Preliminary Ecological Appraisal Report - Confidential

Prepared by: Arthian Ltd

For: Renewable Energy Systems Ltd

Site: Bonnyknox Solar Farm

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Acknowledgments

This report has been prepared for the sole and exclusive use RES in accordance with the scope of work presented in Arthian Ltd (Formerly Mabbett & Associates Ltd (Mabbett)) Letter Agreement (313625/LA/SC/pb/ Rev 5.0), dated 28th of August 2023. This report is based on information and data collected by Arthian. Should any of the information be incorrect, incomplete, or subject to change, Arthian may wish to revise the report accordingly.

This report has been prepared by the following Arthian personnel:

Arthian Ltd

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Ecologist

This report has been reviewed and approved by the following Arthian personnel:

Arthian Ltd

Andrew Taylor MSc, MRSB Ecology & Biodiversity Manager (Scotland)

Executive Summary

Contents	Summary
Site Location	The proposed development, hereafter referred to as "the site", is located approximately 4km west of Arbroath, Angus, Scotland. The site has the following approximate central National Grid Reference: NO 56962 41124. The site red line boundary was updated in May 2025.
Proposals	RES is applying to Angus Council for full planning permission for the construction and operation of Bonnyknox Solar Farm and its associated infrastructure. The proposed development would comprise the construction and operation of a maximum generation capacity 49.9MW solar array and its associated infrastructure on a site of 95.45 hectares.
Results	**Statutory designated sites:** 4 Statutory designated sites are located within 5 km of the Site boundary, these being; Outer Firth of Forth and St Andrews Bay Complex SPA, Easthaven SSSI, Elliot Links SSSI and Dilty Moss SSSI. The closest to Site is the Dilty Moss SSSI which is 4 km northwest from the site. **Non-statutory designated sites:** There are no non-statutory sites within 2 km of the Site. **Habitats:** The Site comprises of arable land, coniferous woodland, improved grassland, scrub, ditches, standing water and running water. **Protected and/or notable species:** The Site provides habitat with potential to support breeding birds, badger, otter, reptile, red squirrel and other foraging small mammals.
Discussion & Recommendations	**Badger**: **See Appendix D for Confidential Report** **Otter:** The Elliot waters at the Site provides suitable holt, resting and foraging habitat for otter. The proposed development has the potential to cause direct adverse effects to otter during the construction phase if not managed correctly. Due to the evidence of recent activity (Target Note (TN) 4) on site and suitability of the Elliot water and wider habitats to support otter, a targeted otter survey should be carried prior to the construction works. Should this find otter holts within 200m of the Site boundary a NatureScot otter licence to disturb may be required. An otter survey, as well as additional monitoring was undertaken in 2024. Full results can be found in "Arthian_313625 Bonnyknox Solar Farm PPSR 2.1" and "Arthian_313625 Bonnyknox Solar Farm Otter Monitoring Memorandum Report 2.1". No impact on otter is predicted. **Reptile:** The habitats, including hedgerows encompassing the Site provide suitable foraging and resting habitats for reptiles and various potential reptile hibernacula features noted throughout side predominately rock piles, dry stone walls and log piles. Should the works include the removal of these features or vegetation removal within the habitats mentioned above, they should be carried out under the provided "Arthian_313625 Bonnyknox Reptile Precaution Method of Working", which includes mitigation on how to remove any adverse impacts on reptiles which may be found on site. **Red Squirrel and other notable small Mammals:** The habitats encompassing the Site provide optimal foraging and resting habitat for red squirrel and small mammals. Although these habitats are out with the site boundary there potential to cause disturbance to commuting red squirrel and small mammals during the construction phase. The general mitigation best practices as listed in Section 4.4 should be adhered to prevent disturbance to small mammal species during the construction works.

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1. Introduction

1.1 Introduction

A feasibility study completed in 2023 by Arthian Ltd (formerly Mabbett and Associates Ltd ('Mabbett')), hereafter referred to as 'Arthian'. Following the feasibility study, Arthian was commissioned by RES on the 05th of August 2023 to carry out a Preliminary Ecological Appraisal (PEA) on the site known as Bonnyknox Solar Farm and is hereafter referred to as "The Site".

This report has been prepared by Arthian Consultant Ecologist Blair McNicol BSc (Hons).

Due to the inclusion of sensitive species records, this report should not be made available to the public without redaction or removal of these records.

1.2 Site Location

The site is located approximately 4 km west of Arbroath, within Angus, Scotland. The site has the following approximate central National Grid Reference: NO 56962 41124.

The Site comprises approximately 95.45 ha of arable habitat. The Rottenraw Burn is located c. 350 south of the main site and flows below the proposed/existing access road. The Elliot Water flows west to east c. 70m north of the north site boundary.

Other habitats adjacent to the Site are generally agricultural land with a mix of arable and pastoral fields, with few residential properties. A large area of broadleaf woodland (known as the 'Guynd') is present to the north of the works bordering Elliot Water, and areas of conifer plantation woodland can be found adjacent to the southern border of the main site boundary.

The Site location and survey area are shown in Appendix A, Figure 1.

The site boundary was updated in May 2025. The original boundary covered an approximate 240.55 ha area, and thus an initial wider survey area was established. The original 2023 boundary can also be seen in Figure 1.

1.3 Proposals

RES is applying to Angus Council for full planning permission for the construction and operation of Bonnyknox Solar Farm and its associated infrastructure. The proposed development would comprise the construction and operation of a maximum generation capacity 49.9MW solar array and its associated infrastructure on a site of 95.45 hectares.

1.4 Scope of Report

The objectives of the report are to carry out:

- A desk study, to obtain existing information on statutory and non-statutory sites of nature conservation interest and relevant records of protected/notable species within the Site and its zone of influence;
- An Extended Phase 1 Habitat Survey of the site to map and record habitat types and dominant vegetation, including any invasive species, and an assessment for evidence of protected fauna or habitats capable of supporting such species;
- An assessment of the potential ecological features present, any constraints they pose to development of the Site and any recommendations for further surveys, avoidance, mitigation, compensation or enhancement measures that are needed (as appropriate).

2. Methodology

2.1 Desk Study

2.1.1 Online Resources

The following web-based databases were also accessed:

- Department for Environment, Food and Rural Affairs (DEFRA) MAGIC (2023), for information on statutory designated sites and Habitats of Principal Importance (HPI).
- NatureScot SiteLink (2023) for information on statutory designated sites.
- Scotland's Environment Web (Scotland's Environment, 2023) for information on ancient and native woodland.
- National Biodiversity Network Atlas Scotland (2023).
- Tayside Local Biodiversity Action Plan (LBAP) (Tayside, 2016-2026)

2.2 Field Survey

The field survey was undertaken on the 14th and 15th of November 2023 by Arthian Ecologists Jodie Ross and Blair McNicol. The weather conditions were 8°C, with passing showers and 2 on the Beaufort scale. The field survey was undertaken in with buffers that aligned with the original 2023 boundary.

The following methodologies were used to inform the assessment of habitat types, along with protected and notable species, during the Extended Phase 1 Habitat Survey:

2.2.1 Habitats and Flora

The broad habitats within the Site were mapped in accordance with the categories specified in the Handbook for Phase 1 Habitat Survey (Joint Nature Conservancy Committee, 2016). Dominant plant species were recorded for each habitat present using nomenclature according to the 4th edition of New Flora of the British Isles (Stace, 2019). The Site was also appraised for its potential to support notable flora.

2.2.2 Invasive Non-Native Species (INNS)

The Site was searched for invasive plant species, primarily those included in the Wildlife and Countryside Act 1981 (as amended by the Wildlife and Natural Environment (Scotland) Act 2012), which includes, but is not limited to, Japanese knotweed *Fallopia japonica*, Himalayan balsam *Impatiens glandulifera*, giant hogweed *Heracleum mantegazzianum* and rhododendron *Rhododendron ponticum*.

2.2.3 Protected and Notable Species

The Site was assessed for the possible presence of, and the likely importance of its habitats for, protected or notable species, especially those listed under the Schedule 2 of the Habitats Regulations 1994, Schedule 5 of the Wildlife and Countryside Act 1981 (as amended in Scotland), those given extra protection under The Nature Conservation (Scotland) Act 2004, those listed on the Scottish Biodiversity List (SBL) and species included in the Tayside (2023) LBAP.

2.2.4 Great Crested Newt

The Site was appraised for its suitability to support great crested newt *Triturus cristatus* (GCN). The assessment was based on Guidance outlined in the Herpetofauna Workers' Manual (Gent & Gibson, 2003) and the Great Crested Newt Conservation Handbook (Langton, Beckett, & Foster, 2001). Where ponds were present within the site, these were assessed for their suitability to support breeding GCN according to the Habitat Suitability Index (HSI), as outlined in Amphibian and Reptile Groups (ARG) UK Advice Note 5: Great Crested Newt Habitat Suitability Index (Amphibian and Reptile Groups UK, 2010).

2.2.5 Otter

The Site was surveyed for its suitability for otter *Lutra lutra*, based on guidance outlined in Monitoring the Otter (Chanin, 2003).

2.2.6 Bats

Roosting Bats

Trees on site were assessed from the ground for their suitability to support breeding, roosting and hibernating bats, with reference to the methods outlined in Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed, 2016) (Collins, 2016), hereafter referred to as the 'BCT Guidelines'. The following system has therefore been used to categorise the bat roost suitability of any features found:

Table 1: Bat roost suitability categories.

Suitability	Description of Potential Roosting Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A tree of sufficient size and age to contain potential roost features (PRFs) but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis & potentially for longer periods of time due to their size, shelter, protection, conditions & surrounding habitat.

Foraging/ Committing Bats

In accordance with the BCT Guidelines, the following criteria have been used to categorise the potential value of site habitats and features for use by foraging and commuting bats (Table 2).

Table 2: Bat foraging habitat categories.

Suitability	Description of Potential Foraging Habitats
Negligible	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	Habitat that could be used by small numbers of commuting bats such as a 'gappy' hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge.

Suitability	Description of Potential Foraging Habitats
	High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

2.2.7 Red Squirrel

The Site was appraised for its suitability to support red squirrel *Sciurus vulgaris*, based on best practice guidance (Gurnell, Lurz, McDonald, & Pepper, 2009) which involves a search of suitable habitat (primarily coniferous woodland) for evidence of squirrel activity. This included the search for:

- Squirrel dreys within trees;
- Feeding remains (e.g chewed cones, split nuts); and
- Sightings of red squirrels.

It should be noted that dreys and squirrel remains cannot be accurately distinguished between red or grey squirrels.

2.2.8 Pine Marten

The Site was surveyed for its suitability for pine marten *Martes martes*, based on good practice guidance (The Mammal Society, 2012) which involves the search for suitable habitat and evidence of pine marten. This includes the search for:

- Suitable pine marten dens or shelters;
- Pine marten scats;
- Feeding remains; and
- Prints and scratches.

An assessment of the habitats was also undertaken to identify likely prey resources, which include small mammals, birds and invertebrates, and potential resting sites and commuting opportunities.

2.2.9 Water Vole

The Site surveyed for its suitability for water vole *Arvicola amphibius*. The survey consisted of a search for field evidence following standard survey guidelines, (Dean, et al., 2016) in addition to an assessment of the habitat suitability of the site (Strachan, Moorhouse, & Gelling, 2011).

2.2.10 Badger

The Site was surveyed for evidence of badger *Meles meles* setts or other badger activity such as paths, latrines or signs of foraging. Any setts recorded were classified according to the criteria outlined in Surveying for badgers (Scottish Badgers, 2018).

2.2.11 Reptiles

The Site was appraised for its suitability to support reptiles, including common lizard *Zootoca vivipara* and slow worm *Anguis fragilis*. The assessment was based on Guidance outlined in the Herpetofauna Workers' Manual (Gent & Gibson, 2003).

2.2.12 Birds

Habitats on site were appraised for their suitability to support breeding, migratory and wintering birds, with particular emphasis on species listed on Schedule 1 of the W&CA, SPI, and bird species of conservation concern, as defined by Stanbury et al., (2021).

2.2.13 Other Species

The Site was also appraised for its suitability to support other protected or notable fauna including mammals, amphibians, and invertebrates with regard to CIEEM's Guidelines for Preliminary Ecological Appraisal (Chartered Institute for Ecology and Environmental Management, 2017) and BS4 2020:2013 Biodiversity – Code of Practice for Planning and Development. Evidence of any current or historical presence of such species was recorded.

2.3 Limitations

The optimal period to undertake a Phase 1 Habitat Survey is April-September. The survey was completed in November which is outside the optimal survey window. However, due to the land within the site boundary being used for agricultural management (e.g. crop planting and livestock grazing) and therefore being of low ecological value, the survey was deemed sufficient for the purposes of the report.

To determine presence or likely absence of notable flora and protected species usually requires multiple visits at suitable times of the year. This survey focuses on assessing the potential of the Site to support such ecological features, particularly those given protection under European or UK wildlife legislation or which are considered to be of principal importance for the conservation of biodiversity. Where there are significant limitations to the assessment in respect of any ecological features then further ecological survey work is recommended.

3. Results

All relevant ecological data provided by the consultees was reviewed and the results from these investigations are summarised below. The original desk study data is available upon request. A summary of planning policy and legislation relating to the species highlighted by the desk study and field survey is presented in Appendix C.

3.1 Desk Study

3.1.1 Statutory Designated Sites

A search for designated sites was update in May 2025 following the new site boundary. MAGIC (Department for Environment, Food and Rural Affairs, 2025) and SiteLink (Nature Scot, 2025) identified four statutory designated sites within 5 km of the Site boundary. Details of their designations and features can be found in Table 3.

Table 3: Statutory designated sites within 5 km of the Site boundary.

Site Name and Designation	Proximity and Direction to Site	Designated Features
Outer Firth of Forth and St Andrews Bay Complex Special Protection Area (SPA)	4.7 km south-east of the main site boundary and 2.6km south of the access road	Designated due to its suitability to support a range of breeding and non-breeding populations of seabirds.
Easthaven Site of Special Scientific Interest (SSSI)	c. 2.6 km southwest from the access road	Designated for its suitability to support that vascular plant species greater yellow-rattle (*Rhinanthus angustifolius*)
Elliot Links SSSI	c. 4.8 km south-east from the main site boundary and 3.7km east of the access road	Designated for its sand dune and transitioning sand dunes habitats.
Dilty Moss SSSI	4.1 km northwest of the main site boundary	Designated for its raised bog habitat.

Given the distances and a lack of direct connectivity, no impact is predicted to the designated sites as a result of the development.

3.1.2 Non-Statutory Designated Sites

No non-statutory sites were located within 2 km of the Site.

3.1.3 Ancient Woodland Inventory

Four stands of ancient woodlands are located within 2 km of the Site from the ancient woodland inventory, the closest to the Site being “Guynd den” located on the northern boundary of the Site and is of plantation origin. All other stands are situated >1km from the site.

No tree felling or woodland removal is required for the works in this area therefore the ancient woodland will not be impacted.

Two small lower quality trees are required to be removed for the farm track alignment leading into the site. The trees in question are small in both height and canopy spread, having been planted along the existing track within the last ten years.

3.1.4 Protected and notable species

An initial data search was complete on 18 December 2023 using NBN Atlas, and was updated in February 2025 (NBN Atlas, 2025). Records of protected and notable species are summarised in Table 4.

Details of sensitive species should be redacted prior to this report being made available to the public. The full datasets can be made available upon request.

Table 4: Protected and notable species within 2 km of the site boundary within the last 10 years.

Species	No. of Records	Most Recent Record	Proximity of Nearest Record to the Study area	Scottish Biodiversity List (SBL)	Legislation and Conservation Status
Mammals					
Eurasian Badger *Meles meles*	1	2016	**See Appendix C for Confidential Report**		PBA 1992
Eurasian red squirrel *Sciurus vulgaris*	6	2023	Within 2km	✓	WCA5, SBL
European otter *Lutra lutra*	1	2016	Within 2 km	✓	WCA5, SBL

Key
PBA- Protection of Badgers Act (as amended), 1992.
WCA5&6: Schedule 5&6 of the Wildlife and Countryside Act (as amended), 1981; Protected animals (other than birds).
SBL: Scottish Biodiversity List

3.2 Field Survey

3.2.1 Habitats

The full results of the Phase 1 survey and target notes (TNs) are presented in Figure 2. Habitats which are too small to be mapped have been mentioned within target notes which are presented in Appendix A. The main habitats recorded during the field survey include:

- J1.1 - Cultivated/disturbed land – arable;
- J5 - Hardstanding/sealed surface;
- G2 – Running water
- J2.1 - Hedgerow;
- J2.6 - Dry ditch

Table 5: Habitats found within the site boundary and their respective areas (ha).

Primary Habitat	UK Hab Code	Area (ha)	Total area %
Cultivated/disturbed land – Arable	J1.1	94,27	98.7
Hardstanding/sealed surface	J5	1.1	1.1
Scattered scrub	A2.2	0.08	0.2
Total		**95.45**	**100%**

3.2.2 Arable Fields

Arable fields made up the main body of the Site (Photo 1). These habitats were agriculturally managed and sprayed with fertilises leading to a poor species assemblage.

3.2.3 Scattered Scrub

An area of gorse *Ulex europaeus* dominate scattered scrub is located on the northern back of Rottenraw Burn (Photo 2).

3.2.4 Hedgerow

Areas of boundary hedgerows were noted throughout the Site (Photo 3), these predominately consisted of hawthorn *Crataegus monogyna*, bramble *Rubus fruticosus* ivy *Hedera helix*, dog rose *Rosa canina*, hedge bindweed *Calystegia sepium*, and ground flora consisted of cuckoo pint *Arum maculatum*, spear thistle *Cirsium vulgare*, broad leaf dock *Rumex obstusifolius*, cleavers *Gallium aparine* and common nettle *Urtica dioica*.

3.2.5 Running Water

Rottenraw Burn is channelled directly below the new access road. It is a small waterbody with predominately flat banks (Photo 4).

3.2.6 Ditches

Field ditches and drains were recorded across the Site (Photo 5), bordering field edge. Ditches were consistently species poor with the most abundantly recorded plants being nettles, cleavers, and angelica *Angelic sylvestris*. Species such as meadowsweet *Filipendula ulmaria,* soft rush *Juncus effusus*, rosebay willowherb *Chamaenerion angustifolium* and foxglove *Digitalis purpurea* were frequently found in and around ditches, where vegetation was present.

3.2.7 Hardstanding/sealed surface

An existing single-track road (Bonnyton Road) will be utilised for access to the site.

3.3 Protected and Notable Species

3.3.1 Great Crested Newt and Common Amphibians

The pond south of the site (Photo 6, TN 14) provided poor suitability due to its large population of fowl and lack of riparian vegetation. Due to the lack of records, geographical location and sub optimal habitat present to support GCN and common amphibian.

3.3.2 Otter

There was an otter spraint noted (TN 4) during the field survey along a small watercourse running >1km east of the access road boundary.

The Elliot waters located to the north of the main site provide suitable foraging and commuting habitat due to its connectivity between suitable aquatic and terrestrial habitat. Given the additional cover of the Guynd woodland, it is additionally possible the area may be suitable for potential holts.

3.3.3 Bats

No evidence of bats was noted at the time of the field survey. No buildings or trees with potential roost features (PRFs) were recorded within the site boundary. One mature tree located approximately 900m from the access

road boundary was assessed as having low bat roost potential with features considered suitable to support roosting bats; namely gaps underneath the bark, dead wood, ivy cover and holes (TN 6).

The arable land and minor hedgerows located within the site boundary offer low opportunities for commuting and foraging bat. The Guynd and Elliot Water to the north of the site offer high potential for commuting and foraging bat.

3.3.4 Red Squirrel

No evidence of red squirrel was noted during the field survey. The woodland adjacent to the site to the north and east provides potential for dray building, foraging and commuting.

3.3.5 Pine Marten

A potential pine marten scat was noted during the field survey (TN 3) approximately 1.6km from the access road boundary. The surrounding habitat adjacent to the site provides moderate foraging opportunities through the scrub and hedgerow margins. The arable habitat at site provides negligible foraging and den building habitat.

3.3.6 Water Vole

No evidence of water vole (burrows, latrines or feeding signs) was found within the survey area. The dry ditches at site lacked sufficient riparian vegetation for both foraging and vegetation cover.

Due the lack of records, lack of evidence and sub optimal habitat, water vole has been scoped out of any further assessment.

3.3.7 Badger

See Appendix D for Confidential Report.

3.3.8 Reptiles

No evidence was noted at the time of the field survey; however, various reptile features were noted and have been highlighted in the target notes 1, 7, 8, 9, 11, and 12. The features include rock piles, stone walls, and fly tipped materials.

Reptiles prefer a mosaic of habitats with vegetation cover for foraging, open areas for basking and hibernacula (e.g. drystone walls, piles of vegetation or stones). The arable grassland habitat within the main body of the site provides poor suitability for reptiles.

3.3.9 Birds

Various old corvid nests were noted to the northeast boundary (TN 13), an owl pellet (TN2) and numerous common bird species (TN5) were observed at site during the field survey. Hedgerow margins within the site provide suitable nesting habitat for a range of bird species common to the geographical area.

The arable land had just recently been ploughed at the time of the field survey; however, if reseeded would provide suitable nesting habitat for a range of ground nesting birds such as skylark (*Alauda arvensis*), lap wing (*Vanellus vanellus*), and mallards (*Anas platyrhynchos*) to name a few.

3.3.10 Invertebrates

No invertebrates were recorded during the field survey. The hedgerows provide suitable foraging habitat for a wide assemblage of common invertebrate; however, due to the extensive management and poor plant diversity at the site, it is unlikely that any rare or protected species are present.

3.4 Importance of Ecological Features

In accordance with the CIEEM Guidelines and based on the above baseline information, each ecological feature recorded within the study area is considered to have the following importance (Table 6):

Table 6: Importance of Ecological Features.

Feature	Importance	Rationale
Outer Firth of Forth and St Andrews Bay Complex SPA	International Importance	Designated for its suitability to support breeding and non-breeding seabirds.
Easthaven SSSI	National Importance	Designated for its suitability to support the vascular plant.
Elliot Links SSSI	National Importance	Designated for its sand dune and transitioning sand dune habitats.
Dilty Moss SSSI	National Importance	Designated for its raised bog habitats.
Coniferous Plantation woodland	Local Value	Young coniferous plantation woodland located in the centre of site. Provides suitable nesting habitat for a range of birds common to the geographical area.
Hedgerows	Local Value	Native hedgerows of varying condition offering foraging opportunities for invertebrates, small mammals and birds as well as a suitable nesting habitat, protective cover from predators and a wildlife corridor for small mammals.
Mixed scrub	Site value	Native mixed scrub offering cover and foraging opportunities for invertebrates, small mammals and birds as well as a suitable nesting habitat.
Red Squirrel	Local Value	The habitats surrounding site provides optimal drey and foraging habitats, so there is the potential for red squirrel to commute through site.
Reptile	Local Value	The woodland, scrub, hedgerow margins and various potential features throughout site are suitable to support basking and resting reptiles.
Breeding birds	Local Value	The woodland, scrub, arable fields and hedgerow margins at site provide suitable nesting and foraging habitat for a range of bird species.
Badger	Likely Local value - further mitigation recommended	Badger setts noted within the site boundary. Badgers prefer a habitat that is a mix of woodland and open country; habitats within the site and wider landscape are considered suitable for foraging badger.
Otter	Local value – further mitigation recommended	The Elliot waters provides suitable holt, resting and foraging habitat for otters, and the habitats in the wider landscape are considered suitable for otter.

4. Discussion & Recommendations

4.1 Designated Sites

Four statutory designated sites were identified within 5 km of the site boundary. The closest site is Easthaven SSSI, situated approximately 2.6km south-west from the access road boundary. All other sites are located at least 4km from the main site boundary.

As the nature of the works will remain centralised within the red line boundary, with no hydrological link, no adverse impact is predicted to any of the designated sites.

4.2 Habitats

The arable grassland found on site have been improved through the application of fertilisers and grazing which has impacted the diversity of plant species present. All grasslands recorded within the site are species-poor and of little ecological value and do not present a significant limitation to the Proposed Development.

The ditches on the site do not have a diverse assemblage of plants species present; therefore, are of low ecological value to foraging mammals. They do, however, have some ecological value as commuting corridors for small mammals commuting through the site to more suitable habitats outside of the site such as the broadleaved woodlands habitats and the Elliot Waters.

Agricultural land will be lost as a result of the construction phase. It is anticipated that new buffer and hedgerow planting will be undertaken post-construction phase, as well as implementing a “one-cut” grass maintenance schedule in order to encourage the growth of grassland species. The new planted vegetation couple with the longer grassland may increase opportunities for bird cover and nesting opportunities. New studies by the RSPB and the University of Cambridge have shown that when solar farms are managed with biodiversity in mind, that bird species richness and diversity is higher than when compared to standard arable land (Coping et al, 2025).

All areas of woodland found adjacent to the site are potentially of value for a range of wildlife, including nesting birds, bats, mammals and invertebrates. The “Guynd Den” ancient woodland is associated with the woodland located directly adjacent to the northern site boundary. No tree felling or woodland clearing is required for the works in this area, and thus the ancient woodland will not be impacted by the development.

4.3 Protected and Notable Species

4.3.1 Breeding Birds

Woodland bird species are considered likely to nest within the areas of hedgerow margins found throughout the site, and woodland found adjacent to the site. Minimal vegetation removal should be implemented in order to avoid adverse impacts on breeding birds and their young.

It is recommended that any vegetation works within these areas are scheduled outside of breeding bird season (March – August inclusive) to prevent disturbance to nesting birds. If this is not possible, all vegetation to be removed should be checked for nesting birds by an ECoW ahead of any vegetation clearance works. Where appropriate, exclusion zones, as determined by the ECoW, shall be implemented if nests are found.

At the time of the survey the field had been freshly ploughed and prepped for reseeding, which may provide suitable habitat for ground nesting birds. For example, lapwing prefer a short vegetation sward for nesting; ploughing and the subsequent rapid regrowth of the grass within this field may deter lapwing but they may nest in this area whilst the grass height is low. It is recommended that works are scheduled outside of breeding bird

season (March – August inclusive) to prevent disturbance to potential ground-nesting lapwing. If not possible, all areas should be checked for nesting birds by an ECoW ahead of any vegetation clearance works and appropriate exclusion zones implemented if nests are found.

4.3.2 Badger

See Appendix C Confidential Report.

4.3.3 Otter

The Elliot waters north of the site provides suitable holt, resting and foraging habitat for otters and has connectivity to optimal terrestrial habitats.

The proposed works has the potential to impact otter through disturbance during the construction phase.

Due to the evidence of recent activity (TN4) at site and suitability of the Elliot waters and wider habitats to support otter, a targeted otter survey should be carried prior to works commence. Should this find otter holts within 200m of the site boundary a NatureScot otter licence may be required.

An otter survey, as well as additional monitoring was undertaken in 2024. Full results can be found in "Arthian_313625 Bonnyknox Solar Farm PPSR 2.1" and "Arthian_313625 Bonnyknox Solar Farm Otter Monitoring Memorandum Report 2.1". No impact on otter is predicted.

4.3.4 Reptiles

The hedgerows within the site as well as scrub, stone walls and woodland found in the wider area provides suitable habitat for reptiles. There was various potential reptile features noted throughout the wider area and thus commuting reptile could be found within the site boundary.

Should the works include the removal of these features or vegetation removal within the habitats mentioned above, they should be carried out under the provided "Arthian_313625 Bonnyknox Reptile Precaution Method of Working", which includes mitigation on how to remove any adverse impacts on reptiles which may be found on site.

4.3.5 Red Squirrel and other notable small mammals

The habitats encompassing the Site provide optimal foraging and resting habitat for red squirrel and small mammals and may use the site to commute to more suitable habitats. Although these habitats are out with the Site boundary there is potential to cause disturbance to commuting red squirrel and small mammals during the construction phase. The general mitigation best practices as listed in Section 4.4 should be adhered to prevent disturbance to small mammal species during the construction works.

4.4 Beneficial Impacts

As mentioned previously in section 4.2, solar farms which are managed with biodiversity in mind can see improvements in species diversity. New hedgerow and tree planting will allow for new nesting opportunities for birds, as well as providing new corridors and shelter for other wildlife such as bats and small mammals.

Additionally, it is anticipated that new grassland and meadow seed mixtures will be planted around the solar panels. This will improve the species diversity of plants existing within the current arable field and likely improve invertebrate species diversity.

Small structures such as bee/invertebrate hotels and hedgehog houses should also be considered upon completion to continue to enhance the area for local wildlife.

4.5 Good Practice Mitigation

The following good practice measures should be adhered to avoid and mitigate construction-phase impacts on individual animals on site:

- Toolbox talks provided to site personnel should cover the potential presence of otter, badgers, red squirrel and breeding birds;
- Access ramps (plank of roughened wood) to be installed each night within any open trench or pit to allow any animals which may accidently fall into the excavation a means of escape;
- Daily checks of any excavations to be made prior to commencing work to ensure that no mammals have become trapped in the excavations. Should a trapped animal be found, a suitably experienced ecologist should be immediately contacted for advice;
- Any pipes with a diameter of greater than 200 mm which are stored or installed on site are to be covered or capped at night to reduce the risk of animals becoming trapped inside; and
- Any animals disturbed by site works should be allowed to disperse of their own accord and should not be caught or handled.

Appendices

Appendix A: Figures

Figures

Figure No.	Title
Figure 1	Site Boundary
Figure 2	Survey Area
Figure 3	Preliminary Ecological Appraisal Results

Target Notes

Target Note	Description
1	Potential reptile hibernacula
2	Owl pellet noted
3	Potential pine marten scat
4	Otter spraint
5	Crowding birds; buzzards, crows and common gulls
6	Low bat roost potential tree
7	Corrugated steel sheet from collapsed pen, potential reptile or small mammal refugia or basking spot
8	Pile of boulders and rocks, potential reptile refugia or basking spot
9	Fly tip, with old wooden shed and other disused timber, potential refugia for small mammals or reptiles
10	Deer scat
11	Potential reptile feature
12	Rock pile potential reptile basking spot and refugia
13	Old corvid nests potentially an old rookery
14	Pond south of site with poor suitability of GCN

Basemap sourced through Quick Map Services by NextGIS. Bing Satellite Imagery © Microsoft 2025.

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Figure 1: Site Boundary

Renewable Energy Systems Ltd	Bonnyknox Solar Farm

Key:

- 2025 Site Boundary
- 2023 Site Boundary

0 250 500 m

N

Project Number: 313625	Scale at A3: 1:13,000
Drawn By: SA	
Reviewed By: AT	Version: Final
Projection: OSGB 1936/British National Grid - EPSG 27700	Issue Date: 20/05/2025

Basemap sourced through Quick Map Services by NextGIS. Bing Satellite Imagery © Microsoft 2025.

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Figure 2: Survey Area

Renewable Energy Systems Ltd	Bonnyknox Solar Farm

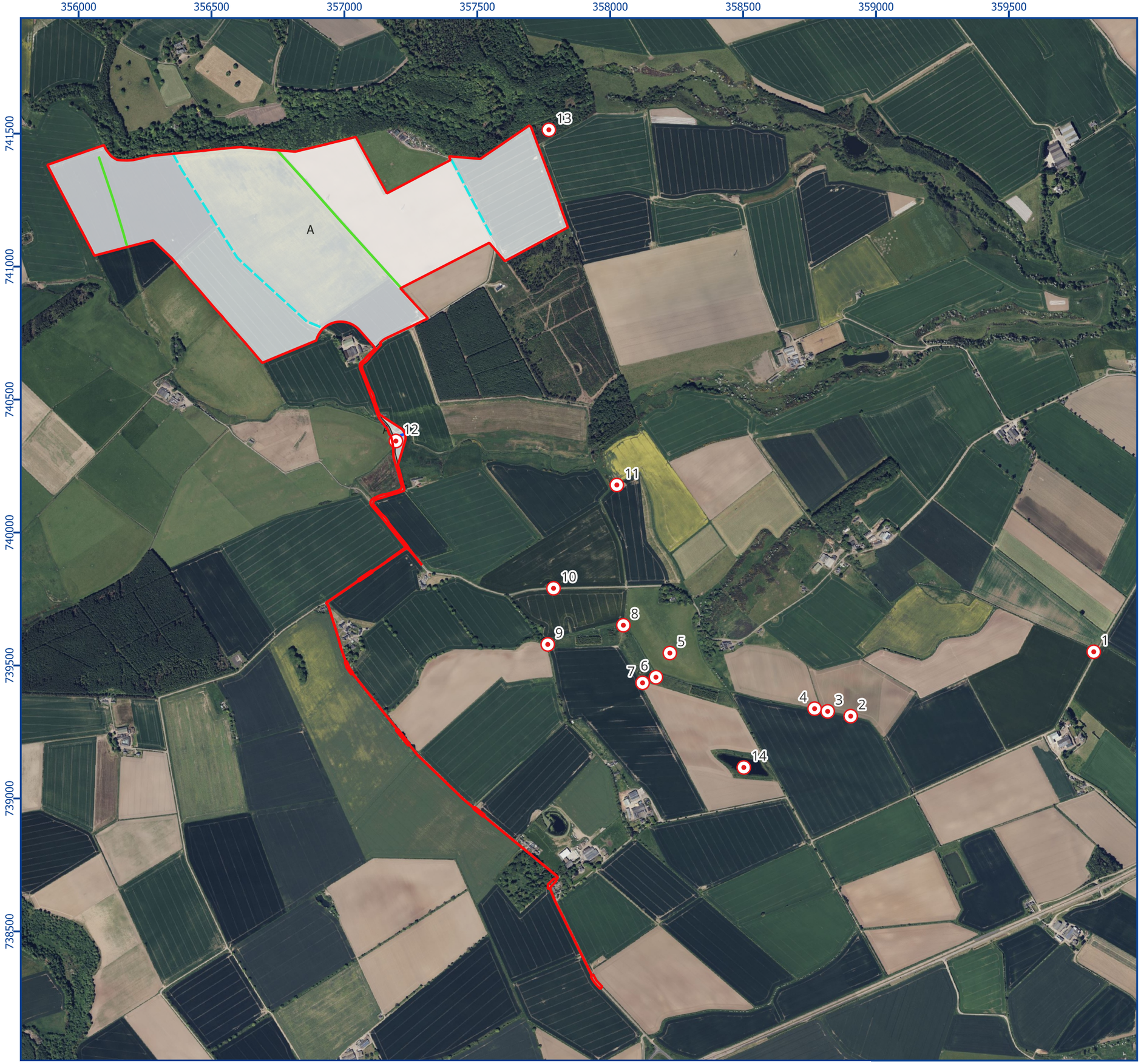
Key:

- 2025 Site Boundary
- Survey 100m buffer
- Survey 250m buffer
- Watercourses

0 250 500 m

N

Project Number: 313625	Scale at A3: 1:14,000
Drawn By: SA	
Reviewed By: AT	Version: Final
Projection: OSGB 1936/British National Grid - EPSG 27700	Issue Date: 20/05/2025



Basemap sourced through Quick Map Services by NextGIS. Bing Satellite Imagery © Microsoft 2025.

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Figure 3: Preliminary Ecological Appraisal Results

Renewable Energy Systems Ltd	Bonnyknox Solar Farm

Key:

- 2025 Site Boundary

Phase 1

- A — J1.1 - Cultivated/disturbed land - arable
- J5 - Sealed surface/Hardstanding
- G2 Standing Water
- J2.1 Intact hedge
- J2.6 Dry ditch
- Target Notes

0 250 500 m

N

Project Number: 313625	Scale at A3: 1:14,000
Drawn By: SA	
Reviewed By: AT	Version: Final
Projection: OSGB 1936/British National Grid - EPSG 27700	Issue Date: 20/05/2025

Appendix B: Photographs

Photograph ID	Description	Photograph
1	Arable land found throughout site	
2	Scrub on northern bank of Rottenraw Burn	

3	Hedgerow found throughout site	
4	Rottenraw Burn	
5	Ditches found throughout site	

6	Pond south of site	
7	Elliot Water north of the site boundary with scrub on the banks	

Appendix C: Overview of Relevant Planning Policy and Legislation

General Legislation

The following presents accounts present a summary of the legislation relevant to the site and proposals. It is recommended that the reader also refer to the original legislation for definitive interpretation.

The Wildlife and Countryside Act (WCA) 1981

The WCA, as amended, consolidates and amends pre-existing national wildlife legislation in order to implement the Bern Convention and the Birds Directive. It complements the Conservation (Natural Habitats) Regulations 2017 (as amended), offering protection to a wider range of species. The Act also provides for the designation and protection of national conservation sites of value for their floral, faunal or geological features, termed Sites of Special Scientific Interest (SSSIs).

Schedules of the act provide lists of protected species, both flora and fauna, and detail the possible offences that apply to these species. All relevant species-specific legislation is detailed later in this Appendix.

Wild Mammals Protection Act 1996

This Act offers protects a form of protection to all wild species of mammals, irrespective of other legislation, and focussed on animal welfare, rather than conservation.

Unless covered by one of the exceptions, a person is guilty of an offence if he mutilates, kicks, beats, nails or otherwise impales, stabs, burns, stones, crushes, drowns, drags, or asphyxiates any wild mammal with intent to inflict unnecessary suffering.

Its application is typically restricted to preventing deliberate harm to wildlife (in general) during construction works, etc.

Specific Legislation

Herpetofauna (reptiles and amphibians)

Widespread reptile species are protected under part of Section 9(1) of the Wildlife & Countryside Act 1981 (as amended) against:

- intentional killing and injuring (note the provision in Section 9(1) of Wildlife & Countryside Act 1981 prohibiting “taking” does not apply to reptiles).

Both reptiles (adder, grass snake, common lizard, and slow worm) and amphibians (common frog, common toad, smooth newt, palmate newt) are protected via part of Section 9(5) of the Wildlife & Countryside Act 1981 (as amended) against:

- selling, offering or exposing for sale, or having in possession or transporting for the purpose of sale, any live or dead wild animal or any part of, or anything derived from, such an animal; or
- publishing or causing to be published any advertisement likely to be understood as conveying buying or selling, or in or selling, or intending to buy or sell, any of those things.

Birds

The Wildlife and Countryside Act (WCA) 1981, as amended, protects all breeding birds in the UK with a few exceptions (i.e., sporting birds listed in Schedule 2 and for certain specified purposes under licence). The WCA makes it an offence to intentionally or recklessly:

- kill, injure or take a wild bird;
- take, damage, destroy or interfere with the nest of any wild bird whilst it is in use or being built (or at any time for a nest habitually used by any listed in Schedule A I);
- obstruct or prevent any wild bird from using its nest;
- take or destroy an egg of any wild bird;
- disturb any wild bird listed on Schedule 1 whilst it is building a nest or is in, on, or near a nest containing eggs or young, or whilst lekking; or
- disturb the dependent young of any wild bird listed on Schedule 1.

Recklessly in this context is to be understood as pursuing a course of action while consciously disregarding the fact that the action gives rise to a substantial and unjustifiable risk.

Schedule 1 is a list of rare breeding species that are specially protected in the UK. Two additional Schedules (Schedule 1A and A1) have been created to afford further protection to some species included on Schedule 1. This additional protection makes it an offence to intentionally or recklessly:

- at any time, damage, destroy or interfere with any nest habitually used by any wild bird included in Schedule A1; or
- at any time harass any wild bird included in Schedule 1A.

Forty-nine bird species are listed as SPI in England within Section 41 of the NERC Act 2006. This makes them capable of being material considerations in the planning process.

Badger

Badgers are protected in Britain by the Protection of Badgers Act 1992. The purpose of this Act is to protect the animals from deliberate cruelty and from the incidental effects of lawful activities which could cause them harm. Under this legislation it is an offence to:

- wilfully kill, injure or take a badger (or attempt to do so);
- cruelly ill-treat a badger;
- dig for a badger;
- intentionally or recklessly damage or destroy a badger sett, or obstruct access to it;
- cause a dog to enter a badger sett;
- disturb a badger when it is occupying a sett;
- have in their possession, or under their control, any dead badger or any part of, or anything derived from, a dead badger;
- use, for the purpose of killing or taking a badger, badger tongs or any firearm (see legislation for exceptions); sell a live badger or offers one for sale or has a live badger in their possession or under their control; or
- mark, or attaches any ring, tag or other marking device to, a badger (other than one which is lawfully in their possession by virtue of such a licence).

If any of the offences listed above resulted from a person being reckless, even if they had no intention, their action would still be considered an offence.

Otter

Otters are protected under sections 9 and 11 of the Wildlife and Countryside Act 1981 and also under the Habitats Regulations 2017, making then a European protected species. Under this legislation, it's an offence to:

- capture, kill, disturb or injure otters (on purpose or by not taking enough care);
- damage or destroy a breeding or resting place (deliberately or by not taking enough care);
- obstruct access to their resting or sheltering places (deliberately or by not taking enough care); or
- possess, sell, control or transport live or dead otters, or parts of otters.

Sites of Special Scientific Interest (SSSI)

SSSIs are nationally important sites in Scotland. They are highly protected to safeguard the range, quality and variety of habitats, species and geological features in all parts of Scotland. They are the cornerstones of conservation work, protecting the core of natural heritage.

Each SSSI has a list of activities that NatureScot think are likely to damage the site's special interest. Before you carry out, or allow someone else to carry out, activities on that list, you must notify NatureScot in writing and obtain our consent. You should include what you propose to do, and give details about where, when and how it will be carried out.

European sites - Natura 2000

The European Union have identified the most important sites for wildlife in Europe as the Natura 2000 sites. There are two types of Natura 2000 sites:

- Special Protection Areas - designated because of rare or migratory birds and their habitats
- Special Areas of Conservation - for a wide range of habitats and species other than birds

The Special Protection Areas (SPAs) in Scotland are areas that have been designated specifically to conserve wild birds that are listed as rare and vulnerable in the Birds Directive. They also include the sites in Wales that migratory birds use as stop-off points on their journeys across the planet. The Special Areas of Conservation (SACs) have been chosen to make a significant contribution to conserving habitats and wildlife species that live there, named in the EC Habitats Directive. Marine SACs are also being developed to protect marine habitats and species.

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