely to regularly commute to locations in the vicinity of the Development Site. Even in instances where otters belonging to the SAC do occur on or near the Development Site, they are likely to do so at night, generally at times when above-ground works are not taking place. The distance over which otters could be disturbed / displaced by any works which are taking place is only likely to extend over a short distance, and there will remain substantial areas of other suitable habitat for foraging, including Loch Awe, numerous watercourses and terrestrial habitat which may support prey such as amphibian species.	No

	Therefore, disturbance of otters associated with Loch Etive Woods SAC is unlikely to occur, and even if it were to occur, would not result in a significant effect on the qualifying population (the size and distribution of the population within the European site are very unlikely to change as a consequence).	
Injury or mortality of qualifying species	A range of good practice mitigation measures, which are routinely implemented by developments of this type and which can be considered at the HRA Screening stage, in accordance with NatureScot guidance, will minimise the risk of injury or mortality of any otters. However, even in the absence of such mitigation, the death of an individual otter, which is itself unlikely to be caused by the Development, is highly unlikely to significantly affect the population of the Loch Etive Woods SAC. As set out in Annex A, otter is assessed as being in 'Favourable Maintained' condition in the site, and the loss of a single otter would be very unlikely to negatively affect the conservation status of this species within the SAC. For example, in a study commissioned by NatureScot (Findlay *et al*, 2015), evidence of otter was found at 78% of survey sites within the SAC; this report advised that this figure should be treated with caution due to small sample size and that in reality occupancy could be higher. A territory made vacant through mortality would therefore likely be quickly reoccupied by another otter. Therefore, on the basis that: a) even in the absence of mitigation otter mortality would be rare and unlikely to result in a significant effect on the current favourable conservation status; and, b) that the likelihood of mortality is reduced even further by the implementation of standard best practice measures for general animal protection during construction works, it is concluded that there are no likely significant effects from otter mortality during the construction phase.	No
Operational Phase		
Disturbance and displacement of qualifying species	During the operational phase the presence of personnel and vehicles will be substantially reduced. Most works will also take place during daylight hours, when otter are less active. It is therefore unlikely that disturbance would be caused, and even if this were to occur, it would be minor and temporary. There is consequently no likely significant effect on otter belonging to Loch Etive Woods SAC as a result of disturbance during the operational phase.	No
Changes to surface water or groundwater hydrology	According to the Conservation Advice Package for the site (available from NatureScot SiteLink website), a key feature of the qualifying woodland habitats of Loch Etive Woods SAC is the well-developed bryophyte communities they support. These communities are vulnerable to changes in humidity, which can be caused by changes to hydrological conditions (Plantlife, 2010). Although the Development will cause fluctuations in the water levels in Loch Awe, there will be no impacts to the watercourses flowing through any of the component parts of Loch Etive Woods SAC, which are all upstream of Loch Awe. Furthermore, the boundary of the only component area adjacent to Loch Awe does not extend right down to the waterbody – it is at closest approximately 50m upgradient of the loch, above the A85 and Glasgow-Oban railway line. Woodland here is therefore very unlikely to be strongly influenced by humidity from Loch Awe, as may be the case if it extended right to the water's edge. Finally, western oceanic (Atlantic) woodlands are most strongly influenced by high levels of rainfall in this region. This is demonstrated by the fact that it extends beyond the edges of watercourses and waterbodies, and supports bryophytes throughout. It is therefore concluded that changes to water levels in Loch Awe will not impact humidity levels within Loch Etive Woods SAC and there will be no effects on the bryophyte or wider vegetation communities within the site as a result.	No

6.2.6 Baseline Conditions

6.2.6.1 Otter

Although likely significant effects on the qualifying otter population of Loch Etive SAC was screened out, above, the results of survey for this species are included for reference.

During the field surveys, a large amount of evidence of otter was found throughout the survey area. In total, 53 otter refuges (nineteen holts and 34 lay-ups) were identified within 200m of the Development, and spraints were frequently found on the majority of watercourses. However, the home range of otters using the Development Site would extend far beyond it and they would be expected to have numerous refuges, and there are several other good foraging resources (particularly Loch Awe but also other unaffected nearby lochans and watercourses) within the home range of otters using the Headpond area.

It is therefore reiterated that likely significant effects on the qualifying otter population of Loch Etive SAC can be screened out.

6.2.6.1 Golden Eagle

Information on the baseline conditions with respect of golden eagle are given in Confidential Appendix 9.1: Schedule 1 Birds of the EIAR, which will not be made available for public circulation due to risks associated with the illegal persecution of this species.

6.2.7 Mitigation

6.2.7.1 Embedded Mitigation

Unlike specific mitigation measures (for which see below), embedded (also known as 'design') measures can and have been taken into account during the HRA Screening stage. This is consistent with NatureScot guidance on the interpretation of relevant case law which advises that such measures would include the design, location, or layout of the project, or other measures which are routinely implemented as standard good practice and which are proven to have a high degree of success (SNH, 2019). Embedded design measures which will help to avoid significant effects on the qualifying features of European sites include:

- There will be no works directly within the boundary of any European site;
- Watercourse crossings (including those which are temporary and those which are permanent) will be designed so as to be passable to otters and fish (in the context of fish being an important prey item for otters; no European site designated for fish species is connected to the Development). SEPA guidance on the design of watercourse crossings (SEPA, 2010) will be followed, as well as other relevant guidance to ensure that this is achieved.

6.2.7.1 General Mitigation

In addition to embedded mitigation, there is a range of general mitigation measures that will also be implemented by the Development. These measures would be used to comply with other relevant legislation (for example legislation protecting breeding birds, or legislation protecting the water environment), and/or as good practice. However, their implementation may also incidentally provide some degree of avoidance or minimisation of impacts on the qualifying features of European sites[8]. These measures include:

- All personnel involved in the construction and operation of the Development will be made aware of the ecological features within the ZoI and the mitigation measures and working procedures that must be adopted. This will be achieved as part of the induction process and through the delivery of Toolbox Talks, where required;
- An Ecological / Environmental Clerk of Works (ECoW) will be employed for the duration of the construction of the Development. The remit of the ECoW will include, but may not be limited to:
  - Carrying out pre-construction surveys for protected species, including otter;
  - Carrying out pre-works checks for important bird species and nesting birds;

[8] General mitigation measures which are adopted to comply with other environmental legislation but which do not have the primary function of avoiding significant effects on the qualifying features of European sites can be considered at the HRA Screening stage. Consequently, pollution prevention mitigation and measures to avoid the spread of invasive non-native species were considered at the HRA Screening stage of this appraisal, but they are described here to provide further detail on the measures to be adopted.

  - Advising on exact infrastructure placement within micro-siting tolerances;
  - Monitoring of, and advising on, storage of overburden to minimise habitat damage;
  - Monitoring of any peat/vegetated turves that may be stored for later reinstatement;
  - Advising on habitat reinstatement;
  - Monitoring of pollution control measures and advising on placement of ditches, settlement ponds, etc. to minimise habitat damage;

- As far as possible, works that will directly impact upon areas of vegetation that could be used by nesting birds will be undertaken outside of the breeding season, this being taken to be between March and August, inclusive. Should vegetation clearance works be required during the breeding season, a pre-works check for active nests will be carried out by the ECoW or another suitably experienced ornithologist. Such checks will be completed no more than 72 hours in advance of clearance works taking place as nests can be quickly established. Where any active nests are identified, suitable species-specific exclusion zones will be implemented and maintained until the breeding attempt has concluded;
- A Construction Environmental Management Plan (CEMP) will be prepared and submitted for approval by Argyll and Bute Council, in consultation with SEPA and NatureScot, where necessary, prior to commencement of construction. The CEMP will set out all environmental management measures and the roles and responsibilities of construction personnel;
- During all phases of the Development, pollution prevention measures will be adopted, following SEPA Pollution Prevention Guidelines (PPG) and Guidance on Pollution Prevention (GPP), including the following:
  - Controls and contingency measures will be provided to manage run-off from construction areas and to manage sediment;
  - All oils, lubricants or other chemicals will be stored in an appropriate secure container in a suitable storage area, with spill kits provided at the storage location and at places across the Development Site;
  - In order to avoid pollution impacts to soils, vegetation and watercourses / waterbodies during construction, all refuelling and servicing of vehicles and plant will be carried out in a designated area which is bunded and has an impermeable base. This will be situated at least 50m away from any watercourse;
- Works near or at any retained native trees or semi-natural woodland will follow guidance in British Standard 5837:2012 *Trees in relation to design, demolition and construction – Recommendations* (British Standards Institution, 2012);
- Any artificial lighting required for construction works will be directional to avoid or minimise light spill beyond immediate works areas.

In the breeding season prior to commencement of construction and in the breeding seasons throughout the construction phase, the ECoW or another suitably experienced ornithologist will be responsible for carrying out a full programme of survey for sensitive bird species, including golden eagle. These surveys will follow good practice guidelines as adopted during the fieldwork completed to inform this Statement to Inform HRA and the wider Environmental Impact Assessment (EIA) for the Development. The purpose of these surveys will be to determine if and where sensitive bird species, including golden eagle, may establish nest sites, and to therefore allow for appropriate avoidance and/or mitigation measures to be implemented to avoid or minimise impacts upon them. Full details of the pre- and during-construction ornithological monitoring programme will be set out in the Species Protection Plan (SPP) for the Development, to be submitted to Argyll and Bute Council and NatureScot in advance of the commencement of construction. The results of all during-construction ornithological survey will be provided to NatureScot and (for relevant species) the Argyll RSG.

6.2.8.1 Specific Mitigation

Additional mitigation which is not part of the design of the Development, or which is not standard good practice and/or implemented to comply with other environmental protection legislation, and which can therefore only be considered for HRA purposes during the Appropriate Assessment stage, is referred to in this Statement to Inform Habitats Regulations Appraisal as ‘specific mitigation’.

As described under the ‘Appropriate Assessment’, below, no specific mitigation is required to avoid adverse effects on the integrity of any European site. However, the following mitigation will be implemented by the Development

which is relevant to golden eagle and which is expected to avoid or minimise adverse effects on the local population of this species:

- No blasting works will be permitted within 1.5km of an active golden eagle nest during the breeding season (which extended between February and August, inclusive (NatureScot, 2024)) or until such a time as monitoring confirms that no breeding has been attempted or that any breeding attempt has failed or has completed to successful fledging of young. Blasting beyond 1.5km from an active nest site will be monitored to observe for any signs that this is causing disturbance of golden eagle. Should it be found that blasting taking place further than 1.5km is causing disturbance, such works would stop and NatureScot would be consulted to assist in the further refinement of a suitable buffer zone;
- An Outline Landscape and Ecological Management Plan (oLEMP) has been drafted for the Development and submitted as part of the s36 application. The oLEMP sets out a range of measures that will be implemented by the Development. This is intended to a) mitigate landscape and ecological/ornithological impacts, and b) beyond this deliver biodiversity and general environmental enhancement. In summary, the measures which will provide mitigation/enhancement relevant to golden eagle primarily comprise:
  - Establishment of a substantial peatland and upland habitat rehabilitation zone around the Headpond, covering approximately 360ha (3.6km^2). This would be deer-fenced to exclude wild deer grazing, and only conservation-level livestock grazing would be permitted, to improve the condition of over-grazed upland habitats. Burning of blanket bog (and other habitats), of which there is local evidence, would also be excluded. On steeper slopes on lower ground within this area, natural tree regeneration may occur and would not be prevented as long as it comprised native species such as birch *Betula* spp., willow *Salix* spp., rowan *Sorbus aucuparia* and hazel *Corylus avellana* (as already exist in extremely small quantity in small retained ravine-like locations south-west of the Headpond);
  - Restoration of localised blanket bog exhibiting bare peat exposure, and infilling of drainage grips where locally present;
  - Extensive ecologically-appropriate planting of woodland to expand native woodland beside Loch Awe and nearby, in places also providing visual screening of Tailpond infrastructure.

Haworth and Fielding (2017) state that, in general, deer are most likely to exert an indirect influence of prey abundance and availability through grazing pressure, both on their own and in combination with sheep grazing and burning. They also suggest that establishment of native woodland can promote enhancement of live prey and to increase productivity. The above measures are therefore likely to increase the availability of golden eagle prey, including of mammals and birds such as red grouse *Lagopus lagopus* and black grouse *Tetrao tetrix*.

However, it will take time for such measures to become fully established, and it may be a number of years before significant benefits to golden eagle are realised in terms of increased prey abundance. It is estimated that such a period may be in the region of five to ten years.

6.2.8 Appropriate Assessment

The potential for likely significant effects on the qualifying habitats and species of Loch Etive Woods SAC was excluded at the HRA Screening stage. The Appropriate Assessment therefore considers only Glen Etive and Glen Fyne SPA and assesses the potential for the likely significant effects which could not be excluded to give rise to adverse effects on the integrity of the site. It is informed by the data collected through targeted desk study and field survey, as well as the results of GET modelling.

Each impact for which likely significant effects were not excluded at the Screening stage is considered in isolation, and an in-combination assessment is also included, considering the multiple impacts which could arise from the Development, and the possible impacts of other projects or plans.

6.2.8.2 Overview of Glen Etive and Glen Fyne SPA

Glen Etive and Glen Fyne SPA is large, multi-part site designated solely for golden eagles. The nearest part of the SPA is situated to the east of the Development, east of the A819 road between Inveraray and Dalmally. At closest, it is approximately 230m from the Development Site boundary.

Glen Etive and Glen Fyne SPA was screened in to Appropriate Assessment for further appraisal of the following impacts:

- Loss of functionally-linked habitat during the construction phase;

- Disturbance of qualifying species during the construction and operational phases.

6.2.8.3 Loss of Functionally-linked Habitat

NatureScot provided two reports (Austin *et al*, 2015a and Austin *et al*, 2015b) describing golden eagle ranges which are directly relevant to the Development (referred to as 'G/LAE1' and 'G/LAE1A'). These reports present information on the estimated extent of each range, and give recommendations for habitat management which could benefit golden eagles occupying these ranges. A summary of the information contained within each report is provided in Confidential Appendix 9.1 of the EIAR. The nest sites (eyries) associated with both home ranges are outside of the boundary of Glen Etive and Glen Fyne SPA. Both home ranges overlap the Development Site, while a very small peripheral part of G/LAE1 is also estimated to extend partly into the boundary of the Glen Etive and Glen Fyne SPA, adjacent to the A819 road. However, data obtained from two satellite tagged golden eagles, one of which occupies habitat in home ranges G/LAE1 and G/LAE1A, and another bird which occupies a home range to the south of the Development Site, indicated that both birds do use habitat within the Glen Etive and Glen Fyne SPA to the east of the A819 road on occasion (see *Confidential Appendix 9.1 Schedule 1 Birds (Volume 6 Confidential Appendices)* of the EIAR for figures illustrating the data collected from the satellite tagged golden eagles).

Golden eagles are territorial and will defend against intrusion by conspecifics. The entire Development Site lies within the two home ranges G/LAE1 and G/LAE1A. Consequently, it can be stated that habitat within the Development Site cannot be of great importance to any golden eagle which nests within Glen Etive and Glen Fyne SPA as it is contained within the territories held by other pairs who would actively defend against such intrusion.

There will consequently be no loss of functionally-linked habitat to golden eagles which nest inside the boundary of Glen Etive and Glen Fyne SPA.

Although not exactly loss of functionally-linked habitat, somewhat connected to it is the possibility of birds occupying habitat outside the boundary of the Glen Etive and Glen Fyne SPA which are important to the maintenance of the SPA population. This would occur if chicks fledged from territories surrounding the SPA were a major source of immigration and were responsible for keeping the SPA population stable.

GET modelling carried out for the Development estimated that there could be a loss of approximately 13% of suitable golden eagle habitat from home range G/LAE1 and a loss of approximately 16% from home range G/LAE1A (see Appendix 9.2 and Confidential Appendix 9.1 of the EIAR for further details). On this basis, it was concluded, even with the habitat enhancement to be delivered by the oLEMP, that one of the two pairs associated with these home ranges could be lost, or that one range could become totally unproductive and consistently fail to successfully fledge any chicks (this arising if territory boundaries shifted, leaving one pair with insufficient prey resource to rear chicks).

However, monitoring of the eyrie associated with G/LAE1 during baseline field surveys in 2019 and subsequently in every year to 2023 by the Argyll Raptor Study Group illustrates that productivity in this range is low, with one chick fledged between 2019 and 2023, representing a productivity rate of around 0.2 fledged birds/pair. The eyrie associated with G/LAE1A was surveyed in 2019 and did not produce any young but was not checked in subsequent years by the Argyll Raptor Study Group. Productivity is known to be low in parts of western Scotland, where shortage of live prey, probably as a result of a combination of heavy livestock grazing and over-frequent burning of vegetation (Fielding *et al*, 2003). The national golden eagle survey of 2015 found that golden eagle productivity ranged from 0.1 fledged birds/pair in the west Highlands to 0.53 fledged birds/pair in the east Highlands and south-central Highlands (Hayhow *et al*, 2017).

The population of golden eagle within Glen Etive and Glen Fyne SPA is assessed as being in Favourable Maintained condition. The only negative pressure identified on the NatureScot SiteLink website is recreational pressure / disturbance. It is therefore likely that the population of the SPA is stable and is self-sustaining, not relying heavily on immigration of birds from territories with very low productivity. Furthermore, at a wider scale, golden eagle is in favourable status both in Natural Heritage Zone 14 – Argyll West and Islands (NHZ 14) (Whitfield *et al*, 2008) and nationally across Scotland. There is thus very likely to be a ready supply of dispersing golden eagles from the local right through to the national scale which would support the SPA population. With specific reference to the Conservation Objective of Glen Etive and Glen Fyne SPA to maintain the population of the species as a viable component of the site, it is very unlikely that the loss of one territory with low productivity would prevent the golden eagle population to decline.

It is therefore concluded that **there will be no adverse effect on the integrity of Glen Etive and Glen Fyne SPA from the loss of potentially functionally-linked habitat caused by the construction of the Development.**

6.2.8.4 Disturbance and Displacement of Qualifying Species

Construction Phase

A detailed assessment of the potential for disturbance of golden eagle is set out in the Confidential Appendix 9.1, which presents sensitive information on the location of eyries.

Goodship and Furness (2022) updated a literature review previously carried out by Ruddock and Whitfield (2007). They assessed that golden eagle has high sensitivity to disturbance in remote areas. However, they also note that different pairs or sites may have a different sensitivity to disturbance, with tolerance being greater in areas where birds have some habituation to human presence. Consistent with the previous work of Ruddock and Whitfield (2007), Goodship and Furness (2022) suggest a breeding season buffer zone of between 750-1,000m around nest sites, but also state that this may need to be increased to 1.5km or more for activities with high potential for visual / auditory disturbance.

There are no known golden eagle nest sites within 1km of the Development. For the majority of construction works, therefore, there is no significant risk of disturbance being caused. However, it is possible that blasting could lead to disturbance of breeding golden eagle. No blasting will therefore be permitted within 1.5km of an active nest site during the breeding season (which extends between February and August, inclusive (NatureScot, 2024)) or until such a time as monitoring confirms that no breeding has been attempted or that any breeding attempt has failed or has completed to successful fledging of young. Blasting beyond 1.5km of a golden eagle nest site will be monitored to observe for any signs that this is causing disturbance of golden eagles breeding at this location. Should it be found that blasting taking place further than 1.5km is causing disturbance, such works would stop and NatureScot would be consulted to assist in the further refinement of a suitable buffer zone.

Regardless of the aforementioned mitigation (and not considering the legal requirement to avoid disturbance of nesting golden eagle), for the reasons set out under loss of functionally-linked habitat, any disturbance of breeding goldens eagle outside of the European site boundary would not adversely affect the integrity of the Glen Etive and Glen Fyne SPA.

Construction works may displace foraging golden eagles from areas of otherwise suitable habitat. The GET model estimated loss of habitat under the footprint of construction plus a 300m buffer. Golden eagle is, according to Goodship and Furness (2022) a “shy” species which is sensitive to human disturbance. However, they also note that the distance at which birds will be disturbed varies widely depending on the source of disturbance, individual birds, habitats, and the time of year. As birds at the nest are often considered to be more sensitive to disturbance, it would appear to be appropriate to use the non-breeding buffer zones described in Goodship and Furness (2022) and to estimate that displacement of foraging birds could extend to 500m from construction works.

Consequently, the area of habitat which could effectively be lost to golden eagles during the construction phase could be greater than the permanent loss of habitat described above under ‘loss of functionally linked-habitat’. However, this impact will be temporary during the construction phase and is likely to be most pronounced during the period of peak activity. Earlier and later in the construction programme, when activity is reduced, the impact is unlikely to extend over the entire Development Site and be restricted to certain areas. Furthermore, and as described in relation to loss of functionally-linked habitat, while this could significantly affect the golden eagles in home ranges G/LAE1 and/or G/LAE1A, this will not prevent the Conservation Objectives of Glen Etive and Glen Fyne SPA from being met.

It is therefore concluded that **there will be no adverse effect on the integrity of Glen Etive and Glen Fyne SPA from disturbance and/or displacement of golden eagle caused by the construction of the Development.**

Operational Phase

Operational activities for the Development will be of much lower frequency and intensity than those associated with the construction phase. With no known golden eagle breeding sites within 1km of the Development, there is no significant possibility of operational activities causing disturbance of birds at a nest.

There is evidence that golden eagles avoid operational wind farms (e.g., Walker *et al*, 2005). Despite this, Fielding and Haworth (2010) state that there is little evidence that this is having a negative effect on breeding golden eagles. Fielding *et al* (undated) also report that at least seven golden eagle territories became established after the commencement of wind farms nearby. They also state that golden eagle nests can be close to operational wind farms, with examples given from Kintyre, where birds bred within 1km, and on Haris, where birds bred within 250m of operational turbines.

The Development will not have large, moving infrastructure as is the case with turbines on wind farms. The presence of vehicles and personnel will be infrequent and in low numbers. It is therefore considered probable that the effect of displacement from the operation of the Development would be less than may occur from wind farm development.

It is therefore concluded on the basis of evidence from other renewable energy developments in Scotland and Argyll, that there would be limited adverse effect on the golden eagles occupying home ranges G/LAE1 and G/LAE1A, outside of the boundary of Glen Etive and Glen Fyne SPA. For the reasons set out in relation to loss of functionally-linked habitat is concluded that **there will be no adverse effect on the integrity of Glen Etive and Glen Fyne SPA from disturbance and/or displacement of golden eagle caused by the operation of the Development.**

6.2.8.5 In-combination Assessment

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location (CIEEM, 2022).

A list of schemes for which cumulative assessment may be necessary is identified in Chapter 4: Approach to EIA. The full list of schemes is not reproduced here, but those most important to golden eagle are considered to be those schemes which are located within 6km of the Development Site, this being the home range of this species (SNH, 2016). In addition, the existing Cruachan pumped storage hydro scheme and proposed expansion to Cruachan, located approximately 10km from the Development, are also potentially particularly relevant given the impacts of both schemes could be similar to those of the Development. The schemes for in-combination assessment are therefore those set out in Table 6.

Table 6 List of Schemes for In-combination Assessment

Scheme	Description	Status	Approximate Distance from the Development Site	Potential for In-combination Effects
Dalmally OHL	New overhead 33kv line. The new 33kv line will consist of fifteen new poles and two spans of single phase, which will house plant equipment and transformer. The new overhead line will be installed using poles of a wooden variety and these will be approximately 9.5 metres in height. The total length of the 33kv overhead line will be 1,150m.	Consented	30m	**Yes**. Habitat loss will be minimal for this project and so unlikely to be sufficient to have cumulative effects with this impact arising from the Development. However, if this scheme were under construction at the same time as the Development, disturbance caused by both could act cumulatively to significantly affect ornithological features.
Blarghour Wind Farm and Blarghour Wind Farm Variation	Wind farm comprising seventeen turbines has been consented. However, Section 36 Scoping prepared to increase height of turbines but reduce number to fourteen.	Consented / Scoping	150m	**Yes**. Given proximity to the Development there is potential for combined impacts of habitat loss, disturbance and displacement to act on ornithological features. More detailed assessment is provided below.
Beochlich Hydro Scheme	Small-scale 1MW hydropower scheme. Operational since 1998.	Operational	1.3km	No. Scheme operational and lies within ornithological survey area for Proposed Development. Baseline conditions reflect any impacts from this small-scale scheme.
Blarghour Wind Farm OHL Connection	Construct and operate a 132kV overhead line and underground cable to connect Blarghour Wind Farm to the proposed Creag Dhubh Substation.	Screening	2.0km	No. Habitat loss from this scheme is likely to be minimal and at approximately 2km distant, disturbance caused by its construction is unlikely to have significant cumulative effects with disturbance caused by construction of the Development.
An Carr Dubh Wind Farm	Wind farm development comprising thirteen turbines.	Application submitted	2.3km	**Yes.** At approximately 2km distance between this proposed wind farm and the Development, it is possible that habitat loss and/or displacement

Scheme	Description	Status	Approximate Distance from the Development Site	Potential for In-combination Effects
				associated with both could act cumulatively to golden eagle.
Creag Dubh to Inveraray OHL	Upgrade from existing 132kv to 275kv OHL.	Consented	2.4km	No. Habitat loss from this scheme is likely to be minimal and at more than 2km distant, disturbance caused by its construction is unlikely to have significant cumulative effects with disturbance caused by construction of the Development.
Inveraray to Taynuilt (ITE/ITW) Tie-In to Creag Dhubh Substation	Construction and operation of a Tie-In connection to the proposed Creag Dhubh Substation from the existing 132 kV Taynuilt to Inveraray OHL, as well as the temporary diversion of the existing 132kV Taynuilt to Inveraray OHL to facilitate its connection to the substation and associated ancillary works.	Consented	3.7km	No. Habitat loss from this scheme is likely to be minimal and at almost 4km distant, disturbance caused by its construction is unlikely to have significant cumulative effects with disturbance caused by construction of the Development.
Ladyfield Wind Farm	Wind farm development comprising 22 turbines.	Scoping	4.1km	**Yes**. This project is sited almost entirely in commercial conifer plantation which has low or no value to golden eagle. However, a relatively small proportion does include potentially suitable golden eagle habitat. At approximately 4km distant from the Development, there is very little possibility of combined impacts of construction-phase disturbance.
Creag Dubh to Dalmally OHL	275kv OHL. Public Local Inquiry (PLI) held.	Consented	4.2km	No. Habitat loss from this scheme is likely to be minimal and at more than 4km distant, disturbance caused by its construction is unlikely to have significant cumulative effects with disturbance caused by construction of the Development.
Carraig Gheal Wind Farm	Wind farm development comprising twenty turbines.	Operational	4.5km	No. Scheme operational and lies on opposite side of Loch Awe. Baseline conditions at the Development Site reflect any existing impacts from the wind farm.
Creag Dubh Substation	Substation Proposals – All major Planning Applications and all approved by Planning Authority. – construction likely to commence 2024	Consented	4.0km	No. This project is sited almost entirely in commercial conifer plantation which has low or no value to golden eagle. At approximately 4km distant from the Development, there is very little possibility of combined impacts of construction-phase disturbance.
Cruachan Hydro Scheme	440MW pumped storage hydro scheme that uses Loch Awe as a tailpond. Operational since 1965.	Operational	10.6km	No. This scheme is operational and baseline conditions reflect any impacts arising from it. It is located approximately 10.6km distant, and it is unlikely that the home range of any birds would lie across both the Development Site and the Cruachan site.
Cruachan Expansion	Increasing the capacity of the existing pumped storage hydro scheme by up to 600MW.	Consented	10.6km	No. For the same reasons as set out in row above. Birds are unlikely to make use of habitats in both the Development Site and the site of the Cruachan Expansion. Moreover, Cruachan Expansion does not involve any increase in the size of the headpond, so permanent habitat loss

Scheme	Description	Status	Approximate Distance from the Development Site	Potential for In-combination Effects
				to that scheme is understood to be minimal.

Golden eagle is considered to be in favourable conservation condition within Glen Etive and Glen Fyne SPA (https://sitelink.nature.scot/site/10113). Moreover, the national survey of golden eagle in 2015 determined that the national population had increased by approximately 15% since 2003 and had reached an abundance meaning that the species is considered to be in favourable conservation status in Scotland (Hayhow *et al*, 2017). Operational schemes are therefore not believed to be acting negatively on the golden eagle population either nationally (where other threats, primarily illegal persecution, are more important) or at the NHZ 14 level. Consequently, there is no evidence to suggest that the Development would act cumulatively with any existing schemes to give rise to negative effects on golden eagle.

Any assessment of loss of golden eagle habitat associated with construction of the Development results in a trivial figure, whether considered at the NHZ 14 or national level. For example, NHZ 14 has 229,700ha of preferred golden eagle habitat. The loss of habitat to both range-holding and dispersing golden eagles from the Development will contribute to an insignificant cumulative loss of such habitat at the scale of NHZ 14.

Furthermore, in terms of other possible impacts on golden eagle, assessment of cumulative effects is complex. For example, several wind farms, including Beinn Ghlas and Beinn an Tuirc, predicted adverse effects on this species. However, despite there being evidence of avoidance of operational wind farms, there is little proof that this has a negative effect on breeding golden eagles. Moreover, there are at least seven wind farms at which golden eagles have established nests nearby following commencement of operation, including on Kintyre.

The GET modelling carried out for the Development (see Appendix 9.2 of the EIAR) estimated that the combined habitat loss from the Development and other proposed wind farms in the area (namely Blarghour, Ladyfield, and An Carr Dubh) could be in the region of 20% of existing suitable habitat (GET score 6+) from each of the G/LAE1 and G/LAE1A home ranges.

The assessment of the Development in isolation concluded that habitat loss could lead to the loss of one of these golden eagle territories, or the reduction in productivity of one to such an extent that it would very rarely, if ever, successfully fledge young. In this scenario, even with the potential combined losses of habitat from other proposed schemes, there is very likely to be sufficient remaining suitable habitat within the adjusted range of one of these pairs to support them and to at least maintain current (low) productivity) levels.

Therefore, for the reasons that: a) these are golden eagles occupying home range(s) outside of the SPA; b) it is predicted that one golden eagle pair could be supported by remaining habitat in this range(s), even after cumulative losses from various projects in the area; and, c) even if this were not the case and two pairs were lost, there would still be a pool of dispersing golden eagle from elsewhere to maintain the population of the SPA, it is concluded that **there will be no adverse effects on the integrity of Glen Etive and Glen Fyne SPA from the in-combination impacts of other developments.**

6.2.9 Conclusion

Two European sites were determined to be within the potential zone of influence of the Development: Glen Etive and Glen Fyne SPA, and Loch Etive Woods SAC.

Likely significant effects on the qualifying features of Loch Etive Woods SAC were screened out. However, this could not be done for the following two potential impacts on the qualifying golden eagle population of Glen Etive and Glen Fyne SPA:

- Loss of functionally-linked habitat during the construction phase;
- Disturbance of qualifying species during the construction and operational phases.

Detailed Appropriate Assessment, based on the results of field survey, desk study and GET modelling, determined that any impacts from the Development on golden eagles and golden eagle habitat outside of the designated site boundary would not adversely affect the integrity of the SPA. This is primarily because:

- Habitat within the Development Site cannot be functionally-linked to golden eagles nesting within Glen Etive and Glen Fyne SPA because it lies within the boundaries home ranges of birds known to use eyries outside of the designated site boundary;
- Any golden eagles which may be negatively impacted by the Development occupy territories with very low productivity and which will not be important to the maintenance of the population of Glen Etive and Glen Fyne SPA. The golden eagle population within Glen Etive and Glen Fyne SPA and more widely at a national scale is in favourable conservation status, and there will remain a sufficient pool of dispersing golden eagles from both within and outside the SPA to ensure its population is maintained.

This Statement to Inform Habitats Regulations Appraisal therefore concludes that, **the construction and operation of the Development will not result in adverse effects on the integrity of any European site, either alone or in-combination with other projects or plans.**

6.2.10 References

AECOM (2022). Habitats Regulations Appraisal of National Planning Framework 4 – HRA Record. Scottish Government. Available from: https://www.gov.scot/publications/habitats-regulations-appraisal-national-planning-framework-4-hra-record/documents/.

Austin, S., Fielding, A. H. and Haworth, P. F. (2015a). G/LAE1 Golden eagle range report – Natural Heritage Zone 14 “Argyll West and Islands”. Scottish Natural Heritage Commissioned Report No. 860.

Austin, S., Fielding, A. H. and Haworth, P. F. (2015b). G/LAE1A Golden eagle range report – Natural Heritage Zone 14 “Argyll West and Islands”. Scottish Natural Heritage Commissioned Report No. 861.

Chanin, P. (2003). Monitoring the Otter *Lutra lutra*, Conserving Natura 2000 Rivers Monitoring Series No. 10. English Nature, Peterborough.

CIEEM (2022). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.2 – Updated April 2022. Chartered Institute of Ecology and Environmental Management, Winchester.

Cutts, N., Hemingway, K and Spencer, J. (2013). Waterbird Disturbance Mitigation Toolkit: Informing Estuarine Planning & Construction Projects. Produced by the Institute of Estuarine & Coastal Studies (IECS) University of Hull. Available from: https://www.tide-toolbox.eu/tidetools/waterbird_disturbance_mitigation_toolkit/.

Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). The Water Vole Mitigation Handbook, Mammal Society Mitigation Guidance Series. The Mammal Society, London.

Dijk, N. (2011). Dry deposition of ammonia gas drives species change faster than wet deposition of ammonium ions: evidence from a long-term field manipulation. *Global Change Biology* **17**, pp 3589-3607.

European Commission (2021). Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Available from: https://ec.europa.eu/environment/nature/natura2000/management/pdf/methodological-guidance_2021-10/EN.pdf.

European Commission (2019). Managing Natura 2000 sites – The provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC. Available from: https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/EN_art_6_guide_jun_2019.pdf.

Fielding, A. and Haworth P. (2010). Golden eagles and wind farms. A report created under an SNH Call-of-Contract Arrangement.

Fielding, A.H., Haworth, P.F., Anderson, D., Benn, S., Dennis, R. Weston, E. and Whitfield, D.P. (2019). A simple topographical model to predict golden eagle Aquila chrysaetos space during dispersal. *International Journal of Avian Science* **162**, pp 400-415.

Fielding, A.H., Haworth, P.F., Anderson, D., Benn, S., Dennis, R., Weston E., Grant, J., Etheridge, B. and Whitfield, D.P. (undated). Responses of satellite tagged golden eagles to wind farms in Scotland: macro-avoidance rather than risk of collision? Available: https://cww2019.org/wp-content/uploads/2019/10/Fielding_Tues_Logie_1130.pdf.

Fielding, A.H., Whitfield, D.P., McLeod, D.R.A., McGrady, M.J. and Haworth, P.F. (2003). Modelling the impact of land use change on Golden Eagles (*Aquila chrysaetos*). In Thompson, D.B.A., Repath, S., Fielding, A.H., Marquiss, M. and Galbraith, C.A. (eds.). Birds of Prey in a Changing Environment. The Stationary Office, Edinburgh.

Findlay, M., Alexander, L. and Macleod, C. (2015). Site condition monitoring for otters (*Lutra lutra*) in 2011-2012. Scottish Natural Heritage Commissioned Report No. 521.

Goodship, N.M. and Furness, R.W. (2022). NatureScot Research Report 1283 – Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. Available from: https://www.nature.scot/doc/naturescot-research-report-1283-disturbance-distances-review-updated-literature-review-disturbance.

Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. and Thompson, D. (2013). Raptors: A Field Guide for Surveys and Monitoring. 3rd Edition. The Stationary Office, Edinburgh.

Harris, S. and Yalden, D.W. (2008). Mammals of the British Isles: Handbook.4th Edition. The Mammal Society, London.

Haworth, P.F. and Fielding, A.H. (2017). Review of Potential Food in relation to the South Scotland Golden Eagle Reinforcement Project.

Hayhow, D.B., Benn, S., Stevenson, A., Stirling-Aird, P.K. and Eaton, M.A. (2017). Status of Golden Eagle *Aquila chrysaetos* in Britain in 2015. *Bird Study* **64**, pp 281-294.

Kruuk, H. (2006). Otters: Ecology, behaviour and conservation. Oxford Academic, Oxford.

Liles, G. (2003). Otter Breeding Sites. Conservation and Management, Conserving Natura 2000 Rivers Conservation Techniques Series No. 5. English Nature, Peterborough.

Highways England, Transport Scotland, Welsh Government and Department for Infrastructure (2019). Design Manual for Roads and Bridges. Sustainability and Environment Appraisal. LA 105: Air quality. Available from: https://www.standardsforhighways.co.uk/prod/attachments/10191621-07df-44a3-892e-c1d5c7a28d90?inline=true.

Holman, C., Barrowcliffe, R., Harker, G., Hawkings, C., Horrocks, S. and Prismall, F. (2019). A guide to the assessment of air quality impacts on designated nature conservation sites. Institute of Air Quality Management, London.

Holman, C., Barrowcliffe, R., Birkenshaw, D., Dalton, H., Gray, G., Harker, G., Laxen, D., Marner, B., Marsh, D., Prismall, F., Pullen, J., Stoaling, M., Storey, C. and Vining, L. (2014). Guidance on the assessment of dust from demolition and construction. Version 1.1., June 2016. Institute of Air Quality Management, London.

NatureScot (2024). Bird Breeding Season Dates in Scotland. Available from: https://www.nature.scot/doc/bird-breeding-season-dates-scotland.

Plantlife (2010). Lichens and bryophytes of Atlantic woodland in Scotland: an introduction to their ecology and management. Back from the Brink Management Series. Available from: https://www.plantlife.org.uk/wp-content/uploads/2023/05/Lichens-and-bryophytes-of-Atlantic-woodland-in-Scotland-Guide.pdf.

Ratcliffe, D. (1990). Bird life of mountain and upland. Cambridge University Press, Cambridge.

Ruddock. M. and Whitfield, D.P. (2007). A review of disturbance distances in selected bird species. A report from Natural Research (Projects) Ltd to Scottish Natural Heritage.

Scottish Government (2020). EU Exit: The Habitats Regulations in Scotland. December 2020. Available from: https://www.gov.scot/publications/eu-exit-habitats-regulations-scotland-2/.

SEPA (2017). Land Use Planning System SEPA Guidance Note 31: Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems. Version 3. Available from https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions-and-groundwater-dependent-terrestrial-ecosystems.pdf.

SEPA (2010). Engineering in the water environment: good practice guide. River crossings (2nd Edition). Available from: https://www.sepa.org.uk/media/151036/wat-sg-25.pdf.

SNH (2019). SNH Guidance Note. The handling of mitigation in Habitats Regulations Appraisal – the People Over Wind CJEU judgement. Available from: https://www.nature.scot/habitats-regulations-appraisal-plans-guidance-plan-making-bodies-scotland-jan-2015.

SNH (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms. Version 2 – March 2017. Available from: https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms.

SNH (2016). Assessing Connectivity with Special Protection Areas (SPAs). Version 3, June 2016. Available from: https://www.nature.scot/assessing-connectivity-special-protection-areas.

SNH (2015). Habitats Regulations Appraisal of Plans. Guidance for Plan-making Bodies in Scotland. Version 3, January 2015. Available from: https://www.nature.scot/habitats-regulations-appraisal-plans-guidance-plan-making-bodies-scotland-jan-2015.

SNH (2014). Natura Casework Guidance: How to consider plans and projects affecting Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

SNH (undated(a)). Protected Species Advice for Developers: Great Crested Newt. Available from: https://www.nature.scot/sites/default/files/2017-10/A2124123%20-%20Species%20Planning%20Advice%20Project%20-%20great%20crested%20newt%20-%20FINAL.pdf.

SNH (undated(b)). Protected Species Advice for Developers: Otter. Available from: https://www.nature.scot/sites/default/files/2018-09/Species%20Planning%20Advice%20-%20otter.pdf.

Strachan, R. (2007). National survey of otter *Lutra lutra* distribution in Scotland 2003-04. Scottish Natural Heritage Commissioned Report No. 211 (ROAME No. F03AC309).

Strachan, R., Moorhouse, T. and Gelling, M. (2011). Water Vole Conservation Handbook (3rd Edition). Wildlife Conservation Research Unit, University of Oxford.

UNESCO (2005). The Precautionary Principle. United Nations Educational, Scientific and Cultural Organisation, Paris. Available from: https://unesdoc.unesco.org/ark:/48223/pf0000139578.

Wahlberg, N., Klemtti, T., Selonen, V. and Hanski, I. (2002). Metapopulation structure and movements in five species of checkerspot butterflies. *Oecologia* **130(1)**, pp 2074-2091.

Walker, D., McGrady, M., McCluskie, A., Madders, M. and McLeod, D.R.A. (2005). Resident golden eagle ranging behaviour before and after construction of a windfarm in Argyll. *Scottish Birds* **25**, pp 24-40.

Whitfield, D.P., Fielding, A.H., McLeod, D.R.A. and Haworth, P.F. (2008). A conservation framework for golden eagles: implications for their conservation and management in Scotland. Scottish Natural Heritage Commission Report No. 193 (ROAME No. F05AC306).

Wolseley, P. A., James, P. W., Theobald, M. R. and Sutton, M. A. (2006). Detecting changes in epiphytic lichen communities at sites affected by atmospheric ammonia from agricultural sources. *Lichenologist* **38**, pp 161-176.

Woodward, I., Thaxter, C., Owen, E., Cook, A., BTO and NIRAS Consulting Ltd. (2019). Desk-based revision of seabird foraging ranges used for HRA screening - Report on Behalf of The Crown Estate (Available on The Crown Estate's Marine Data Exchange).

Annex A Information on European Sites Within the Zone of Influence of the Development

Overview

Below are details on the European sites which were established through this Statement to Inform Habitats Regulations Appraisal to be within the potential zone of influence of the construction and/or operation of the Development.

Glen Etive and Glen Fyne SPA

Glen Etive and Glen Fyne SPA is a large, predominantly upland site. It rises from sea level to over 1,100m and encompasses a diverse range of habitats including moorland, rough grassland, blanket bog, native woodland, montane heaths, and exposed rock and scree. There are also numerous freshwater lochs and river systems.

The sole qualifying feature of the SPA is golden eagle, with the site supporting nineteen active territories in 2003, which represented more than 4.2% of the British population at that time. The species was last assessed as being in Favourable Maintained condition within the SPA, and the sole identified negative pressure is recreation / disturbance.

The Conservation Objectives of Glen Etive and Glen Fyne SPA are:

- To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained.
- To ensure for the qualifying species that the following are maintained in the long term:
  - Population of the species as a viable component of the site;
  - Distribution of the species within the site;
  - Distribution and extent of habitats supporting the species;
  - Structure, function and supporting processes of habitats supporting the species;
  - No significant disturbance of the species.

Loch Etive Woods SAC

Loch Etive Woods SAC is a multi-part site containing native woodland types and associated flora and fauna. The nearest area designated as Loch Etive Woods SAC is situated to the north of Loch Awe, above the railway line and A85 road, on the lower slopes of Ben Cruachan. The woodland in this area is more than 50m from the shore of Loch Awe. The notified feature, upland oak *Quercus* spp. wood, constitutes the majority of this native woodland mosaic. Most species representative of upland oak wood can be found distributed across the site with a preponderance of oak and birch *Betula* spp., with fewer ash *Fraxinus excelsior*, elm *Alnus glutinosa*, hawthorn *Crataegus monogyna*, holly *Ilex aquifolium* and rowan *Sorbus aucuparia*. There are also areas distributed across the site, but found predominantly to the west, which are more representative of woodlands associated with base-rich soils. To the east of the site there are additionally small areas of wet woodland associated with an alder-birch dominated canopy. The numerous streams which dissect the site have carved gorges which now support assemblages of ferns, mosses and liverworts which are dependent on deep shade and high humidity and which, although not notified in their own right, form an important aspect of this woodland ecosystem.

The qualifying features [and latest assessed condition] of Loch Etive Woods SAC are:

- Mixed woodland on base-rich soils associated with rocky slopes [Favourable Declining];
- Western acidic oak woodland [Unfavourable Recovering];
- Alder woodland on floodplains [Unfavourable Recovering];

- Otter [Favourable Maintained].

Both mixed woodland on base-rich soils associated with rocky slopes and alder woodland on floodplains are 'priority' habitat types of the Habitats Directive. Habitats identified as being priorities under the Habitats Directive are those considered to be at risk of disappearance and whose range mainly occurs in Europe.

The overarching Conservation Objectives for the qualifying woodland habitats of Loch Etive Woods SAC are:

1. To ensure that the qualifying features of Loch Etive Woods SAC are in favourable condition and make an appropriate contribution to achieving favourable conservation status.
2. To ensure that the integrity of Loch Etive Woods SAC is restored by meeting objectives 2a, 2b and 2c for each qualifying feature. These are set out in Table A1.

Table A1 Conservation Objectives 2a, 2b and 2c for the Qualifying Habitats of Loch Etive Woods SAC

Qualifying Habitat	Conservation Objective 2a	Conservation Objective 2b	Conservation Objective 2c
Mixed woodland on base-rich soils associated with rocky slopes	Maintain the extent and distribution of the habitat within the site	Maintain the structure, function and supporting processes of the habitat	Maintain the distribution and viability of typical species of the habitat
Western acidic oak woods	Maintain the extent and distribution of the habitat within the site	Restore the structure, function and supporting processes of the habitat	Maintain the distribution and viability of typical species of the habitat
Alder woodland on floodplains	Maintain the extent and distribution of the habitat within the site	Restore the structure, function and supporting processes of the habitat	Maintain the distribution and viability of typical species of the habitat

Further information on Conservation Objectives 2a, 2b and 2c for the qualifying woodland habitats can be found in the Conservation Advice Package for Loch Etive Woods SAC.

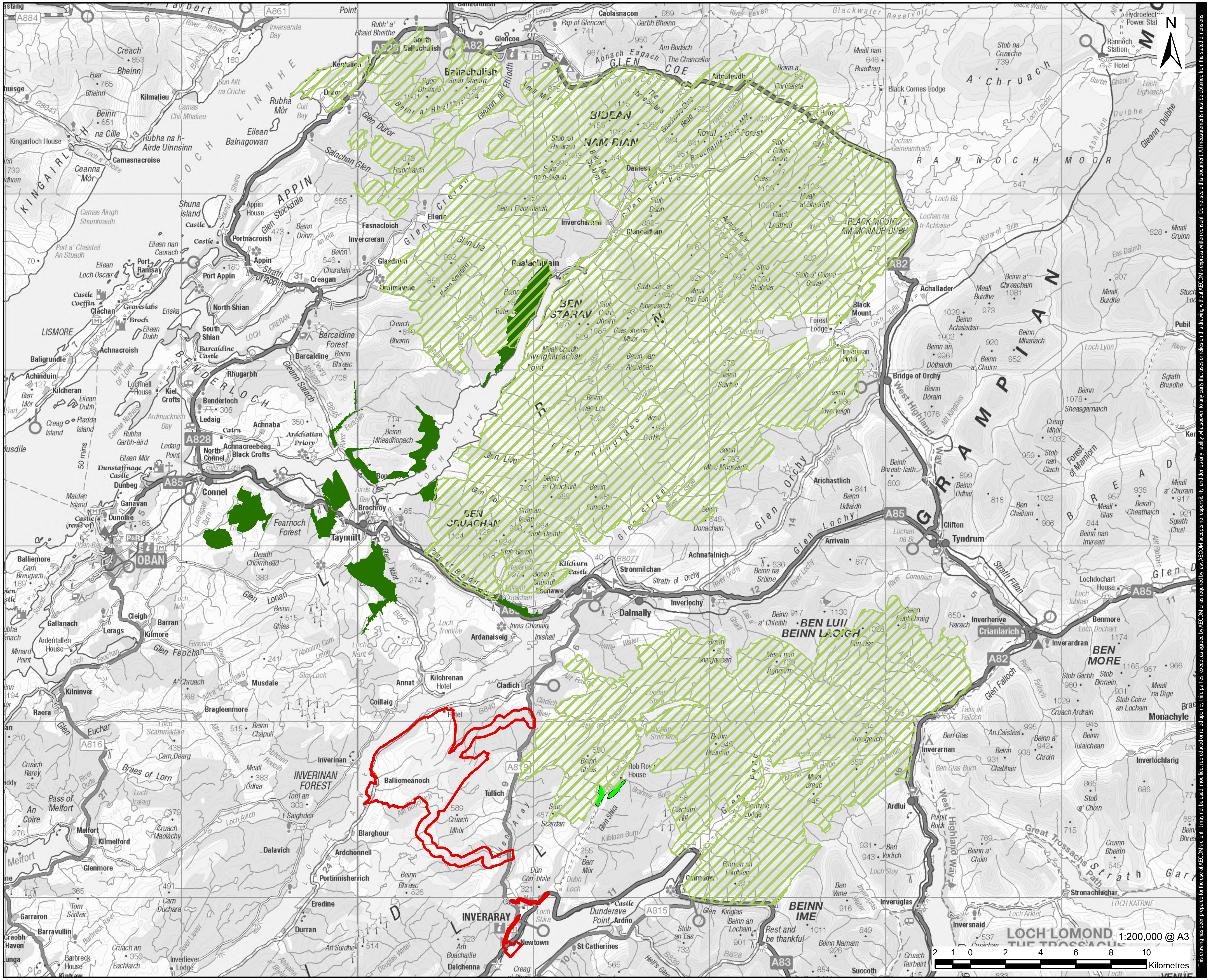
The Conservation Objectives for otter are:

1. To ensure that the qualifying features of Loch Etive Woods SAC are in favourable condition and make an appropriate contribution to achieving favourable conservation status.
2. To ensure that the integrity of Loch Etive Woods SAC is restored by meeting objectives 2a, 2b and 2c for the qualifying feature.
    a. Maintain the population of the species as a viable component of the site.
    b. Maintain the distribution of the species throughout the site.
    c. Maintain the habitats supporting the species within the site and availability of food.

The primary negative pressures identified as acting on the qualifying features of Loch Etive Woods SAC are over-grazing (which is preventing vegetation regeneration and affecting the structure of woodland) and the presence of invasive non-native species, in particular rhododendron *Rhododendron ponticum* and Sitka spruce *Picea sitchensis*.

Figures

Figure 6.2.1: European Sites within the Zol of the Development



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LEGEND

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- Glen Etive and Glen Fyne SPA
- Glen Shira SAC
- Loch Etive Woods SAC

NOTES

ISSUE PURPOSE

FINAL

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European Sites Within the ZoI of the Development

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Figure 6.2.1