Annex C: Shadow Habitat Regulations Appraisal

Binn Farm Solar & BESS

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01	21 November 2025	Helen Allison and Daniel Piec	Daniel Piec	Michael Austin
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Basis of Report

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Acronyms and Abbreviations

AA	Appropriate Assessment
AEOI	Adverse Effect on Integrity
ALSE	Assessment of Likely Significant Effect
AWI	Ancient Woodland Inventory
CIEEM	Chartered Institute of Ecology and Environmental Management
EC	European Commission
EU	European Union
FLL	Functionally Linked Land
FNRC	Fife Nature Records Centre
GCN	Great Crested Newt
GWDTE	Groundwater Dependant Terrestrial Ecosystem
HabMoS	Habitat Map of Scotland
HRA	Habitat Regulations Appraisal
INNS	Invasive Non-native Species
JNCC	Joint Nature Conservation Committee
LBAP	Local Biodiversity Action Plan
LSE	Likely Significant Effect
MAGIC	Multi-Agency Geographic Information for the Countryside
OS	Ordnance Survey
PEA	Preliminary Ecological Appraisal
PKC	Perth and Kinross Council
SAC	Special Area of Conservation
SBL	Scottish Biodiversity List
SEPA	Scottish Environmental Protection Agency
SLR	SLR Consulting Ltd
SNH	NatureScot (previously Scottish Natural Heritage)
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
UKHab	UK Habitat Classification
WeBS	Wetland Bird Survey
WLC	West Lothian Council
ZOI	Zone of Influence

1.0 Introduction

1.1 Background

SLR Consulting Limited (SLR) was appointed by Trio Power Limited (the 'Applicant') to undertake a Shadow Habitat Regulations Appraisal (HRA) for a proposed 30 MW export capacity solar photovoltaic (PV) array with an accompanying 6 MW export capacity Battery Energy Storage System (BESS) (the 'Proposed Development') located on an area of land between Strathmiglo and Glenfarg (the 'Site).

The purpose of this shadow HRA is to provide the information for the Competent Authority, in this case Perth and Kinross Council (PKC, "the Authority"), to carry out a screening assessment for likely significant effects on European and Ramsar sites and, if it concludes necessary, an Appropriate Assessment (AA) of the Project, in accordance with and fulfilment of the requirements of the Conservation (Natural Habitats &c) Regulations, 1994, as amended[1] (see **Section 1.4** for more information).

This report is informed by, and should be read in conjunction with, the following reports:

- Ecological Impact Assessment Report (EcIA)[2];
- Preliminary Ecological Appraisal (Annex A to EcIA)[3];
- Baseline Ornithology Report (Annex B to EcIA)[4];
- Outline Biodiversity Enhancement Plan (OBEMP) (Annex D to EcIA)[5] and;
- Formal screening request to Perth & Kinross Council[6] and received Screening Opinion (PKC Reference 25/01164/SCRN) confirming non-EIA development.

1.2 Project Overview

The Proposed Development is anticipated to consist of a combined ground-mounted solar PV array with an export capacity of 30 MW and a Battery Energy Storage System (BESS) with an export capacity of 6 MW, and associated infrastructure, covering an area of 58.85 hectares (ha). The panels will have a maximum height of approximately 2.87m above ground level.

1.3 Site Description

The Site is located approximately 4 km north-west of Strathmiglo and 5 km north-east of Glenfarg with an approximate address of Glentarkie, Perth and Kinross, KY14 7RU at British National Grid (BNG) 318188 712158. The main development area of the Site is wholly composed of farmland associated habitats including arable fields, grazed pasture for livestock and gorse scrub. Waterbodies are present with several ponds identified within or adjacent to the Site as well as a burn along the potential access track. In addition, a larch plantation is present bordering the Site to the north. No habitats occurring within the Site have been identified as priority farmland habitats within the Tayside Local Biodiversity Action Plan (LBAP).

[1] https://www.legislation.gov.uk/uksi/1994/2716/regulation/48 [Accessed: October 2025]

[2] SLR Consulting, 2025. Binn Farm Solar and BESS. Ecological Impact Assessment Report.

[3] SLR Consulting, 2025. Binn Farm Solar and BESS. Preliminary Ecological Appraisal Report.

[4] SLR Consulting, 2025. Binn Farm Solar and BESS. Baseline Ornithology Report - Breeding Bird surveys 2025

[5] SLR Consulting, 2025. Binn Farm Solar and BESS. Outline Biodiversity Enhancement Plan (OBEMP)

[6] SLR Consulting, 2025. Binn Farm Solar and Battery Energy Storage System, Formal Screening Request to Perth & Kinross Council

1.4 Relevant Legislation and Policy

1.4.1 Legislation

The Habitats Directive (92/43/EEC) on the Conservation of Natural Habitats and of Wild Fauna and Flora (the 'Habitats Directive')[7] protects habitats and species of European conservation importance. The Habitats Directive combines with the Council Directive (2009/147/EC) on the conservation of wild birds (the 'Birds Directive')[8], which protects rare, vulnerable and migratory bird species, to create the 'Natura 2000' network of European protected sites. European sites designated under the Habitats Directive are Special Areas of Conservation (SACs), and those designated under the Birds Directive are Special Protection Areas (SPAs).

In Scotland, these Directives were implemented through the Conservation (Natural Habitats &c.) Regulations 1994 (the 'Habitats Regulations'), which cover terrestrial areas and territorial waters out to 12 nautical miles (nm)[9]. Waters beyond 12nm, up to the extent of the British Fishery Limits and UK Continental Shelf Designated Area, are covered by the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2017 (the 'Offshore Habitats Regulations')[10].

Regulation 48 of the Habitats Regulations sets out the steps for assessing plans and projects which may affect European/ International sites (in the National Network). Although this legislation derives from the EC Habitats Directive, the Regulations still apply in Scotland following the UK's exit from the EU. The Regulations have been subject to further minor technical amendments to deal with the UK's exit from the EU, however the process for assessment remains largely unaltered.

Additionally, the Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971 (the 'Ramsar Convention')[11] designates wetland sites for protection ('Ramsar sites'). The Scottish Government reiterated its policy on the protection of Ramsar sites in 2019[12], specifically stating that 'where Ramsar interests coincide with Natura qualifying interests protected under an SPA or an SAC, as the case may be, the interests are thereby given the same level of (legal) protection as Natura sites'.

Post-EU Exit, The Habitats Regulations, S36 Habitats Regulations, and the Offshore Habitats Regulations remain in force, with the same protections retained, but UK sites are no longer part of the EU's Natura 2000 network, instead forming a national network of protected sites. Key terminology is primarily unchanged, with the terms 'European site', 'European marine site', 'European offshore marine site', 'SAC' and 'SPA' all being retained[13].

1.4.2 Policy

The National Planning Policy Framework 4 (NPF4) reiterates the legal requirement for AA, in Policy 4. It states that:

"*b) Development proposals that are likely to have a significant effect on an existing or proposed European site (Special Area of Conservation or Special Protection Areas) and are*

[7] https://www.legislation.gov.uk/eudr/1992/43/contents [Accessed: October 2025]

[8] https://www.legislation.gov.uk/eudr/2009/147/contents [Accessed: October 2025]

[9] One nautical mile is equivalent to 1.151 statute miles or 1,853 metres

[10] https://www.legislation.gov.uk/uksi/2017/1013/contents/made [Accessed: October 2025]

[11] https://jncc.gov.uk/our-work/ramsar-convention/ [Accessed: October 2025]

[12] https://www.gov.scot/publications/implementation-of-scottish-government-policy-on-protecting-ramsar-sites/ [Accessed: Accessed: October 2025]

[13] https://www.gov.scot/publications/eu-exit-habitats-regulations-scotland-2/documents/ [Accessed: October 2025]

not directly connected with or necessary to their conservation management are required to be subject to an "appropriate assessment" of the implications for the conservation objectives.

Perth and Kinross Local Development Plan[14] has been assessed for adverse effects on integrity in Habitats Regulations Appraisal Statement[15].

1.4.3 Case Law

Case law made prior to the UK's exit from the EU also still applies and is relevant here. This includes the 'People over Wind' Judgement which made clear that mitigation measures cannot be considered at screening stage (see below for an explanation of the stages) and therefore any project requiring mitigation to avoid Likely Significant Effects (LSE), or to make certain that there are no such effects, needs to be assessed under Appropriate Assessment. elevant case law is included in **Appendix A**.

1.4.4 Guidance Documents

Several guidance documents have been consulted in preparation of this shadow HRA:

- NatureScot guidance "Habitats Regulations Appraisal"[16];
- Habitats Regulations Appraisal (HRA) on the Firth of Forth - A Guide for developers and regulators[17];
- EC (2013) Interpretation Manual of European Union Habitats EUR28. Brussels: European Commission[18];
- EC (2018) Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. Brussels: European Commission[19];
- Commission notice 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 2021/C 437/01[20];
- David Tyldesley and Associates (2015) Habitats Regulations Appraisal of Plans. Guidance for Plan-making Bodies in Scotland. Version 3.0, January 2015 SNH Ref 1739[21];
- DTA (2021) Habitat Regulations Assessment Handbook. DTA Publications Limited[22];

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[14] Available online: https://www.pkc.gov.uk/media/45242/Adopted-Local-Development-Plan-2019/pdf/LDP_2_2019_Adopted_Interactive.pdf?m=1576667143577 [Accessed: October 2025]

[15] Available online: How we prepared our Local Development Plan - Perth & Kinross Councilf [Accessed: October 2025]

[16] Available online: https://www.nature.scot/professional-advice/planning-and-development/environmental-assessment/habitats-regulations-appraisal-hra [Accessed: October 2025]

[17]Available online: https://www.nature.scot/doc/habitats-regulations-appraisal-hra-firth-forth-guide-developers-and-regulators [Accessed October 2025]

[18] Available online: https://www.mase.gov.it/sites/default/files/archivio/allegati/rete_natura_2000/int_manual_eu28.pdf [Accessed: October 2025]

[19] Available online: https://op.europa.eu/en/publication-detail/-/publication/2c9f4a14-8f97-43ac-a274-4946c142b541 [Accessed: October 2025]

[20] https://op.europa.eu/en/publication-detail/-/publication/99a99e59-3789-11ec-8daf-01aa75ed71a1/language-en [Accessed October 2025]

[21] Available online: https://www.nature.scot/sites/default/files/2019-07/Habitats%20Regulations%20Appraisal%20of%20Plans%20-%20plan-making%20bodies%20in%20Scotland%20-%20Jan%202015.pdf [Accessed: October 2025]

[22] Available online: https://www.dtapublications.co.uk/ [Accessed: October 2025]

- NatureScot (2025) Pre-application guidance for solar farms[23]; and
- NatureScot (2016). Assessing Connectivity with Special Protection Areas (SPAs). NatureScot Guidance[24].

1.5 Evidence of Technical Competence and Experience

The HRA report was prepared Helen Allison, a Senior Ecologist based in Scotland who joined SLR in 2022 and Daniel Piec, SLR Senior Ornithologist. Helen has worked within consultancy since 2018 and previously worked for non-governmental conservation organisations from 2015. During her time in consultancy, she has worked on wind farm and solar development projects at the environmental impact assessment, pre-construction and operational phases. She has also worked on grid route and cable landing projects conducting baseline and pre-construction surveys. Her expertise covers ornithological and ecological field skills including, a wide range of ornithology surveys, protected mammal surveys, and great crested newt (GCN) HSI/eDNA, alongside technical report writing. Daniel Piec, SLR Senior Ornithologist with over 20 years' experience in managing large conservation and ecology projects in the UK and abroad. He has contributed to the development of a number of EIA documents such as HRA screening reports, ornithology chapters and technical appendices, and reports to inform appropriate assessment (RIAA).

The report was reviewed by Michael Austin, MCIEEM, who is an Associate Consultant specialising in ornithology. Mike has spent his entire career (over 30 years) working within conservation and more recently consultancy. Mike is a leading ornithology team member in Scotland for SLR with technical expertise in a wide range of onshore survey techniques - in lowland, upland and inter-tidal environments. He undertakes technical reporting and assessment, including Collision Risk Modelling, EcIA and Habitats Regulations Assessment screening. He holds a Schedule 1 licence for survey work in Scotland, under which other SLR surveyors working in Scotland act as agents.

2.0 CONSULTATION

A summary of consultees and consultation response are detailed in **Table 2-1** below.

Table 2-1: Consultation Responses

Consultee	Summary of Consultation Response	Applicant's Response
NatureScot email consultation (11/08/2025)	NatureScot noted potential functional connectivity between the Site and Loch Leven SPA/Ramsar and the Firth of Tay and Eden Estuary SPA/Ramsar, with suitable foraging habitat for associated goose populations. While the Site is not considered core foraging habitat, geese are known to move between the two SPAs via this area. Up-to-date surveys are recommended to determine potential displacement effects. NatureScot also advised that justification be provided for any areas not surveyed.	This shadow HRA and EcIA[2] has been provided to assess potential significant impacts on geese and bat populations. Four goose feeding distribution surveys were undertaken in September and October 2025. Further information is in **Section 4.2.2**. NatureScot Guidance[23], in addition to legislative requirements provided in **Section 1.4**, has been

[23] https://www.nature.scot/doc/naturescot-pre-application-guidance-solar-farms [Accessed: October 2025]

[24] Available online: https://www.nature.scot/sites/default/files/2022-12/Assessing%20connectivity%20with%20special%20protection%20areas.pdf [Accessed: November 2025]

Consultee	Summary of Consultation Response	Applicant's Response
	For ecology, NatureScot agreed the proposed bat survey effort was reasonable and proportionate but highlighted potential connectivity between the Site and Turflundie Wood SAC, which should be addressed within the EcIA. Reference was also made to NatureScot's updated pre-application guidance for solar farms (2025).	incorporated into survey and assessment methodologies.
NatureScot email consultation (21/08/2025)	NatureScot confirmed that the proposed goose surveys to record geese foraging numbers, undertaken in September and October 2025 only, due to submission time constraints, are considered proportionate for the Site.	The results of goose feeding distribution surveys undertaken in September and October 2025 are in **Section 4.2.2**.
PKC screening response (09/09/2025)	PKC advised that a Habitat Survey, including Protected Species Survey, will be required, with mitigation measures implemented as necessary. An EcIA may also be required depending on the results of these surveys.	The EcIA[2] has been undertaken . Protected Species Survey Reports: PEA (**Annex A** of the EcIA) Ornithology Baseline Report (**Annex B** of the EcIA)
NatureScot email consultation (3/11/2025)	NatureScot confirmed that based on the goose feeding distribution survey results from September and October 2025, "*the site is not likely to be a core foraging area for geese associated with Loch Leven SPA and Firth of Tay and Eden Estuary SPA. We agree that a desk-based assessment would be proportionate"*. Furthermore, NatureScot advised that "*if formally consulted by the planning authority on this proposal, we are likely to advise them that there will be a likely significant effect on the above species due to loss of foraging habitat. However, due to the scale of the proposal and the total area of foraging habitat available to the birds, the proposal will not adversely affect the integrity of the species as qualifying features of the SPAs*".	Desk-based analyses of habitat availability were carried out as part of the Appropriate Assessment of this shadow HRA in **Section 7.0**.

3.0 METHODOLOGY

3.1 General Approach

According to NatureScot's guidance[25], "*the appraisal process should be **proportionate, practical, realistic and effective***".

[25] Available online: https://www.nature.scot/doc/habitats-regulations-appraisal-hra-local-development-plans-ldps-guidance-planning-authorities [Accessed January 2025]

All competent authorities must consider whether any plan or project could affect a European or Ramsar[26] site before it can be authorised or carried out. NatureScot guidance[16] describes a series of stages which should be completed when carrying out the assessment and these are followed here with the addition of sub-headings for further clarity (see **Section 3.2**). The assessment applies only to European and Ramsar sites. More specifically, it only applies to the qualifying interest features of such sites i.e., the features which are the reason that the site was designated. The aim of the assessment is to consider whether a project or plan will have a 'likely significant effect' (LSE) on qualifying features of a European or Ramsar site (screening stage), and if so, to ascertain if the LSE will have an adverse effect on the integrity (AEOI) of a European or Ramsar site (Appropriate Assessment – AA). This process is known as Habitats Regulations Appraisal (HRA) and is summarised in **Plate 3-1**.

[26] When a Ramsar site overlaps with a European site.

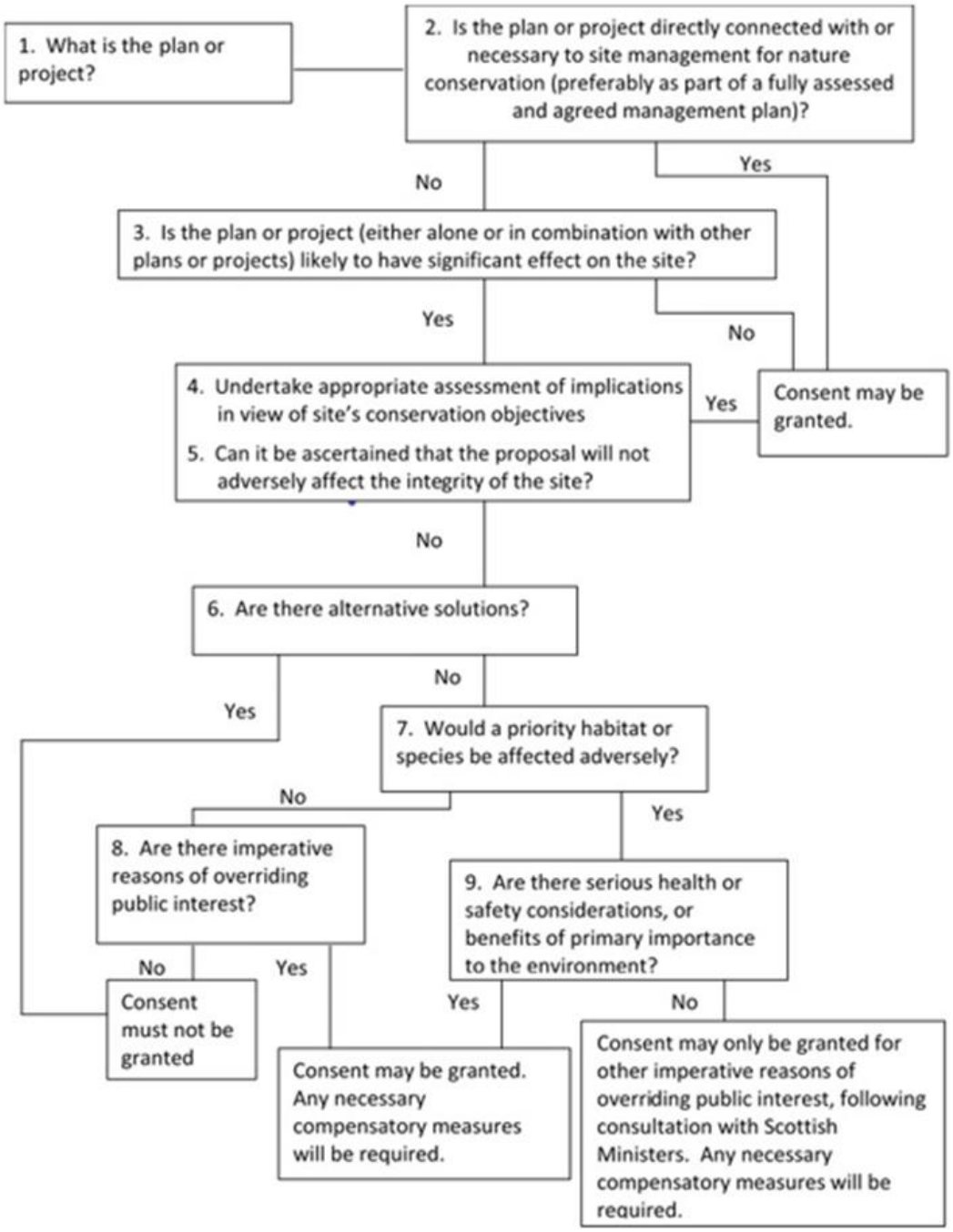


Plate 3-1 Logical framework for the assessment of plans and projects that could affect European sites (SPAs and SACs) and Ramsar sites[16].

3.1.1 Meaning of Likely Significant Effect

For Habitats Regulations Appraisals, a 'likely' effect is one that 'may reasonably be predicted and cannot be excluded (or ruled out) without further assessment or mitigation.

A 'significant' effect is one where the proposed development undermines one or more conservation objectives of one or more of the qualifying features of a European (or Ramsar) site.

3.1.2 Meaning of Significant Disturbance

Disturbance should be judged as significant if an action (alone or in combination with other effects) impacts on (water)birds in such a way as to be likely to cause impacts on populations of a species through either (i) changed local distribution on a continuing basis; and/or (ii) changed local abundance on a sustained basis; and/or (iii) the reduction of ability of any significant group of birds to survive, breed, or rear their young[27]. Significant disturbance affecting one or more qualifying features of a European or Ramsar site would undermine conservation objectives defined for this site and features.

3.1.3 Source-Pathway-Receptor Model

The relevant designated sites and their primary and secondary designated features are the 'receptors' in this model. The 'pathway' is the route or means through which the 'receptors' could be positively or negatively impacted by the 'source.' The 'source' is the proposed Project, i.e., activities planned during construction, operation and decommissioning. If no pathway exists between the receptor and the source, then impacts on the receptor can be screened out. If a pathway does exist, then the impact on the receptor must be quantified, and it must be determined whether it will undermine conservation objectives of the receptor site.

Regarding the Project assessed 'in-combination', the search area for in-combination plans and projects is related to the specific features of the designated sites and pathways of effect; for example, yet not limited to, water quality impacts on bird species in relation to their core foraging ranges.

3.2 Assessment Methodology

The stages of HRA process described by NatureScot in their guidelines[16] are:

Stage 1: Project Description

Stage 1 is an outline description of the Project, including construction, operation and decommissioning, containing enough information for potential impact pathways to be understood, and the Project site and its surroundings, focussing on the habitats and species that may form part of the qualifying interest of a European or Ramsar site.

Stage 2: Management of the Site

Stage 2 is to ascertain whether the Project is directly connected with or necessary to the management of a European or Ramsar site. Typically, this applies only to a management plan, or parts thereof, which has the purpose of maintaining or restoring the conservation interest of a European or Ramsar site, and which would not have a negative effect on any other European or Ramsar site.

Stage 3: Screening for Likely Significant Effects

This stage aims to ascertain if the Project might have a significant effect on the European and Ramsar sites. In order to determine those effects, it is necessary to:

(a) identify potential sources of impact either alone or in combination with other projects or plans;

(b) generate a list and compile basic information on the European and Ramsar sites potentially connected via an impact pathway to the Project;

[27] Fox, A.D. and Madsen, J. (1997) Behavioural and distributional effects of hunting disturbance on waterbirds in Europe: implications for refuge design. *Journal of applied ecology*, pp.1-13.

(c) assess and conclude whether likely significant effects arising from the Project, alone and in-combination with projects and plans, on European and Ramsar sites can be excluded, and if they cannot, which qualifying interest features/special conservation interest are at risk from significant effects, and the relevant impact sources and pathways. If the latter, an Appropriate Assessment will be required. The conclusion will not consider any mitigation measures designed to avoid likely significant effects on a European or Ramsar site.

Stage 4: Appropriate Assessment (AA)

This stage aims to undertake a scientific assessment of the potential effects of the Project on the qualifying interest features of the European and Ramsar sites, based on the impact factors and pathways identified at Stage 3. This is done for the Project alone and in combination with other plans and projects.

For any effect that could have an adverse effect on the integrity of a European or Ramsar site, avoidance and mitigation measures are identified with the aim of removing the risk to the integrity of the identified European and Ramsar sites, including in combination effects with other projects and plans. Measures to compensate for adverse effects must not be considered at this Stage, and neither are actions designed to enhance biodiversity.

Stage 5: Conclusion on site Integrity

Considering the mitigation identified at Stage 4, this stage aims to determine whether the risk to the conservation objectives have been reduced or removed such that they will not be undermined, and adverse effects on the integrity of all European and Ramsar sites can be excluded.

3.3 Baseline Information

3.3.1 Ecological Desk Study

A desk study was carried out to identify statutory designated sites within 10 km of the Site which are designated for their non-avian nature conservation interest (including Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs), National Nature Reserves (NNRs) and statutorily designated sites within 20 km of the Site which are designated for ornithological interest (including the above plus Ramsar wetlands and Special Protection Areas (SPAs).

Online resources included ecology data held on Defra's Multi-Agency Geographic Information for the Countryside (MAGIC)[28], NatureScot's Site Link[29], Habitat Map of Scotland (HabMoS)[30], Wetland Bird Survey (WeBS)[31] and Site Condition Monitoring (SCM) database[32].

Species data within 2 km of the Site for the last 15 years) were obtained from Fife Nature Records Centre (FNRC) on 10 April 2025.

Mitchell (2012)[33] was consulted to check for core feeding areas of pink-footed goose.

[28] https://magic.defra.gov.uk/home.htm [Accessed: September 2025]

[29] https://sitelink.nature.scot/home [Accessed: September 2025]

[30] https://www.nature.scot/landscapes-and-habitats/habitat-data-and-habitat-map-scotland [Accessed: September 2025]

[31] Calbrade, N.A., Birtles, G.A., Woodward, I.D., Feather, A., Hiza, B., Caulfield, E., Balmer, D.E., Peck, K., WShaw, J.M., Shaw, J.M., and Frost, T.M. (2025). Waterbirds in the UK 2023/24: The Wetland Bird Survey and Goose & Swan Monitoring Programme. BTO/RSPB/JNCC/NatureScot. Thetford.

[32] https://informatics.sepa.org.uk/ProtectedNatureSites/ [Accessed: September 2025]

[33] Mitchell, C. (2012) Mapping the distribution of feeding Pink-footed and Iceland Greylag Geese in Scotland. Wildfowl & Wetlands Trust / Scottish Natural Heritage Report, Slimbridge

3.3.2 Plans

PKC Development Plan[14] and HRA[15] was consulted.

3.3.3 Field Surveys and Assessments

An extended UK Habitat Survey was undertaken on 31 March 2025. During the walkover survey, habitats on Site were mapped in accordance with the UK Habitat Classification (UKHab) methodology[34]. The walkover survey included habitat classification of habitats within the Site, and a protected and notable species search (including badger, otter, water vole, pine marten and red squirrel) recorded under standard methodologies[35,36,37,38] within the Site and up to a 200 m buffer.

Furthermore, the following surveys were conducted for European protected species:

- A GCN Habitat Suitability Index (HSI) assessment of standing water bodies was carried out a 250 m buffer (as agreed with key consultees) following standard methodology[39]. Environmental DNA (eDNA) sampling of four waterbodies within 250 m was completed on 23 June 2025 using SureScreen Scientifics GCN eDNA sample kits and sampling methodology. The samples were submitted to SureScreen Scientifics for real time polymerase chain reaction (PCR) analysis upon collection.
- A daytime bat walkover (DBW) was undertaken across the Site and up to a 200 m buffer where access allowed on 23 June 2025. The DBW observed, assessed, and recorded any habitats suitable for bats to roost, commute, or forage on the Site and the surrounding area using best practice guidance[40] to determine suitability for bats and assess the requirement for further bat surveys. Habitat suitability was assessed as 'None', 'Negligible', 'Low', 'Moderate', or 'High'.
- A Ground Level Tree Assessment (GLTA) was carried out on 23 June 2025 for trees on Site and within a 30 m buffer of the Proposed Development infrastructure and a 20 m buffer from proposed fence lines and access tracks (Survey Area) which had damage/ decay features (e.g. hazard beams, lifting bark, knot holes) with the potential to support roosting bats. Additionally, physical evidence of presence was searched for (e.g., bat corpses, droppings, feeding remains, scratch marks, and urine and grease staining). The GLTA also included an assessment of buildings and structures with features with the potential to support roosting bats (e.g. raised slates, gaps under flashing, cracks and crevices in stonework). Due to the extension of the proposed access track, the Site was revisited on 30 July 2025 to undertake GLTA of trees within the extended assessment area.

[34] UKHab Ltd, 2023, Uk habitat classification version 2.0. Available at: https://ukhab.org/ (Accessed October 2025)

[35] Scottish Badgers (2018). Surveying for Badgers Good Practice Guidelines, Version 01. Available at https://www.scottishbadgers.org.uk/wp-content/uploads/2020/12/Surveying-for-Badgers-Good-Practice-Guidelines_V1-2020-2455979.pdf

[36] Bang, P. & Dahlstrøm, P. (2006). Animal Tracks and Signs. Oxford University Press, Oxford.

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

[38] Dean M., Strachan, R., Gow, D. and Andrews, R. (2016) The water vole mitigation handbook (The Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. The Mammal Society London.

[39] Oldham RS, Keeble J, Swan MJS and Jeffcote M (2000) Evaluating the suitability of habitat for the great crested newt (Triturus cristatus). Herpetological Journal. 10: 143-155. Available at: https://www.thebhs.org/publications/the-herpetological-journal/volume-10-number-4-october-2000/1617-03-evaluating-the-suitability-of-habitat-for-the-great-crested-newt-triturus-cristatus/file [Accessed: October 2025]

[40] Collins, J. (ed.) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4th edn) The Bat Conservation Trust, London.

- Breeding bird surveys followed the Breeding Bird Survey Guidelines[41], based on an adapted version of the Common Birds Census (CBC) methodology[42], which involved the surveyor walking a transect at a slow pace, ensuring all accessible land within the site plus a 100m buffer was covered.
- Goose feeding distribution surveys were carried out fortnightly between September and October 2025 within the site and 600 m buffer. Feeding distribution surveys were undertaken by road/ track transects where the road network is suitable or by observations from vantage points to ensure that all potential feeding habitat will be surveyed.

3.3.4 Habitat cover analyses

Scotland Habitat and Land Cover Map – 2022[43] available under the Open Government Licence v3.0[44] was used to assess habitat availability within a 20 km radius from SPA roosts. The habitat and land cover map was created by Space Intelligence[45] in partnership with NatureScot using Artificial Intelligence to classify satellite data to EUNIS Level 2[46] habitat classification which uses 28 different classes[47].

The map was converted from GeoTIFF raster layer to vector shapefile to enable analyses of area coverage of habitat classes, which are key for foraging pink-footed goose, i.e., arable land and three types of grassland: mesic, dry and seasonally wet.

4.0 STAGE 1: PROJECT DESCRIPTION

4.1 The Project

4.1.1 Construction

The Applicant is seeking consent for an operational lifetime of 40 years, although the Proposed Development will be temporary, and effects considered reversible.

The infrastructure for the Proposed Development will include:

- PV module mounting frames;
- Battery units housed in containers;
- Substations;
- Inverter cabins to convert direct current (DC) electricity into usable alternating current (AC) power;
- Transformers;
- Underground cabling;

[41] Bird Survey and Assessment Steering Group. 2025. Bird Survey Guidelines for assessing ecological impacts, https://birdsurveyguidelines.org/ [Accessed: September 2025]

[42] Gilbert, G., Gibbons, D.W. and Evans, J. (1998). Bird Monitoring Methods. RSPB, Sandy.

[43] https://spatialdata.gov.scot/geonetwork/srv/eng/catalog.search#/metadata/8462f345-6e9c-45de-b1d2-665a55b9d74a [Accessed: October 2025]

[44] http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/ [Accessed: October 2025]

[45] https://www.space-intelligence.com/ [Accessed: October 2025]

[46] https://ogc.nature.scot/geoserver/www/maps/naturescot-data-viewer.html?layer=habitatsandspecies:HLCM_2022_EUNIS_LEVEL2 [Accessed: October 2025]

[47] https://eunis.eea.europa.eu/habitats.jsp [Accessed: October 2025]

- Internal access tracks;
- Temporary construction compound;
- Spares container;
- CCTV cameras mounted on posts;
- Perimeter fencing;
- Site drainage; and
- Biodiversity and landscaping enhancements.

Construction of the Proposed Development is expected to be completed within approximately eight to twelve months. Normal construction hours are likely to be between 07:00 and 18:00 Monday to Friday and 08:00 and 13:00 on Saturdays.

The Proposed Development would utilise natural resources to generate clean green renewable energy. No waste would be produced by the onsite processes during the operational phase. Any construction wastes would be appropriately managed through a Construction Environmental Management Plan (CEMP).

Access to the Site will be taken from Millden Road, a private road which provides access to Balvaird Farm. The entire Site, including the access road, is on land owned by a single landowner.

4.1.2 Operation

Once the BESS is fully operational, it will require minimal maintenance. Maintenance is expected to consist mostly of routine Site inspections by technicians, as well as some unscheduled visits when required. Site traffic will be limited to maintenance vehicles and is unlikely to comprise of several cars at any one period. As there is no permanent staff or office facilities on Site it is anticipated that no waste will be generated; any waste generated by maintenance works will be removed and disposed of offsite.

4.1.3 Decommissioning

At the end of the Proposed Development's operational lifetime of 40 years, it will be decommissioned (unless an extension is consented). Decommissioning is a relatively straightforward process and similar to the construction process, with the majority of structures and equipment able to be disassembled and removed in a straightforward manner (with battery units, inverters etc being containerised and simply able to be detached from the piles they are placed on, and the solar arrays disassembled, and piles pulled up).

4.2 The Project Site

The following section summarises the results of the field surveys undertaken as part of the Preliminary Ecological Appraisal (PEA). For full details of the field survey results, please refer to the PEA report[3] and Baseline Ornithology Report[4].

4.2.1 Habitats (Annex I of Habitat Directive) Summary

There are no Annex I habitats within the Site.

The Site largely consists of improved grassland/pasture with some arable fields and gorse scrub. The on-site habitats extend to the wider surrounding area with additional plantation woodlands, scattered trees (various species), ponds, buildings and gardens.

According to the Carbon and Peatland Map (Scottish Government 2016)[48] the Site sits entirely in a 'Class 0' area, which are areas comprising predominantly mineral soil and where peatland habitats are not typically found on such soil types.

4.2.2 Species (Annex I bird Annex II non-avian) Summary

The FNRC data search returned records of five species of bird which are included within Annex I of the Birds Directive:

- White-tailed eagle *Haliaetus albicilla* (one record of a single bird);
- Osprey *Pandion haliaetus* (one record); and
- Merlin *Falco columbarius* (two records).

There were two records of pink-footed goose *Anser brachyrhychus*, and two records of greylag goose *Anser answer* within 2 km for the Site recorded in four 10 km^2 national grid squares between 2011-2023 (**Table 4-1**). No peak counts of birds were given.

Table 4-1: FNRC records of geese species within two 10km^2 national grid squares within 2km from the Site recorded in the last 15 years

Species	10km2 National Grid Square	Year recorded
Pink-footed goose	NO1913	2023
Pink-footed goose	NO2013	2018
Greylag goose	NO2011	2018
Greylag goose	NO11Q	2011

Mitchell (2012)[49] provides an overview of wintering pink-footed geese and greylag geese distribution around SPAs designated for these species, based on data from 2007-08 to 2011-12. There are no sensitive foraging areas for the pink-footed geese of Loch Leven SPA/ Ramsar and the Firth of Tay & Eden Estuary SPA/ Ramsar within the 10 km BNG square where the Site is located. The nearest areas of high and medium sensitivity index for foraging geese are located:

- approximately 5 km south between the Site and Loch Leven; and
- approximately 6 km to the east between Auchtermuchty/ Dunshalt and Giffordtown/ Bow of Fife/ Ladybank, mostly within NO21 10 km BNG square.

The Wetland Bird Survey (WeBS) results[31] for Tay Estuary show a five-year average (2019-20 – 2023-24) of 3,179 pink-footed geese with a peak count of 5,024 in 2021-22.

The 5-year WeBS mean for the same period at Loch Leven, was 10,985 birds with a peak count of 14,886 in 2019-20.

No Annex I species were identified during the Breeding Bird Survey in 2025.

Goose feeding distribution surveys were carried out fortnightly within the Site and 600 m buffer in September and October 2025. No geese were recorded utilising the Survey Area.

[48] https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/soils/carbon-and-peatland-2016-map [Accessed: October 2025]

[49] Mitchell, C. 2012. Mapping the distribution of feeding Pink-footed and Iceland Greylag Geese in Scotland. Wildfowl & Wetlands Trust / Scottish Natural Heritage Report, Slimbridge. 108pp.

4.2.3 Great Crested Newt

The FNRC data search returned one record of GCN *Triturus cristatus* within 2 km of the Site within the last 15 years.

The HSI for GCN of ponds within potential disturbance distance of the proposed development returned results of Average or Good for three ponds. The proximity to a known population of breeding GCN (Turflundie Wood SAC) increases the probability of this protected species occurring within potential disturbance distance of the proposed development.

However, subsequent eDNA sampling of these ponds returned a negative result for GCN for each. Therefore, GCN can be assumed likely absent from the Site and unlikely to be a potential constraint to the Proposed Development.

4.2.4 Otter

The FNRC data search returned no records of otter *Lutra lutra,* within 2 km of the site within the last 15 years.

No field signs of otter were recorded during the field surveys. No watercourses occurred within the Site and a 250 m buffer which had potential suitability for otter. The only watercourse noted during the survey was a mostly dry arable drainage ditch with unvegetated banks (TN 5).

4.2.5 Bats

The FNRC data search returned one record of a bat within the last 15 years within 2 km of the Site. This record was not identified to the species level.

Field surveys concluded at the Site revealed a Moderate suitability for foraging and commuting bats, based on the criteria outlined by Bat Conservation Trust (BCT) guidelines[40]. A total of two trees were identified with potential suitability for individual bats with a further nine trees classified as further assessment required.

Field surveys had not found any Annex II bat species.

4.2.6 Ecological Connections

There are two ecological connections with three European and two international (Ramsar) sites, as follows:

- Functionally Linked Land (FLL) connectivity with Firth of Tay and Eden Estuary SPA/ Ramsar for foraging pink-footed goose and greylag goose; and
- FLL connectivity with Loch Leven SPA/ Ramsar for foraging pink-footed goose.

4.2.7 Environmental connections

The nearest European designated site is located 1.3 km, i.e., Turflundie Wood SAC designated for GCN. There are no watercourses present within the Site boundary and the only watercourse identified within the 250 m buffer comprised a mostly dry arable drainage ditch with unvegetated banks. There is therefore no possibility for hydrological connectivity present.

The Site lies within the 2 km screening distance for airborne pollution; however, the Proposed Development will not generate long-term emissions or persistent pollution sources, and any construction-related dust or disturbance is expected to be localised and temporary.

5.0 STAGE 2: MANAGEMENT OF THE SITE

No part of the Project is connected with, or necessary for management of any European or Ramsar sites for achieving their conservation objectives.

6.0 STAGE 3: LIKELY SIGNIFICANT EFFECTS

No statutory sites are located within the Project Site. Likely significant effects of the Project alone and in-combination with other developments are outlined in this section. For the purposes of this assessment, it has been determined that decommissioning phase effects will be less than, or equal to effects caused by the construction phase and have thus been considered together.

6.1 Step 1: Sources of Impact

Potential sources of impact from the Project on the selected European and international sites are listed below in relation to differences phases over the Project lifetime (construction, operation, decommission) alone or in-combination with other plans/ projects. **Section 6.2** provides an assessment of risks relevant to statutory sites and identified specific sources of impact.

Construction and Decommissioning:

- Factor 1: Direct or indirect habitat loss.
- Factor 2: Direct mortality of animals and plants
- Factor 3: Disturbance due to the presence of construction workers.

Operation:

- Factor 1: Direct or indirect habitat loss.
- Factor 2: Disturbance resulting from increased operation noise and maintenance works.

6.2 Step 2: European Sites

Information on the three European Sites considered is provided in **Table 6-1**. The table details qualifying interests, condition, distance and orientation from the Site and any connections to the Site.

Table 6-1: European Sites Initially considered for Source – Pathway – Receptor links

European Site and Code	Qualifying Interest and Condition Assessment[50]	Distance from Project[51]	Connections (Source-Pathway-Receptor)	Considered further in screening Y/N
Turflundie Wood SAC UK0030240	GCN, Favourable	1.3 km	The habitat between the Site and the SAC is highly fragmented, particularly due to the off-road training area adjacent to the Site, which limits any realistic potential for dispersal or connectivity. Combined with the distance to the SAC, lack of hydrological connectivity and the absence of GCN confirmed through eDNA sampling, there is no credible pathway for direct effects such as death or injury to occur. The Site does lie within the 2 km screening distance for airborne pollution; however, the Proposed Development will not generate long-term emissions or persistent pollution sources, and any construction-related dust or disturbance is expected to be localised and temporary.	No
River Tay SAC UK0030312	• Atlantic salmon *Salmo sala;* Favourable • brook lamprey *Lampetra planeri;* Favourable	6 km	No ecological or environmental connection to the Site	No

[50] https://informatics.sepa.org.uk/ProtectedNatureSites/ [Accessed: October 2025]

[51] The shortest straight-line distance between boundaries.

European Site and Code	Qualifying Interest and Condition Assessment[50]	Distance from Project[51]	Connections (Source-Pathway-Receptor)	Considered further in screening Y/N
	• clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels; Favourable • otter (*Lutra lutra*) , Favourable • river lamprey (*Lampetra fluviatilis*); Favourable • sea lamprey (Petromyzon marinus); Favourable			
Firth of Tay and Eden Estuary SAC UK0030311	• Estuaries; not assessed • harbour seal (*Phoca vitulina*); Unfavourable • intertidal mudflats and sandflats; Favourable • subtidal sandbanks; Favourable	6 km	No ecological or environmental connection to the Site	No
Firth of Tay and Eden Estuary SPA UK9004121	• Bar-tailed godwit *Limosa lapponica*, non-breeding; Favourable • common scoter *Melanitta nigra*, non-breeding; Unfavourable • cormorant *Phalacrocorax carbo*, non-breeding; Favourable • dunlin *Calidris alpina alpina*, non-breeding; Favourable • eider *Somateria mollissima*, non-breeding; Favourable • goldeneye *Bucephala clangula*, non-breeding; Unfavourable • goosander *Mergus merganser*, non-breeding; Favourable • grey plover *Pluvialis squatarola*, non-breeding; Favourable • greylag goose, non-breeding; Unfavourable • Icelandic Black-tailed godwit *Limosa limosa islandica*, non-breeding; Favourable • little tern *Sternula albifrons*, breeding; Unfavourable • long-tailed duck *Clangula hyemalis*, non-breeding; Unfavourable • marsh harrier *Circus aeruginosus*, breeding; Favourable • oystercatcher *Haematopus ostralegus*, non-breeding; Favourable • pink-footed goose, non-breeding; Favourable	6 km	Ecological connectivity through FLL between the Site and the SPA for foraging greylag and pink-footed geese. There are no habitats within the Site to support other features.	Yes

European Site and Code	Qualifying Interest and Condition Assessment[50]	Distance from Project[51]	Connections (Source-Pathway-Receptor)	Considered further in screening Y/N
	• red-breasted merganser *Mergus serrator*, non-breeding; Unfavourable • redshank *Tringa totanus*, non-breeding; Favourable • sanderling *Calidris alba*, non-breeding; Favourable • shelduck *Tadorna tadorna*, non-breeding; Unfavourable • velvet scoter *Melanitta fusca*, non-breeding; Unfavourable • waterfowl assemblage, non-breeding; Favourable			
Firth of Tay and Eden Estuary RAMSAR UK13018	As above	As above	As above	Yes
Pitkeathly Mires SAC UK0030239	• Slender green feather-moss *Hamatocaulis vernicosus*; Favourable • very wet mires often identified by an unstable 'quaking' surface; Favourable	6.7 km	No ecological or environmental connection to the Site	No
Loch Leven SPA UK9004111	• Cormorant, non-breeding; Favourable • gadwall *Anas strepera*, non-breeding; Favourable • goldeneye, non-breeding; Favourable • pink-footed goose, non-breeding; Favourable • pochard *Aythya ferina*, non-breeding; Favourable • shoveler A*nas clypeata*, non-breeding; Favourable • teal *Anas crecca*, non-breeding; Favourable • tufted duck *Aythya fuligula*, non-breeding; Favourable • waterfowl assemblage, non-breeding; Favourable • whooper swan, non-breeding; Favourable	8.3 km	Ecological connectivity through FLL between the Site and the SPA for foraging pink-footed geese. Whooper swan core range is less than 5 km in the non-breeding season and therefore it is screened out[24]. There are no habitats within the Site to support other features.	Yes
Loch Leven RAMSAR	As above	As above	As above	Yes

6.3 Assessment of Likely Significant Effects (ALSE)

This section identifies the potential effect pathways through which the Project could impact the qualifying features of the European and Ramsar sites. Specifically, the aim is to establish if a particular potential impact is likely to have a significant impact and undermine conservation objectives.

6.3.1 For the Project Alone

Table 6-2: ALSE during operation for identified European and Ramsar sites

Designated Site	Qualifying Feature(s) and Feature Condition	Conservation Objectives for the Site	Potential Impacts on Qualifying Interest Features	Justification	Determination of Potential LSE
Firth of Tay and Eden Estuary SPA/ Ramsar	Greylag goose (unfavourable, declining, 2019) Pink-footed goose (favourable, recovered 2016)	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 site. • Distribution and extent of habitats supporting the species. • Structure, function and supporting processes of habitats supporting the species.	Direct or indirect habitat loss habitat due to construction.	There are foraging habitats of pink-footed goose and greylag within the Site, which will be permanently lost through construction and operation. Therefore, there is a risk undermining Conservation Objectives for this feature with regards to avoiding and maintaining structure, function and processes of habitats supporting the species.	**Potential LSEs for pink-footed goose and greylag**
			Disturbance of bird species due to construction (noise, light, vibration, construction worker presence).	There are records of pink-footed and greylag geese within 2 km from the Site and therefore a risk of disturbance through construction activities leading to undermining Conservation Objectives with regards to avoiding significant disturbance.	**Potential LSEs for pink-footed goose**
			Disturbance resulting from increased operation noise and maintenance works.	Maintenance is expected to consist mostly of routine Site inspections by technicians, as well as some unscheduled visits when required. Site traffic will be limited to maintenance	**No potential LSEs**

Designated Site	Qualifying Feature(s) and Feature Condition	Conservation Objectives for the Site	Potential Impacts on Qualifying Interest Features	Justification	Determination of Potential LSE
		• No significant disturbance of the species Ramsar site objectives are not set.		vehicles and is unlikely to comprise of several cars at any one period. Maintenance activities will be similar to a baseline level of agriculture and other types of activities taking place in the vicinity of the Site. Therefore, disturbance during the operational phase development is not considered significant.	
Loch Leven SPA and Ramsar	Pink-footed goose (favourable, maintained, 2009)	As above for Firth of Tay and Eden Estuary SPA/ Ramsar	Direct or indirect habitat loss habitat due to construction.	There are foraging habitats of pink-footed goose within the Site, which will be permanently lost through construction and operation. Therefore, there is a risk undermining Conservation Objectives for this feature with regards to avoiding and maintaining structure, function and processes of habitats supporting the species.	**Potential LSEs for pink-footed goose**
			Disturbance of bird species due to construction (noise, light, vibration, construction worker presence).	There are records of pink-footed geese within 2 km from the Site and therefore a risk of disturbance through construction activities leading to undermining Conservation Objectives with regards to avoiding significant disturbance.	**Potential LSEs for pink-footed goose**
			Disturbance resulting from increased operation noise and maintenance works.	Maintenance is expected to consist mostly of routine Site inspections by technicians, as well as some unscheduled visits when required. Site traffic will be limited to maintenance vehicles and is unlikely to comprise of several cars at any one period. Maintenance activities will be similar to a	**No potential LSEs**

Designated Site	Qualifying Feature(s) and Feature Condition	Conservation Objectives for the Site	Potential Impacts on Qualifying Interest Features	Justification	Determination of Potential LSE
				baseline level of agriculture and other types of activities taking place in the vicinity of the Site. Therefore, disturbance during the operational phase development is not considered significant.	

6.3.2 For the project In-Combination

A search of the Scottish Government's Energy Consents Unit (ECU) and the PKC online planning portals revealed that there are no operational ground mounted solar developments or BESS projects within 5 km of the Site. There are, however, the three consented cumulative developments below:

- Binn Eco Park Solar – Installation of ground-mounted solar panels (5 MW) and associated works, consented in May 2021 (21/00705/FLL).
- Binn Eco Park BESS – Installation of BESS (10 MW) and associated works, consented on 12th July 2021 (21/00834/FLL).
- Abernethy Battery Energy Storage Project – Installation of BESS (64.9 MW) and associated works.

The above projects have been considered for in-combination assessment in **Section 7.2**.

6.4 Stage 3 Conclusion

The HRA test is whether the Project will have an adverse effect on the integrity of any European or Ramsar site in the light of the conservation objectives for the qualifying interest features detailed within this screening assessment.

The screening assessment highlighted that, in the absence of mitigation, LSEs to habitats, individuals and populations of qualifying interest species could not yet be completely ruled out without further assessment and/or mitigation. Further assessment is required for pink-footed and greylag geese of the Firth of Tay and Eden Estuary SPA/ Ramsar and pink-footed goose of Loch Laven SPA/ Ramsar sites in relation to habitat loss and disturbance during construction.

7.0 STAGE 4 APPROPRIATE ASSESSMENT

7.1 Effects of the Project Alone

7.1.1 Pink-footed and greylag geese of the Firth of Tay and Eden Estuary SPA/ Ramsar

Condition assessment

The Firth of Tay and Eden Estuary SPA qualifies under Article 4.2 of the EU Birds Directive by regularly supporting populations of European importance of the migratory species, amongst others: **greylag goose** (1990/91 to 1994/95 a winter peak mean of 1,200 individuals, 1% of the Iceland/ UK/ Ireland biogeographic population) and **pink-footed goose** (1990/91 to 1994/95 a winter peak mean of 2,800 individuals, 1% of the Eastern Greenland/ Iceland/ UK biogeographic population).

The **pink-footed goose** qualifying feature of the Firth of Tay and Eden Estuary SPA was last assessed in January 2016 and considered to be in Favourable (recovered) condition. **Greylag goose** was last assessed in February 2019 as unfavourable declining.

The national wintering population of **pink-footed goose** has increased significantly since the 1950s and is currently estimated at 510,000 birds[52]. However, more recent WeBS data suggest a slight decline since mid-2010s[53].

Two populations of **greylag goose** occur in the UK: the migratory Icelandic population and the resident British/Irish population. There is no evidence of international migration by resident British population. Historically, the British/Irish population was further divided into two groups based on geographic range, i.e., a relict native population confined to north-west Scotland and a re-established population from domesticated flocks largely restricted to England. However, by winter 2009/10, both resident populations had expanded their ranges to the extent that field distinction became untenable due to significant overlap[54]. The Icelandic and British/Irish populations of greylag goose are indistinguishable in the field, and their ranges overlap extensively across much of Scotland. As a result, confidently assigning individuals to either population is not feasible in many areas. With continued expansion and increasing numbers of resident birds, this attribution approach is becoming increasingly untenable[55],[56]. Currently, the UK non-breeding population of greylag goose is estimated at 230,000 individuals (2012-17)[57].

The average five-year WeBS peak count of pink-footed goose for Tay Estuary between for 2019/20 – 2023/24 was 3,179 individuals with a subsequent peak count of 5,024 birds in the winter of 2021/22. The estimated five-year peak count of greylag goose was 365 with a peak count of 407 in the winter of 2021/22[58]. It is important to note that the WeBS counts do not cover roosting birds and therefore they might represent underestimates.

Direct or indirect habitat loss habitat

Pink-footed geese wintering in Scotland forage mostly on stubble fields consuming the spilt grain in autumn and on predominantly on grass and newly sown cereal fields in spring, but will also feed on extensive areas of saltmarsh in estuaries[33,59].

The main winter habitats of **greylag goose** are very similar to pink-footed goose, i.e., arable farmland and grasslands with cereal stubbles preferred in the autumn, potatoes, swedes and carrots if available in winter and winter cereals and grass in the spring. Both species use inland waterbodies, reservoirs as well as estuaries for roosting[33].

Analyses of the Scotland Habitat and Land Cover Map – 2022[43] within the 20km radius from the inner estuary roost[33] of the Firth of Tay and Eden Estuary SPA/ Ramsar revealed that there was 46,540 ha of arable land (40.80% of all habitats assessed) and the three EUNIS grassland categories (mesic, dry and seasonally wet grasslands) covered a total of 28,623

[52] Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, D.A. & Noble, D. (2020). Population estimates of birds in Great Britain and the United Kingdom. British Birds 113: 69–104.

[53] https://www.bto.org/learn/about-birds/birdfacts/pink-footed-goose [Accessed: October 2025]

[54] https://www.bto.org/get-involved/volunteer/projects/wetland-bird-survey/publications/webs-annual-report/numbers-trends/methods/analysis-and-presentation/spatial-allocation/53 [Accessed: November 2025]

[55] https://www.bto.org/learn/about-birds/birdfacts/greylag-goose#population-change [Accessed: November 2025]

[56] https://consult.defra.gov.uk/natural-england/general-and-class-licences/supporting_documents/Annex%20E%20%20Evidence%20Paper%20%20Greylag%20goose%20status.pdf [Accessed: November 2025]

[57] Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, D.A. & Noble, D. (2020). Population estimates of birds in Great Britain and the United Kingdom. British Birds 113: 69–104

[58] https://app.bto.org/webs-reporting/numbers.jsp [Accessed: November 2025]

[59] Goodship, N.M. and Furness, R.W. (MacArthur Green) (2022). Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283.

ha, which constitutes 25% of a total of 114,056 ha of all classified habitats (**Table 7-1**, **Plate 7-1**).

Table 7-1: Area and % coverage of key pink-footed goose and greylag habitats in EUNIS classification within 20 km radius from the Firth of Tay roost of the Firth of Tay and Eden Estuary SPA

EUNIS Habitat Category	Area [Ha]	% cover of the total assessed area
Arable land and market gardens	46,540.48	40.80%
Mesic grasslands	21,926.12	19.22%
Dry grasslands	3,390.61	2.97%
Seasonally wet and wet grasslands	3,306.69	2.90%
Other habitats	38,892.29	34.10%
Total suitable foraging habitat	**75,163.89**	**65.90%**
Total areas assessed	**114,056.20**	

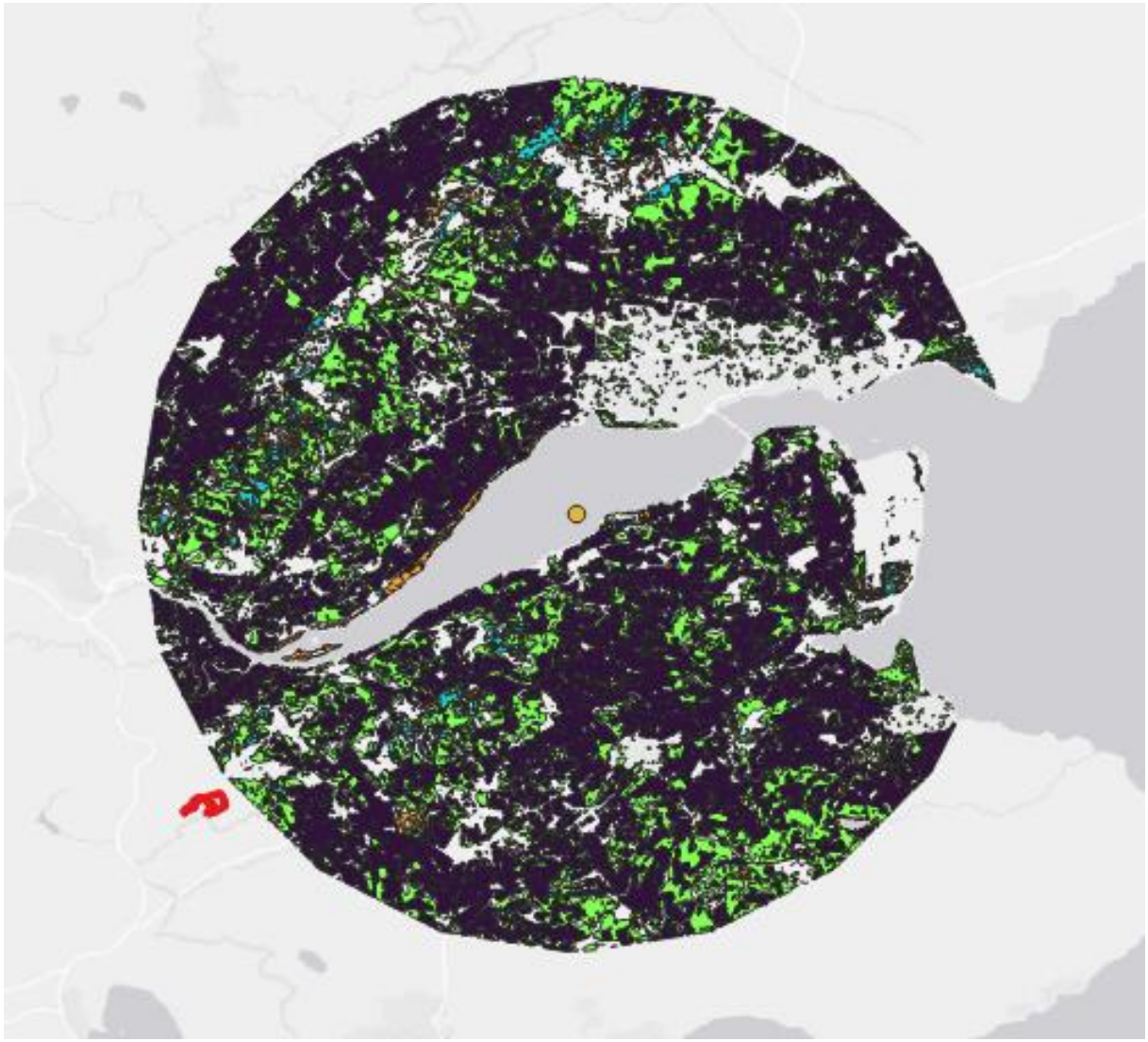


Plate 7-1: Distribution of key pink-footed and greylag foraging habitats in EUNIS classification within 20 km radius from the Firth of Tay roost of the Firth of Tay and Eden Estuary SPA (orange dot), arable land (dark blue), dry grassland (teal), mesic grassland (green) and seasonally wet grassland (orange). The Site is marked in red (outside of the 20 km radius).

At a smaller scale, within the wider 5 km from the Development Site, there are 3,500 ha of arable land (34.02% of a total of 10,286 ha assessed), 3,061 ha or mesic grassland (29.76%), 658.41 ha of dry grassland (6.40%) and 303.87 ha of seasonally wet grassland (2.95%). This total suitable habitat within the wider 5 km area from the Site (7,523 ha) is 10% of the available foraging habitat within 20 km of the SPA (**Plate 7-2**).

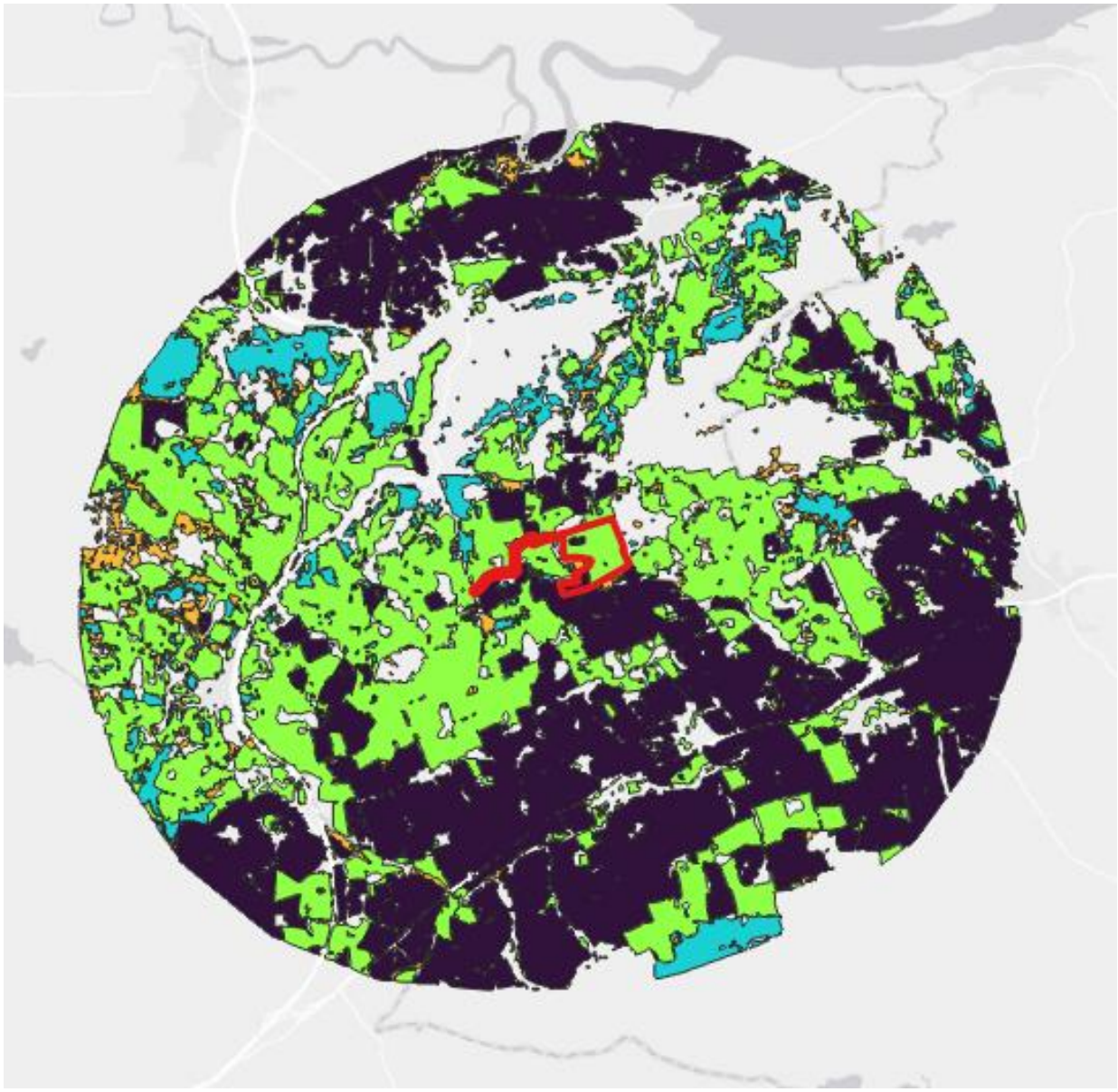


Plate 7-2: Distribution of key pink-footed and greylag foraging habitats in EUNIS classification within 5 km radius from the Development Site (red line). arable land (dark blue), dry grassland (teal), mesic grassland (green) and seasonally wet grassland (orange).

The area of approximately 59 ha lost to the Proposed Development represents approx. 0.08% of a total of 75,164 ha of suitable foraging habitats within 20 km radius from the SPA and it is also a relatively small area compared to the existing alternative habitats locally within 5 km from the Site (i.e. 0.78% of the total 7,523 ha of available suitable habitat). The pink-footed and greylag geese of the Firth of Tay and Eden Estuary SPA/ Ramsar have therefore vast availability of foraging habitats during autumn and spring.

Moreover, they typically feed away from the Development Site. **Greylag geese** roosting on the Firth of Tay typically foraged to the north, in Southern Angus, with regular flight paths crossing the Sidlaw Hills into Strathmore. In the 1990s, a consistent winter roost of approximately 1,000 to 2,000 individuals developed on the Eden Estuary, where birds predominantly fed in nearby areas to the south and west of the estuary[33]. **Pink-footed geese** foraging from the Firth of Tay roost typically fed on farmland along the north shore or

flew over the Sidlaw Hills to feeding areas around Wolfhill and Pitcur. Some birds also occasionally utilised the Rhynd peninsula, particularly within the area bounded by Inverarity, Letham, Arbirlot, and Monikie. Pink-footed Goose numbers at the Eden Estuary roost were low during the mid-1980s, typically ranging from 100 to 300 individuals. However, more consistent use developed in the 1990s, with a peak count of 2,500 birds recorded in November 1993. These geese generally fed locally, often in the Craigie Farm area approximately 3 km to the north[33].

Therefore, **a permanent loss of habitat from the Project alone due to construction and operation will not undermine conservation objectives in relation to avoiding habitat loss and maintaining population of pink-footed and greylag geese of the Firth of Tay and Eden Estuary SPA/ Ramsar.**

Disturbance of bird species due to construction (noise, light, vibration, construction worker presence)

Pink-footed and greylag geese are known to forage within 5 km from the Site. The construction of the Proposed Development has the potential to disturb or displace geese due to noise and movement of construction machinery and plant.

Goodship & Furness (2022)[59] carried out a review of disturbance distances and reported 350-500 m flight initiation distance during hunting in Denmark in the migration and non-breeding season (two studies). NatureScot recommends 200-600 m disturbance buffer[60] during construction activities.

Disturbance should be judged as significant if an action cause impacts on populations of a species through either (i) changed local distribution on a continuing basis; and/or (ii) changed local abundance on a sustained basis; and/or (iii) the reduction of ability of any significant group of birds to survive, breed, or rear their young (see **Section 3.1.2**)[27].

Any construction-related disturbance effects will be short in duration (within maximum one non-breeding season during the development) and also limited to a relatively small area compared to alternative habitats available locally. Any disturbance effect presented is also considered to likely affect only a small proportion of the total SPA population.

It is considered that construction related disturbance effects do not constitute significant disturbance as they are relatively minor in magnitude, short term in duration and limited in extent. Thus, the project alone **will not undermine conservation objectives in relations to avoiding significant disturbance and maintaining population of pink-footed and greylag geese of Westwater SPA/ Ramsar**.

7.1.2 Pink-footed goose of Loch Leven SPA/ Ramsar

Condition assessment

Loch Leven SPA qualifies under Article 4.2 of the EU Birds Directive by regularly supporting populations of European importance of wintering Icelandic/Greenlandic pink-footed geese (1993/94-97/98 winter peak mean of 17,163, 8% of total population, all of which winters in Britain).

The pink-footed goose qualifying feature of Loch Leven SPA was last assessed in August 2009 and considered to be in Favourable (maintained) condition.

[60] NatureScot (2022) Disturbance Distances in selected Scottish Bird Species – NatureScot Guidance. Available online: https://www.nature.scot/doc/disturbance-distances-selected-scottish-bird-species-naturescot-guidance [Accessed: October 2025]

The national wintering population of **pink-footed goose** has increased significantly since the 1950s and is currently estimated at 510,000 birds[52]. However, more recent WeBS data suggest a slight decline since mid-2010s[53].

The average five-year WeBS peak count at Loch Leven for 2019/20 – 2023/24 was 10,985 individuals with a peak count of 14,886 birds in the winter of 2019/20.

Direct or indirect habitat loss

Analyses of the Scotland Habitat and Land Cover Map – 2022 within a 20 km radius from Loch Leven SPA revealed that arable land contributed 29,229 ha (24.33%) of a total of 120,162 ha assessed. The three EUNIS grassland habitat categories constituted a total of 44,327 ha (36.89% of all assessed habitats). In total, there are 73,556 ha (61%) of suitable foraging habitats within 20 km radius from the SPA (**Table 7-2**, **Plate 7-3**).

Table 7-2: Area and % coverage of key pink-footed habitats in EUNIS classification within 20 km radius from Loch Leven SPA

EUNIS Habitat Category	Area [Ha]	% cover of the total assessed area
Arable land and market gardens	29,229.49	24.33%
Mesic grasslands	28,511.61	23.73%
Dry grasslands	8,000.16	6.66%
Seasonally wet and wet grasslands	7,815.17	6.50%
Other habitats	46,605.27	38.79%
Total suitable	**73,556.43**	**61.21%**
Total assessed	**120,161.70**	

These birds would also have a good availability of alternative foraging habitats within 5 km from the Site (see above assessment of the Firth of Tay and Eden Estuary SPA/ Ramsar and **Plate 7-2**). The total suitable habitat within the wider 5 km area from the Site (7,523 ha) is 10.23% of the available foraging habitat within 20 km of Loch Leven SPA.

The approximately 59 ha lost to the development is approximately 0.08% of a total of 73,556 ha of suitable habitat with 20 km radius from Loch Leven SPA. Therefore, the pink-footed geese have a significant resource available in the wider region during winter within 20 km foraging range and locally within 5 km from the development (**Plate 7-2** and **Plate 7-3**, respectively). Moreover, pink-footed geese potentially utilising the Site are considered unlikely to be of Loch Leven SPA provenance as they mostly forage within 10 km from the SPA, mostly to the north and west of the site[33]. Therefore, **a permanent loss of habitat from the Project alone due to construction and operations will not undermine conservation objectives in relation to avoiding habitat loss and maintaining population of pink-footed goose of Loch Leven SPA/ Ramsar.**

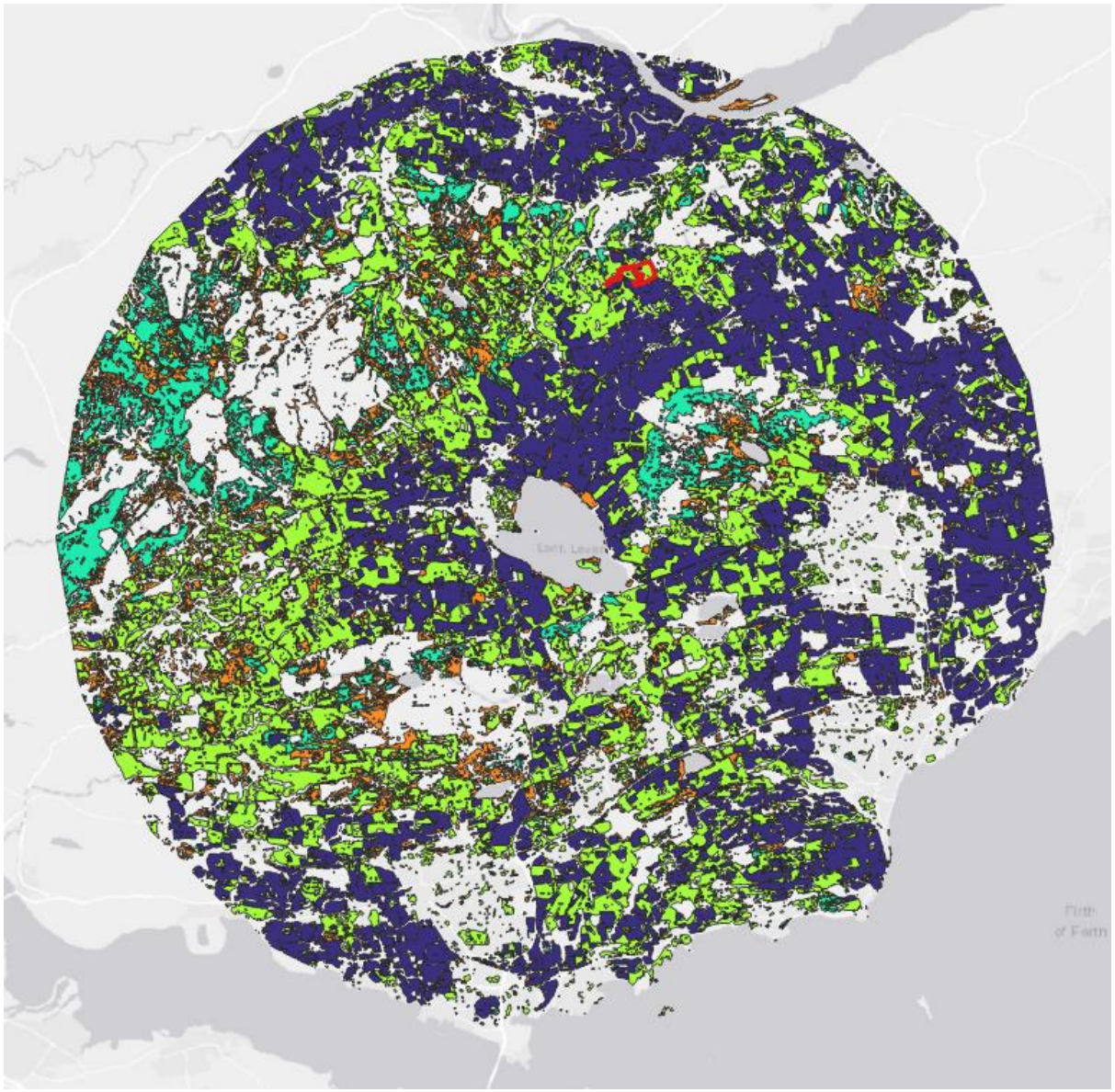


Plate 7-3: Distribution of key pink-footed foraging habitats in EUNIS classification within 20 km radius from Loch Leven SPA. arable land (blue), mesic grassland (green), dry grassland (teal) and seasonally wet grassland (orange). The Site is marked in red.

Disturbance of bird species due to construction (noise, light, vibration, construction worker presence)

As the resulting pressure pathways are the same, please see the assessment of pink-footed goose disturbance sensitivity as discussed in relation to the Firth of Tay and Eden Estuary SPA / Ramsar above.

Any construction-related disturbance will be short term in duration (consisting of a maximum of one non-breeding season), limited to a relatively small area compared to alternative habitats available locally, and affecting a small proportion of the SPA population. Furthermore, the presence of birds of Loch Leven SPA provenance within the Site and wider area is low. It is therefore considered that there will be no significant disturbance able to

affect local distribution, abundance and/or ability of this population to survive or breed and therefore the project alone **will not undermine conservation objectives in relations to avoiding significant disturbance and maintaining population of pink-footed geese of the Firth of Forth SPA/ Ramsar**.

7.2 Effects of the Project in Combination

Projects or plans which can have LSEs contributing to the discussed source-pathway-receptor model of habitat loss and disturbance during to construction/ decommissioning and operations are presented in **Section 6.3.2**.

- Binn Eco Park Solar – Installation of ground-mounted solar panels (5 MW) and associated works (9.5 ha), consented in May 2021 (21/00705/FLL). This proposed solar development is located approximately 1 km to the north of the Site. The PKC online planning portal shows that a 'notification of initiation of development' was received for this proposed development on 19 September 2024, so it is reasonable to assume that it would be operational prior to construction of the Proposed Development commences. Bird surveys were not carried out and the ecological assessment for this project recommended only embedded good practice mitigation in relation to nesting birds[61].
- Binn Eco Park BESS – Installation of BESS (10 MW) and associated works (0.56 ha), consented on 12th July 2021 (21/00834/FLL). This proposed BESS development is located approximately 1 km to the north of the Site. The PKC online planning portal shows that a 'notification of initiation of development' was received for this proposed development on 27 Jun 2024, so again it is reasonable to assume that it would be operational prior to construction of the Proposed Development commences. This development has not been assessed for environmental impact.
- Abernethy Battery Energy Storage Project – Installation of BESS (64.9 MW) and associated works (0.6 ha). Section 36 application submitted in April 2025 (ECU00005044). The BESS development would be located approximately 5 km to the north-north-east of the Site.

All three projects identified within 5 km from the Site were granted planning permission based on standard mitigation against killing and injuring of birds and their nesting sites during breeding season. No considerations of foraging pink-footed geese were made, however in the light of the availability of alternative foraging habitats within the 5 km radius (**Plate 7-3**), **in-combination effect of the development projects will not undermine conservation objectives in relation to avoiding deterioration of habitats and maintaining populations of qualifying features of the Firth of Tay and Eden Estuary and Loch Leven SPA/ Ramsar sites.**

7.3 Mitigation Measures

No mitigation measures are required as there is no risk of undermining the conservation objectives of any qualifying interest of any European/ Ramsar sites.

[61] IMTeco Limited (2020) Ecological Assessment. Binn Solar Eco Park. Technical Report for Green Cat Renewables Ltd

8.0 STAGE 5: EFFECT ON INTEGRITY

The following is the final statement of the assessment to ascertain if there are any adverse effects on the integrity of the European and Ramsar sites and their conservation objectives.

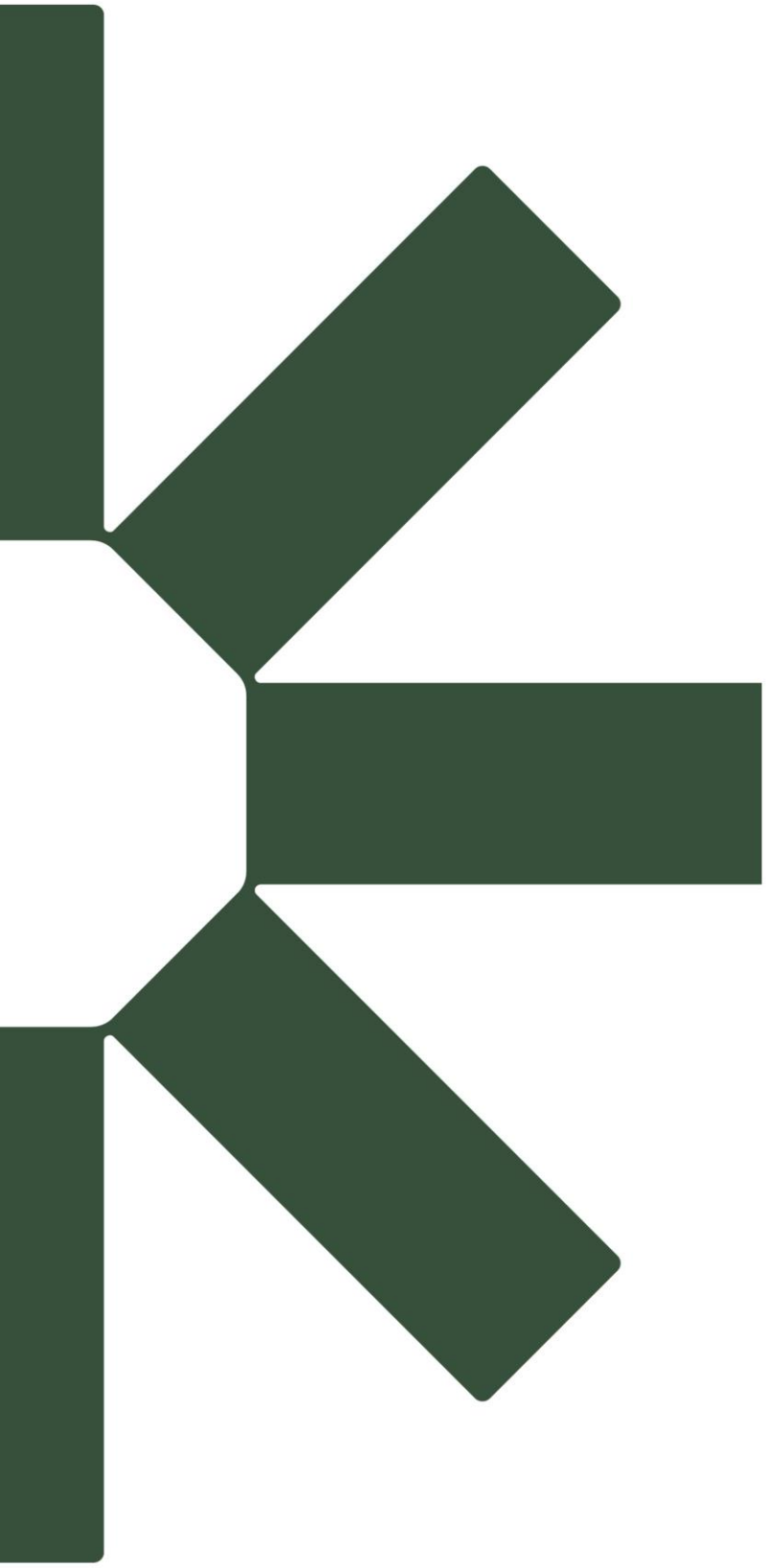
It has been ascertained that conservation objectives will not be undermined and therefore there will be no adverse effects on integrity from the project alone or in-combination for the assessed European/ Ramsar sites for the following reasons:

- The Site is located outside of the main foraging areas for the pink-footed goose and greylag geese of relevant SPA / Ramsar sites;
- The habitat loss will be insignificant compared to the available suitable foraging habitats within 20 km radius from known roosting sites within each of the SPAs and 5 km radius from the Site; and
- Any disturbance will be temporal, localised and will not impact local distribution, abundance and ability of these populations to survive.

Annex A Relevant Case Law

Case Law	Ruling
People Over Wind and Sweetman Coillte Teoranta (C-323/17)	The ruling of the Court of Justice of the European Union (CJEU) requires that mitigation measures intended to avoid or reduce harmful effects of a project on a European or International site should not be taken into account at when assessing Likely Significant Effects (LSE) at screening stage.
Waddenzee (C 127/02)	This ruling provided clarity on the interpretation of a 'likely significant effect', detailing that a project should be subject to AA "if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects". Therefore, 'likely', in this context, should not simply be interpreted as 'probable' or 'more likely than not', but rather whether a significant effect can objectively be ruled out. "Where such a plan or project has an effect on a site but is unlikely to undermine the conservation objectives, it cannot be considered likely to have a significant effect on the site concerned" (Para 47).
Sweetman v An Bord Pleanála (C-258/11)	Request for a preliminary ruling from the Supreme Court (Ireland). Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora must be interpreted as meaning that a plan or project not directly connected with or necessary to the management of a site will adversely affect the integrity of that site if it is liable to prevent the lasting preservation of the constitutive characteristics of the site that are connected to the presence of a priority natural habitat whose conservation was the objective justifying the designation of the site in the list of sites of Community importance, in accordance with the directive. The precautionary principle should be applied for the purposes of that appraisal.
Holohan and Others v An Bord Pleanála (C-461/17)	1. Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora must be interpreted as meaning that an 'AA' must, on the one hand, catalogue the entirety of habitat types and species for which a site is protected, and, on the other, identify and examine both the implications of the proposed project for the species present on that site, and for which that site has not been listed, and the implications for habitat types and species to be found outside the boundaries of that site, provided that those implications are liable to affect the conservation objectives of the site. 2. Article 6(3) of Directive 92/43 must be interpreted as meaning that the competent authority is permitted to grant to a plan or project consent which leaves the developer free to determine subsequently certain parameters relating to the construction phase, such as the location of the construction compound and haul routes, only if that authority is certain that the development consent granted establishes conditions that are strict enough to guarantee that those parameters will not adversely affect the integrity of the site. 3. Article 6(3) of Directive 92/43 must be interpreted as meaning that, where the competent authority rejects the findings in a scientific expert opinion recommending that additional information be obtained, the 'AA' must include an explicit and detailed statement of reasons capable of dispelling all reasonable scientific doubt concerning the effects of the work envisaged on the site concerned. 4. Article 5(1) and (3) of, and Annex IV to, Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment, must be interpreted as meaning that the developer

Case Law	Ruling
	is obliged to supply information that expressly addresses the significant effects of its project on all species identified in the statement that is supplied pursuant to those provisions. 5. Article 5(3)(d) of Directive 2011/92 must be interpreted as meaning that the developer must supply information in relation to the environmental impact of both the chosen option and of all the main alternatives studied by the developer, together with the reasons for his choice, taking into account at least the environmental effects, even if such an alternative was rejected at an early stage.
T.C. Briels and Others v Minister van Infrastructuur en Milieu (C-521/12).	Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora must be interpreted as meaning that a plan or project not directly connected with or necessary to the management of a site of Community importance, which has negative implications for a type of natural habitat present thereon and which provides for the creation of an area of equal or greater size of the same natural habitat type within the same site, has an effect on the integrity of that site. Such measures can be categorised as ‘compensatory measures’ within the meaning of Article 6(4) only if the conditions laid down therein are satisfied.



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