Annex A: Preliminary Ecological Appraisal Report

Binn Farm Solar & BESS

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SLR Project No.: 405.065788.00001

16 December 2025

Revision: 02

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
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02	16 December 2025	Euan MacRae	Clare Nisbet	Beth Hanlon

Basis of Report

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1.0 Introduction

Trio Power Limited, 'the Applicant', intends to apply for planning permission for the proposed installation of a solar photovoltaic (PV) array and Battery Energy Storage System (BESS), the 'Proposed Development', on land between Strathmiglo and Glenfarg, the 'Site'.

1.1 Site Description

The Site is located on land approximately 4 km north-west of Strathmiglo and 5 km north-east of Glenfarg at Glentarkie, Perth and Kinross, KY14 7RU. The Site is centred on British National Grid NO 18188 12158.The Site is adjacent to Binn Farm, and approximately 1 km south-east of Binn Eco Park. The Site includes an access track known as Millden Road which connects to the A912.

The Site consists mostly of grazing pasture with some arable land. There are no watercourses running through the Site. There is one stand of coniferous woodland adjacent to the northern Site boundary, but no trees within the Site. Millden Road borders arable fields, scrub, mixed woodland and urban habitats. There are four ponds lying within 250m of the Site to the north, east and west.

1.2 Details of the Proposed Development

The Proposed Development will consist of ground mounted solar PV modules with an export capacity of up to 30 MW, a Battery Energy Storage System (BESS) with an export capacity of up to 6 MW along with substations, associated electrical equipment, drainage, access, landscaping, underground cabling, fencing and other ancillary infrastructure. The BESS will store excess energy generated by the solar PV array and release it during periods of high demand or low generation.

1.3 Purpose of this Report

This report presents the findings of the Preliminary Ecological Appraisal (PEA). The report seeks to:

- establish baseline conditions and determine the importance of ecological features present (or those that could be present), as far as is possible;
- identify potential ecological constraints to the Proposed Development and make initial recommendations to avoid potentially significant effects on important ecological features, where possible;
- identify potential requirements for mitigation, where possible, including mitigation measures that will be required and those that may be required (depending on results of further surveys or final scheme design);
- establish any requirements for more detailed surveys; and
- identify opportunities for biodiversity enhancements as part of the project.

1.4 Evidence of Technical Competence and Experience

The PEA survey and reporting was undertaken by Euan MacRae, a Project Ecologist at SLR and Qualifying member of CIEEM with 3 years' ecological consultancy experience. During this time, Euan has undertaken baseline data collection for a wide variety of power sector and built environment proposed developments throughout Scotland, and completed associated reporting

The reporting was also undertaken by Anna Redpath, a Graduate Ecologist at SLR and Qualifying member of CIEEM with two years ecological consultancy experience. During this time, Anna has contributed to a number of reports for a several power sector and built environment proposed developments throughout Scotland.

A follow-up Site visit to complete survey coverage of a previously inaccessible area (see **Section 2.1.3 Limitations**), and collection of eDNA samples, was undertaken by Rowan Smith and Nera Cornell. Rowan is a Senior Ecologist at SLR with 3 years' ecological consultancy experience. Nera is a seasonal ecologist with 1 years' experience.

A final visit to complete survey coverage of the extended access track area (Millden Road) was undertaken by Kristie Watkin-Bourne and Kiera Bishop. Kristie is a Senior Ecologist at SLR with 8 years' ecological consultancy experience. Kiera is a Project Ecologist at SLR with 2 years' experience.

The reviewing was undertaken by undertaken by Callum Taylor, a Senior Ecologist at SLR and Qualifying member of CIEEM with 6 years' ecological consultancy experience. During this time, Callum has completed and reviewed a wide range of reports in varying sectors.

1.5 Relevant Legislation and Policy

Environmental legislation and policy relevant to the Proposed Development has been included in **0** of this report.

2.0 Methodology

2.1 Baseline Data Collection

2.1.1 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 statutory 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)).

Any Local Nature Reserves (LNRs), non-statutory ecological sites and ancient woodland within 2 km of the Site were also identified.

Protected, notable and invasive species data within 2 km of the Site (within the last 15 years) was obtained from Fife Nature Records Centre[1] (FNRC) on 10 April 2025.

Potential ecological constraints have been identified through a desk-based review of relevant online resources, as summarised in **Table 2-1**.

Table 2-1: Sources of Existing Ecological Data

Source	Baseline Information Provided
NatureScot Sitelink web-based application[2] and the Multi Agency Geographic Information for the Countryside (MAGIC) web-based mapping tool[3]	Statutory designated nature conservation sites within 10 km (non-avian) and 20 km (relating to ornithological interests) of the Site boundary

[1] The Fife Nature Records Centre covers Fife and Kinross and includes the Site.

[2] https://sitelink.nature.scot/map

[3] https://magic.defra.gov.uk/

Source	Baseline Information Provided
Spatial Hub online tool[4]	Non-statutory designated nature conservation sites within 2 km of the Site boundary
Fife Nature Records Centre	Records of protected and notable species and non-statutory sites within 2 km of the Site boundary
National Biodiversity Network Atlas[5]	Records of protected and notable species and non-statutory sites within 2 km of the Site boundary
Ancient Woodland Inventory (AWI) of Scotland[6]	Ancient[7] and long-established woodland of plantation origin[8] within 2 km of the Site boundary.
Aerial imagery (Google Earth[9] and Bing Maps[10])	Habitats and features of nature conservation interest both within and surrounding the Site.
Ordnance Survey 1st and 2nd edition mapping	Habitats and features of nature conservation interest both within and surrounding the Site.
Carbon and Peatland 2016 Map of Scotland[11]	Distribution of carbon-rich and peat soil across Scotland and associated values (soil class).

2.1.2 Field Surveys

The PEA walkover survey of the Site was conducted on 31 March 2025. The walkover survey included habitat classification of habitats within the Site, and a protected and notable species search within the Site and up to a 200 m buffer.

Follow-up surveys included completion of the Daytime Bat Walkover (DBW), Ground-level Tree Assessment (GLTA) and eDNA sampling for great crested newt (GCN) undertaken on 23 June 2025.

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.

2.1.2.1 UK Habitat Classification Survey

The survey recorded the habitats occurring within the Site using the UK Habitat Classification (UKHab) methodology[12]. The visible dominant flora was recorded, and an indicative condition assessment undertaken for each individual habitat block recorded. In accordance with UKHab methodology, secondary codes were assigned to each habitat to indicate notable features.

[4] https://data.spatialhub.scot/

[5] https://docs.nbnatlas.org/

[6] https://www.data.gov.uk/dataset/c2f57ed9-5601-4864-af5f-a6e73e977f54/ancient-woodland-inventory-scotland

[7] Ancient woodland is interpreted as semi-natural woodland that has been continuously wooded since year 1750 to present day.

[8] Long-established woodland refers to plantation woodland that has been present since year 1750. Many of these sites have developed semi-natural characteristics, and some may be as rich as ancient woodland.

[9] https://earth.google.com/web

[10] https://www.bing.com/maps/

[11] https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/

[12] https://www.ukhab.org

2.1.2.2 Protected Species Survey

Mammals

The overall habitat suitability for protected species was appraised across the Site, and up to a 200 m buffer where access allowed. Field signs of protected, notable and invasive species including badger, otter, water vole, pine marten and red squirrel were searched for and recorded under standard methodologies[13,14,15,16].

Great Crested Newt

A Habitat Suitability Assessment (HSI) for GCN was undertaken for waterbodies occurring within the Site and a 250 m buffer (as agreed with key consultees) using standard methodology[17].

Daytime Bat Walkover

A DBW was undertaken across the Site and up to a 200 m buffer where access allowed. 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[18] to determine suitability for bats and assess the requirement for further bat surveys. Habitat suitability was assessed as 'None', 'Negligible', 'Low', 'Moderate', or 'High'.

2.1.2.3 Ground-level Tree Assessment

GLTA was undertaken on trees identified as having potential to provide roosting opportunity during the DBW. The GLTA involved a detailed inspection of the trees from the ground to determine the presence of Potential Roost Features (PRFs), and any other evidence of bats, under standard guidance[18]. All potentially suitable trees within 30 m of proposed infrastructure, or 20 m of proposed fences and access tracks (as agreed) were inspected.

2.1.3 Limitations

2.1.3.1 Desk Study

Desk study data is unlikely to be exhaustive, especially in respect of species, and is intended mainly to set a context for the study. It is therefore possible that important habitats or protected species not identified during the data search do in fact occur within the vicinity of the Site. Interpretation of maps and aerial photography has been conducted in good faith, using recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the field Study Area.

[13] 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

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

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

[16] 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.

[17] Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). *Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)*. Herpetological Journal 10(4), 143-155.

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

2.1.3.2 Field Survey(s)

The survey being outside the main botanical season (April-September) means that some botanical species will not have been recorded. This is not considered to be a significant limitation in this case as the Site is unlikely to support protected botanical species or protected habitats due to its arable setting.

Binoculars were employed where access restrictions prevented the DBW and protected mammal search up to the full 200 m buffer during the initial walkover survey. Any habitats or trees deemed likely to support protected species or bats were surveyed during the return visit to the Site.

GLTA of trees along Millden Road was inhibited by the steep slope that these trees were situated along. As such, many PRFs could not be fully assessed from the ground, and the climbing of these trees was deemed unsafe.

3.0 Results

3.1 Desk Study

3.1.1 Statutory Designated Sites

The data search for statutory designated sites of nature conservation interest returned six sites of international importance (SAC, Ramsar), two sites of European importance (SPA) and 13 sites of national importance (SSSI, NNR) within 10 km of the Site, extended to 20 km for statutory designated sites with geese interest. Details of each are provided in **Table 3-1** and illustrated in **Figure 1**.

Table 3-1 Statutory Designated Sites with Nature Conservation Interest within 10 km (Extended to 20 km for Sites with Avian Interest)

Site Name	Designation	Relevant Qualifying / Notified Ecological Features	Approximate Distance and Direction from Site Boundary[19]
Turflundie Wood	SSSI	• Amphibian assemblage; and • Great crested newt *Triturus cristatus*	1.3km, north-east
	SAC	• Great crested newt	
Lacesston Muir and Glen Burn Gorge	SSSI	• Subalpine dry heath	4.6km, south
Lochmill Loch	SSSI	• Lowland dry heath; and • Mesotrophic loch	4.7km, north-east
River Tay	SAC	• Atlantic salmon *Salmo salar*; • Brook lamprey *Lampetra planeri*; • Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels; • Otter (*Lutra lutra*); • River lamprey (*Lampetra fluviatilis*); and • Sea lamprey (*Petromyzon marinus*)	6km, north
Firth of Tay and Eden Sanctuary	Ramsar SPA	• Bar-tailed godwit *Limosa lapponica*, non-breeding; • Common scoter *Melanitta nigra*, non-breeding; • Cormorant *Phalacrocorax carbo*, non-breeding; • Dunlin *Calidris alpina alpina*, non-breeding; • Eider *Somateria mollissima*, non-breeding; • Goldeneye *Bucephala clangula*, non-breeding • Goosander *Mergus merganser*, non-breeding; • Grey plover *Pluvialis squatarola*, non-breeding;	6km, north

[19] Measured from the nearest point “as the crow flies”.

Site Name	Designation	Relevant Qualifying / Notified Ecological Features	Approximate Distance and Direction from Site Boundary[19]
		• Greylag goose *Anser anser*, non-breeding; • Icelandic Black-tailed godwit *Limosa limosa islandica*, non-breeding; • Little tern *Sternula albifrons*, breeding; • Long-tailed duck *Clangula hyemalis*, non-breeding; • Marsh harrier *Circus aeruginosus*, breeding; • Oystercatcher *Haematopus ostralegus*, non-breeding; • Pink-footed goose *Anser brachyrhynchus*, non-breeding; • Red-breasted merganser *Mergus serrator*, non-breeding; • Redshank *Tringa totanus*, non-breeding; • Sanderling *Calidris alba*, non-breeding; • Shelduck *Tadorna tadorna*, non-breeding; • Velvet scoter *Melanitta fusca*, non-breeding; and • Waterfowl assemblage, non-breeding	
	SAC	• Estuaries; • Harbour seal (*Phoca vitulina*); • Intertidal mudflats and sandflats; • Subtidal sandbanks	
Inner Tay Estuary	SSSI	• Bearded tit *Panurus biarmicus*, breeding; • Breeding bird assemblage; • Cormorant, non-breeding; • Goldeneye, non-breeding; • Greylag goose, non-breeding; • Marsh harrier, breeding; • Pink-footed goose, non-breeding; • Saltmarsh; • Transition saltmarsh; and	6km, north

Site Name	Designation	Relevant Qualifying / Notified Ecological Features	Approximate Distance and Direction from Site Boundary[19]
		• Water rail *Rallus aquaticus*, breeding	
Pitkeathly Mires	SSSI	• Basin fen	6.7km, north-west
	SAC	• Slender green feather-moss *Hamatocaulis vernicosus*; and • Very wet mires often identified by an unstable 'quaking' surface	
Ballo and Harperleas Reservoirs	SSSI	• Mesotrophic loch; and • Whooper swan *Cygnus cygnus*, non-breeding	6.9km, south-east
Craigmead Meadows	SSSI	• Subalpine calcareous grassland	7.4km, south-east
Black Loch (Abdie)	SSSI	• Mesotrophic loch; and • Open water transition fen	8km, north-east
Loch Leven	SPA	• Cormorant, non-breeding; • Gadwall *Anas strepera*, non-breeding; • Goldeneye, non-breeding; • Pink-footed goose, non-breeding; • Pochard *Aythya ferina*, non-breeding; • Shoveler A*nas clypeata*, non-breeding; • Teal *Anas crecca*, non-breeding; • Tufted duck *Aythya fuligula*, non-breeding; • Waterfowl assemblage, non-breeding; and • Whooper swan, non-breeding	8.3km, south
	Ramsar		
	SSSI	As above plus: • Beetle assemblage; • Breeding bird assemblage; • Eutrophic loch; • Hydromorphological mire range; and • Vascular plant assemblage	

Site Name	Designation	Relevant Qualifying / Notified Ecological Features	Approximate Distance and Direction from Site Boundary[19]
	NNR		
Lindores Loch	SSSI	• Breeding bird assemblage; • Mesotrophic loch; and • Open water transition fen	8.5km, north-east
Holl Meadows	SSSI	• Lowland neutral grassland	8.9km, south-east
Dunbog Bog	SSSI	• Basin fen	10km, north-east

3.1.2 Non-statutory Designated Sites

There are no non-statutory designated sites of ecological interest within 2 km of the Site.

3.1.3 Other Sites of Nature Conservation Interest

The AWI identified ten distinct areas of ancient woodland within 2 km of the Site, as shown on **Figure 2** and described in **Table 3-2**. No ancient woodland occurred within the Site boundary.

Table 3-2: Ancient Woodland within 2 km of the Site

Wood Name	AWI ID	Area (ha)	Antiquity	Approximate distance and direction from Site Boundary
Unnamed	4930	3.62	Long-established (of plantation origin)	0.5km, south-west
Glen Wood	11308	36.54	Long-established (of plantation origin)	0.5km, north-east
Unnamed	5031	3.8	Long-established (of plantation origin)	1.0km, south-east
Unnamed	5027	1.86	Long-established (of plantation origin)	1.3km, south-east
Sawmill/ Tuflundie Wood	11771	123.28	Long-established (of plantation origin)	1.4km, north-east
Willandale Plantation	4890	6.13	Long-established (of plantation origin)	1.5km, south-east
Unnamed	25550	81.99	Long-established (of plantation origin)	1.6km, north-west
Unnamed	4885	3.9	Long-established (of plantation origin)	1.7km, south-east
Unnamed	11334	3.91	Long-established (of plantation origin)	1.8km, north-west
Unnamed	25554	12.07	Ancient (of semi-natural origin)	1.8km, north-west
Unnamed	4825	4.97	Long-established (of plantation origin)	1.9km, south-east

3.1.4 Carbon and Peatland Map

Review of the Carbon and Peatland 2016 Map of Scotland indicates that the entirety of the Site occurs on non-peaty mineral soils.

3.2 Field Survey

3.2.1 Habitats

The habitats recorded during the field survey was shown on **Figure 3** and detailed below. Secondary habitat codes as shown on **Figure 3** are provided in brackets throughout the habitat descriptions. Target notes collected during the field survey are shown in **Figure 3** and detailed in **Annex C, Table C-1.**

3.2.1.1 Modified grassland (g4)

Three large pastural fields of grassland that were sheep grazed (secondary habitat code 102), nutrient enriched, and species poor comprised the majority of the Site (**Photograph 3.5.1-1**). The ground flora was very low due to grazing and the time of survey, with patches of exposed and turned over earth. Visible was dominant white clover *Trifolium repens* and annual meadow grass *Poa annua* with plantain *Plantago sp*., thistle *Cirsium sp.*, and dock *Rumex sp*. occasional. Fewer than five species occurred per m^2. Scattered gorse *Ulex europaeus* scrub (10) occurs frequently across these grasslands, most notably along field boundaries.

Verges of modified grassland lay along the borders of the Site's arable fields (**Photograph 3.5.1-2**). These grasslands were restricted from grazers by fencing and resultantly had a higher sward with more species visible. In addition to white clover, annual meadow grass, plantain, thistle and dock, were occasional elder *Sambucus nigra*, cock's-*foot Dactylis glomerata*, stinging nettle *Urtica dioica*, and bent grass *Agrostis sp*. Scattered soft rushes *Juncus effusus* (14) were frequent where the ground was wetter and scattered bracken (12) on slopes to the south-west. Species density was poor along these verges with fewer than five species per m^2 regularly occurring.

Modified grassland associated with a golf course (529) lying along Millden Road was dominated by perennial ryegrass *Lolium perenne* (**Photograph 3.5.1-3**). No other species were identified within the sward.

Photograph 3.2.1-1: Large pastural field of modified grassland

Photograph 3.2.1-2: Modified grassland verge with scattered gorse and elder

Photograph 3.2.1-3: Golf course along Millden Road

3.2.2 Other neutral grassland (g3c)

Strips of other neutral grassland occurred along the verge (801) of Millden Road (**Photograph 3.5.2-1**). Common species here were perennial ryegrass, mayweed *Matricaria spp.*, thistle, dock (curly and broadleaved), cleavers *Galium aparine*, opium poppy *Papaver somniferum*, nettles and the invasive non-native (524) rhododendron *Rhododendron ponticum*. Scattered scrub (10) and scattered trees (32) were occasional.

Grassland close to the A912 was unmanaged (521) with tall forbs (16) including hogweed *Heracleum sp.* (**Photograph 3.5.2-2**). False oat grass *Arrhenatherum elatius* was dominant here.

Photograph 3.2.2-1: Other neutral grassland verge along Millden Road.

Photograph 3.2.2-2: Other neutral grassland close to the A912.

3.2.3 Bracken (g1c)

Two areas dominated by bracken with scattered trees (32) occurred along the western extent of Millden Road (**Photograph 3.5.3-1**).

Photograph 3.2.3-1: Bracken with scattered trees along the side of Millden Road

3.2.4 Gorse scrub (h3e)

Gorse scrub was scattered across the Site's pastures (**Photograph 3.5.4-1**). One area of gorse scrub within the north of the Site contained scattered elder trees (32).

Photograph 3.2.4-1: A large, single stand of gorse scrub within a pastural field

3.2.5 Mixed scrub (h3h)

Mixed scrub occurred frequently along the access track and Millden Road.

Scrub bordering the plantation woodland north of the Site was dominated by gorse with other woody species including broom *Cytisus scoparius*, elder and brambles *Rubus sp.*, also with willowherbs (**Photograph 3.5.5-1**). Scattered trees (32) here included ash *Fraxinus sp.* and larch *Larix sp.*

Scrub occurring on scattered false oat grass (532) around the farm buildings in the north of the Site. It consisted of the woody species brambles, gorse, broom and elder. Scattered tall forbs (16) including hogweed and willowherbs were also present as well as scattered trees (32) including sycamore *Acer sp.* and birch *Betula sp.*

Additional stands of mixed scrub occurred along Millden Road (**Photograph 3.5.5-2**). Woody species included gorse, broom and brambles, and the invasive non-native (524) rhododendron in the south. Underlying vegetation included scattered grasses (532) includeing perennial ryegrass, sweet vernal grass *Anthoxanthum odoratum*, yorkshire fog *Holcus lanatus*, annual meadow grass and bent *Agrostis sp.* Also present were nettles, meadow foxtail *Alopecurus pratensis*, hogweed and bird's foot trefoil *Lotus corniculatus*.

Photograph 3.2.5-1: Mixed scrub bordering woodland in the north of the Site

Photograph 3.2.5-2: Mixed scrub along the south of Millden Road

3.2.6 Non-native and ornamental hedgerow (h2b)

A beech *Fagus sp.* and cherry laurel *Prunus laurocerasus* hedgerow under active management (516) occurred along the top corner of Millden Road, associated with the private residence.

3.2.7 Arable and horticulture (c1)

Two bare, arable fields were present within the Site. Both fields had been recently ploughed at time of survey (600) (**Photograph 3.5.7-1**).

Four additional arable fields partially occurred within the Site boundary along Millden Road. Three of these were planted with cereal crops (c1c) at the time of the follow-up survey.

Photograph 3.2.7-1: A recently ploughed arable field

3.2.8 Other broadleaved woodland (w1g)

Four distinct stands of other broadleaved woodland occurred along Millden Road.

Where the road joins the A912, a small stand of ash, with scattered scrub (10) of hawthorn *Crataegus* and gorse was present.

Along the northern side of the road, close to the A912 junction, a stand of mature ash with beech and scattered hawthorn scrub (10) was recorded (**Photograph 3.5.8-1**). This woodland acted as a watercourse buffer strip (319). On the other side of the road at this location, lay a stand of broadleaved trees atop a steep verge identified as either lime *Tilia sp*. or elm *Ulmus sp*.

At the corner halfway along the road lay a stand of sycamore, larch, ash, beech and Sitka spruce *Picea sitchensis*. The invasive non-native (524) rhododendron was also identified here.

Photograph 3.2.8-1: Mature ash with beech and hawthorn along Millden Road

3.2.9 Other woodland, mixed (w1h)

A garden woodland comprising sycamore, oak *Quercus sp*., broom, cherry *Prunus sp*., and sitka spruce occurred along Millden Road.

3.2.10 Other woodland, mixed - mainly broadleaved (w1h5)

Mixed semi-mature woodland consisting primarily of the broadleaved species sycamore, cherry, ash, hawthorn, hazel *Corylus sp*., oak and beech occurred close to the farm buildings along Millden Road (**Photograph 3.5.10-1**).

Photograph 3.2.10-1: mixed semi-mature broadleaved woodland close to farm buildings along Millden Road.

3.2.11 Other woodland – mixed – mainly conifer (w1h6)

Mixed woodland consisting primarily of the coniferous species Scots pine *Pinus sylvestris* and *Leylandii* occurred in a garden (827) bordering Millden Road (**Photograph 3.5.11-1**). Also present was birch, bamboo *Bambusa sp.* and the invasive non-native (524) snowberry *Symphoricarpos sp*.

Photograph 3.2.11-1: Coniferous garden woodland bordering Millden Road.

3.2.12 Buildings (u1b5)

Farm buildings occurred at the northern end of Millden Road.

3.2.13 Suburban mosaic of developed and natural surface (u1d)

A private residence with driveway and gardens occurred at the northern corner of Millden Road.

3.2.14 Built linear features (u1e)

Fencing (612) was present along most field boundaries, with a drystone wall (114) also running north to south between the two largest pastural fields (**Photograph 3.5.14-1**).

An unvegetated, unsealed surface track (839) lay partially within the Site along the western boundary (**Photograph 3.5.14-2**).

Photograph 3.2.14-1: The drystone wall and fence (u1e)

Photograph 3.2.14-2: The unvegetated, unsealed surface track (u1e)

3.3 Protected Species

The FNRC data returned numerous records of protected and notable species occurring within 2 km of the Site within the last 15 years. These records have been included in full in **Annex B** and summarised in the sections below.

3.3.1 Amphibians and Reptiles

The FNRC data search returned one record of great crested newt *Triturus cristatus* within 2km of the Site within the last 15 years. GCN is a European protected species under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland).

Records of three other amphibian species were returned which are locally notable via their inclusion on the Fife Local Biodiversity Action Plan (LBAP).

The FNRC data search returned no records of protected or notable reptiles within 2 km of the Site within the last 15 years. The Site itself contained no watercourses or standing water suitable for supporting amphibians at the time of survey The Site's grassland and scrub habitats were well-drained and unlikely to provide long-term habitat suitability for

amphibians. Four ponds lay within 250 m of the Site boundary with no major barriers to dispersal between these waterbodies and the Site. A ditch that was mostly dry at the time of survey is likely to provide periodic connectivity between the Site and two ponds lying to the west (**Target Note 2, TN 3**). While the Site's overall suitability for amphibians is low, they are likely to occur to a limited extent within the Site.

Gorse scrub within the Site may provide suitable habitat for reptiles. In addition, the drystone wall crossing the Site and the hard standing of unvegetated surfaces of the track and farm standings could potentially have value for basking or resting reptiles. Overall, the Site has moderate habitat suitability for reptiles.

No reptiles or amphibians were observed during the field survey.

3.3.1.1 Great Crested Newt HSI and eDNA

GCN HSI and eDNA sampling was conducted for four ponds located within 250 m of the Site (**TNs 1 – 4**). Pond 3 achieved a suitability score of 'Good', Ponds 1 and 2 had suitability scores of 'Average', and Pond 4 had a suitability score of 'Poor'. **All ponds tested negative for GCN eDNA**. A breakdown of the HSI assessment is presented in **Table 3-3**.

Table 3-3: GCN HSI and eDNA results

Suitability Index No.	Suitability Index Description	Pond			
		Pond 1	Pond 2	Pond 3	Pond 4
		NO 17133 12043	NO 17272 12115	NO 17703 12516	NO 18445 12437
		SI Value	SI Value	SI Value	SI Value
1	Geographic location	0.5	0.5	0.5	0.5
2	Pond area	-1	1	0.95	1
3	Pond permanence	0.9	1	0.9	1
4	Water quality	0.67	0.67	0.67	0.01
5	Shade	1	1	0.8	1
6	Waterfowl effect	0.67	0.67	1	0.01
7	Fish presence	0.67	0.67	1	1
8	Pond density	0.67	0.67	0.85	1
9	Terrestrial habitat	0.33	0.33	0.67	0.01
10	Macrophyte cover	0.3	0.6	0.35	0.3
HSI Score		0.62	0.68	0.73	0.21
Pond suitability		Average	Average	Good	Poor
eDNA result		**Negative**	**Negative**	**Negative**	**Negative**

A drainage ditch at the edge of a grazed field to the west of the Site was mostly dry at time of survey. One section had stagnant, standing water and was deemed likely unsuitable for GCN (**TN 5**). No further HSI was undertaken for this waterbody.

3.3.2 Mammals

3.3.2.1 Bats

The FNRC data search returned one record of a bat within the last 15 years. This record was not identified to species level however all bats are listed on Schedule 2 of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland).

Daytime Bat Walkover

Overall, the Site had a Moderate suitability for foraging and commuting bats, based on the criteria outlined by Bat Conservation Trust (BCT) guidelines[18].The northern and eastern extent of the Site was mostly continuous grassland with frequent gorse which could be used by bats for foraging. Linear features across the Site including lines of gorse and walls are likely to facilitate commuting. No woodland suitable for roosting lay within the Site.

The Site bordered larch plantation woodland to the north (**TN 6**). The woodland had significant windblow and occasional standing deadwood which could provide opportunities for roosting.

Stands of young, planted *Sorbus sp.* lay between arable fields to the southwest of the Site (**TN 7**). These trees were too young and low to be considered woodland under UKHab methodology and were deemed to be currently unsuitable for roosting bats. Also present on the slopes at this location were semi-mature ash and pine (**TN 8**). No features potentially suitable for roosting bats were noted.

Scattered mature broadleaved trees close to the Site's southern border had PRFs (**TN 9**).

The Site lay close to four ponds, to the north, east and west (**TNs 1- 4**), which are likely to be of foraging value for bats with a high density of flying invertebrates noted over three of the ponds during the HSI.

Ground-level Tree Assessment

The results of the GLTA have been described in Error! Reference source not found.**, Table C-2**Table **,** and are shown on **Figure 4**.

The GLTA of the scattered broadleaved trees bordering the Site to the south classified one ash (**Tree 1**) as having potential suitability for multiple bats (PRF-M). A second tree nearby (**Tree 2**) had no visible PRFs but was in full leaf at time of survey, potentially obscuring PRFs within the canopy.

Two trees with potential suitability for individual bats (PRF-I) were identified within larch plantation woodland bordering the Site to the north (**Trees 4 – 5**). An additional tree in this woodland was classified as Further Assessment Required (FAR) due to the height of the suspected feature (**Tree 3**).

A total of eight trees along Millden Road had PRFs (**Trees 6 – 13**). Due to access constraints (see **Section 2.1.3 Limitations**) preventing full inspection, these trees were classified as Further Assessment Required (FAR). They should be precautionarily assumed to be suitable for roosting bats.

3.3.2.2 Otter and Water Vole

The FNRC data search returned no records of otter or water vole *Arvicola terrestris* within 2 km of the Site within the last 15 years.

No watercourses occurred within the Site plus a 250 m buffer which had potential suitability for otter or water vole. The only watercourse noted during the survey was a mostly dry arable drainage ditch with unvegetated banks (**TN 5**).

3.3.2.3 Badger

The FNRC data search returned three records of badgers within 2 km of the Site within the last 15 years. Badgers are protected under the Protection of Badgers Act 1992.

No badger field signs were noted across the Site or a 100 m buffer.

Suitable habitat for badger foraging, commuting and sett building existed throughout the Site and local area. Gorse scrub occurred frequently across the Site with occasional elder, which can often be found alongside setts as a seasonal foraging resource (**TN 10**). Bordering the Site to the south-west were wooded slopes close to pasture and arable fields which is highly suitable habitat for sett building. Here, an individual burrow entrance of suitable dimensions for badger was noted, with no other field signs indicative of badger (**TN 11**). The tunnel appeared to be disused with vegetation growing in the entrance and spoil. A rabbit warren with large tunnel entrances was noted nearby (**TN 12**). However, these tunnels narrowed quickly and were unsuitable for use by badger.

A series of mammal paths and holes were noted along Millden Road but were not attributed to badger due to their small size (**TN 13**). The larch woodland to the north of the Site increases connectivity between the suitable arable, pasture and scrub foraging habitats of the Site and extensive woodland to the north-east where setts may occur. No major barriers to dispersal were identified with fences and dry-stone walls being easily traversable. The woodland itself had potential suitability for sett building, foraging and commuting, though no badger field signs were noted at the time of survey.

3.3.2.4 Other Mammals

The FNRC data search returned records of two other protected species of mammal: the pine marten, *Martes martes* and red squirrel, *Sciurus vulgaris*. Both species are fully protected under the WCA.

Squirrel feeding signs were noted across six separate locations within the larch plantation woodland bordering the Site to the north (**TN 14**). Four potential squirrel dreys were identified within coniferous trees in this woodland (**TN 15 – 18**).

The data search also returned records of brown hare *Lepus europaeus* and hedgehog *Erinaceus europaeus*, which are listed under the SBL.

3.3.3 Birds

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

- dunlin *Calidris alpina*;
- merlin *Falco columbarius*;
- osprey *Pandion haliaetus*; and
- white-tailed eagle *Haliaeetus albicilla*.

Plus, eight species of bird which are included within Schedule 1 of the Wildlife and Countryside Act 1981 (WCA) (as amended in Scotland):

- barn owl *Tyto alba*;
- crossbill *Loxia curvirostra*;
- fieldfare *Turdus pilaris*;
- greylag goose *Anser anser*;
- merlin;

- osprey;
- redwing *Turdus iliacus*; and
- white-tailed eagle.

Plus, several other birds of national and/or local importance that Red or Amber-listed, SBL priority species and/or LBAP priority species.

Incidental observations of kestrels *Falco tunnunculus*, buzzards *Buteo buteo* and lapwing *Vanellus vanellus* were observed over the Site (**TNs 20 – 22**) during the PEA surveys. A potential owl pellet was also identified outside the RLB, close to Millden Road (**TN 23**).

There is potential for lapwing and other wading birds to use the wetter areas of modified grassland on the Site for foraging. The grassland and woodland edge habitat on Site offer suitable foraging habitat for barn owl and kestrel and the mature trees on along Millden Road and bordering the Site to the north and south may provide nest sites. The barns at the western entrance to the Site may offer potential nesting habitat for these species, provided that levels of disturbance are relatively low. The woodland and lines of trees along Millden Road and bordering the Site also offer suitable nesting habitat for other birds. Birds pose a potential constraint to the Proposed Development.

3.3.4 Other Protected/notable Species

The FNRC data search returned records of 13 nationally important species of moth and one nationally important species of butterfly which are included on the Scottish Biodiversity List.

3.3.5 Invasive Non-native Species

Small, juvenile stands of the INNS rhododendron was identified growing along Millden Road in three locations (**TNs 24 – 26**). The INNS snowberry was also identified growing within a private garden along Mill Road.

4.0 Ecological Constraints and Opportunities

4.1 Designated Sites

The desk study identified a nature conservation site of international importance within 1.3 km of the Site. Turflundie Wood SAC/SSSI is designated for breeding GCN, the only known population in Perth and Kinross, and its breeding amphibian assemblage. Turflundie Wood is unlikely to have direct connectivity with the Site with barriers to commuting present such as roads and open farmland, and no clear hydrological connectivity.

Several other designated nature conservation sites were identified within 10 km of the Site. However, due to the distance from the Site (ranging from 4.6 km to 10 km), and a lack of hydrological connectivity, these are considered unlikely to be directly impacted by the Proposed Development. No habitat likely to be of value to any qualifying/notified feature of a designated site occurs within the Site, where it does not already occur in abundance throughout the local area. Therefore, it is considered unlikely that any qualifying or notified feature of a designated nature conservation site will be significantly impacted as a result of the Proposed Development.

4.2 Habitats

The main development area of the Site is wholly composed of farmland associated habitats including arable fields, grazed pasture and gorse scrub. No habitats occurring within the Site have been identified as priority farmland habitats within the Tayside LBAP. All habitats occurring within the Site are likely to be widespread throughout the local area. No notable

flora was identified during the UKHab survey. Habitat along the access track included mixed scrub, mixed woodland and neutral grassland composed of common and widespread species. The INNS rhododendron and snowberry occurred along the grassy verges of Millden Road.

4.3 Protected Species

4.3.1 Great Crested Newt

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) increases the probability of this protected species occurring within potential disturbance distance of the Proposed Development.

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.

4.3.2 Bats

The Site's habitats are likely to provide moderate value for foraging and commuting bats. The Site's open grassland habitats and scrub offer moderate value for foraging bats. The off-Site ponds provide additional foraging potential over open water, increasing the potential bat species diversity present within the Site and the wider area. Scrub and built linear features across the Site increase the potential for connectivity for bats between the Site and woodland habitat throughout the local area. In the absence of bat activity data confirming presence/likely absence, it should be assumed that the Site is regularly utilised by foraging and commuting bats.

One tree with PRFs suitable for multiple roosting bats was identified during the GLTA, occurring along the Site's southern boundary. Additional trees with PRFs were noted within the larch plantation woodland bordering the Site to the north and along Millden Road. Trees with roosting bats have the potential to be a constraint to the Proposed Development.

4.3.3 Otter and Water Vole

The Site contained no riparian habitats potentially suitable to support otter and water vole. No evidence of these species within the Site and 250 m buffer was identified by the desk study or field surveys. Therefore, otter and water vole are not considered a potential constraint to the Proposed Development.

4.3.4 Badger

Suitable habitat for badger exists across the Site. The Site's scrub is suitable for sett building, occurring close to seasonal foraging resources such as elder, pasture and arable fields.

A single potential sett entrance was identified within 100 m of the Site boundary. However, there was no evidence of use by badger at the time of survey and no other badger field signs noted throughout the Site and 100 m buffer.

Based on the outcomes of these surveys, badger is unlikely to be a constraint to the Proposed Development. However, as a mobile species, there is potential for badger setts to arise within areas of suitable habitat within the Site prior to the commencement of construction activities.

4.3.5 Other Mammals

Records of pine marten and red squirrel were returned by the desk study. Evidence of squirrel utilising habitat for foraging and resting was identified within woodland bordering the Site during the protected species surveys. The Site itself contains no woodland habitats likely to support either species. Therefore, pine marten and red squirrel are considered unlikely to be a potential constraint to the Proposed Development.

4.3.6 Breeding Birds

The Site contains habitats suitable for breeding birds, such as arable fields, grassland, and scrub. Birds have the potential to be a constraint to the Proposed Development.

Breeding bird surveys were recommended to gather detailed information about breeding bird use of the Site.

The full results of breeding bird surveys conducted across the Site over 2025 are presented within the Breeding Bird Surveys Report (SLR, 2025) (**Annex B** of **Appendix D: EclA**).

5.0 Conclusions and Recommendations

5.1 Protected Species

5.1.1 Great Crested Newt

GCN are considered likely absent from the Site following eDNA survey. No further surveys are required.

5.1.2 Bats

The GLTA identified the presence of trees with PRFs within the Site.

If works are required within the vicinity of trees that have PRFs, which may result in the disturbance of any bats present due to associated levels of noise, vibration and dust, then further survey is required.

The Proposed Development design shall be reviewed to determine if a 30 m no-disturbance buffer can be maintained between the trees and the construction works area. If buffers cannot be maintained, and there is therefore the potential for roosting bats to be impacted, then further assessment will be required. This may include aerial tree inspections, internal feature assessments and roost emergence/ re-entry surveys in accordance with BCT guidelines. A suitably qualified ecologist (SQE) /Ecological Clerk of Works (ECoW) will need to be present on-Site during any clearance/ construction activities in order to perform pre-construction checks of trees/ and structures within the Site and 30 m buffer. The good practice mitigation measures detailed in **Section 5.2**, in particular those related to artificial lighting which can disrupt bat commuting and foraging behaviour, shall be adhered to.

5.1.3 Otter and Water Vole

Otter and water vole are considered likely absent from the Site. However, due to inclusion of the access track along Millden Road after the completion of the baseline surveys, Mill Burn has not been surveyed. If construction activities are proposed to occur within 250 m of the Mill Burn, a pre-construction survey for otter and water vole may be required, carried out by a SQE/ECoW. In the event that an active otter holt or water vole burrow is identified within potential disturbance distance of construction activities, the respective NatureScot licence and Species Protection Plan (SPP) may be required.

5.1.4 Badger

Due to the presence of high value sett building habitat occurring across the Site, it is recommended that a pre-construction walkover survey to identify any new activity badger be undertaken by a SQE/ECoW prior to the commencement of any construction activities. In the event that an active badger sett is identified, a badger licence and SPP may be required.

5.1.5 Breeding Birds

As all breeding birds and their nests are protected by the WCA (with Annex 1/Schedule 1 species afforded additional protection), measures shall be taken to mitigate disturbance during construction. All works should be carried out outside the breeding bird season (March to September inclusive) wherever possible, however if works including Site preparation/vegetation clearance are scheduled to take place within the breeding bird season then a nesting bird check within 48 hours of works commencing should be completed by a suitably qualified ecologist (SQE). If an active nest is identified, then the appropriate protection zone should be installed within which there can be no works until the nest has fledged.

5.2 General Good Practice and Mitigation

During the works the following good practice measures, endorsed by NatureScot are recommended[20]:

- Wherever possible construction works should be undertaken during daylight hours, but avoiding the two hours from sunrise and the two hours before sunset (this can be reduced to one hour from November to February, inclusive, when daylight hours are limited);
- Cover/fence-off any excavations, or provide escape ramps at the end of the working day to avoid animals becoming trapped (if an animal does become trapped, advice should be sought immediately from NatureScot);
- Cap any temporarily exposed pipe systems out of work hours;
- Clean fuel/chemical spillages immediately with spill kits and dispose of waste materials correctly; and
- Avoid unnecessary disturbance to habitats by minimising the extent of ground clearance, as far as possible.

5.2.1 Artificial lighting

Research has indicated that artificial lighting can have an adverse effect on the behaviour of nocturnal mammals including bats and badger[21, 22]. A sensitive lighting scheme that aims to avoid disruption to mammal foraging and commuting behaviour and nesting bird activity will be adopted. It is understood there will be no operational lighting requirement. However, should lighting be required the following measures are to be incorporated into the design and installation of temporary lighting during works and within the permanent lighting scheme:

[20] NatureScot, 2020, Planning and development: standing advice and guidance documents. (Online) Available at: https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/planning-and-development-standing-advice-and-guidance-documents

[21] Institution of Lighting Professionals, 2020. Guidance Notes for the Reduction of Obtrusive Light. [Online]

Available at: https://theilp.org.uk/publication/guidance-note-1-for-the-reduction-of-obtrusive-light-2020/

[22] Institution of Lighting Professionals and BCT, 2023. Guidance Note 08/23: Bats and Artificial Lighting at Night. Bats and the Built Environment Series. Produced jointly by ILP and BCT. [Online] Available at: https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/

- Where possible, motion sensor lighting during working hours will be employed to reduce unnecessary lighting of the Site.
- Any lighting will be directional (using fittings such as hoods, cowls or shields to direct light downwards wherever possible and avoid unnecessary light spill);
- LED Luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability;
- A warm white spectrum (ideally <2700 Kelvin, max 4000 Kelvin) should be adopted to reduce the blue light component; and
- Lighting will be positioned to avoid illuminating suitable foraging, commuting and nesting habitat within edge habitat adjacent to the Site.

Figures

300000

320000

340000

720000

River Tay SAC

Firth of Tay and Eden Estuary SPA

Inner Tay Estuary SSSI

Firth of Tay and Eden Estuary SAC

Firth of Tay and Eden Estuary Ramsar

Lochmill Loch SSSI

Dunbog Bog SSSI

Lindores Loch SSSI

Black Loch (Abdie) SSSI

Pitkeathly Mires SSSI

Pitkeathly Mires SAC

Turflundie Wood SAC

Turflundie Wood SSSI

Lacesston Muir and Glen Burn Gorge SSSI

Craigmead Meadows SSSI

Ballo and Harperleas Reservoirs SSSI

Holl Meadows SSSI

Loch Leven Ramsar

Loch Leven NNR

Loch Leven SSSI

Loch Leven SPA

N

LEGEND

- Site Boundary
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- Ramsar
- Special Protection Area (SPA)
- National Nature Reserve (NNR)

Note: Only designated sites that are within the study area are shown on the map.

SCOTLAND

EDINBURGH

0 5 10

Kilometres

trio

SLR

BINN FARM SOLAR

PRELIMINARY ECOLOGICAL APPRAISAL

STATUTORY DESIGNATED SITES

FIGURE 1

Scale 1:165,000 @ A3

Date DECEMBER 2025

405.065788.00001.0002.0 Statutory Designated Sites.mxd

315000 316000 317000 318000 319000 320000

714000 713000 712000 711000

N

0 1 2

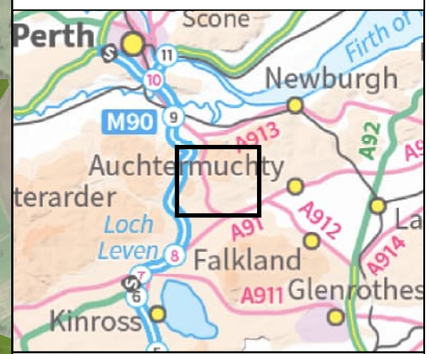
Kilometres

LEGEND

Site Boundary

Site Boundary 2 km Buffer

Ancient Woodland Inventory



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PRELIMINARY ECOLOGICAL APPRAISAL

NON-STATUTORY DESIGNATED SITES

FIGURE 2

Scale 1:20,000 @ A3

Date DECEMBER 2025

405.065788.00001.0003.0 Non-Statutory Designated Sites

316500 317000 317500 318000 318500

713000 712500 712000

Secondary Codes
10 - Scattered Scrub
12 - Scattered Bracken
14 - Scattered Rushes
16 - Tall Forbs
32 - Scattered Trees
50 - Ditch
100 - Grazed
102 - Sheep Grazed
114 - Dry Stone Wall
503 - Wet
516 - Active Management
521 - Unmanaged
524 - Invasive Non-Native Species
529 - Golf Course
532 - Scattered Grass
600 - Ploughed
612 - Fence
801 - Road Verge or Island
827 - Garden

N

TN15 TN3 TN14 TN17 TN16 TN18 TN6 TN4 TN19 TN10 TN20 TN21 TN13 TN24 TN2 TN5 TN1 TN22 TN9 TN11 TN7 TN8 TN12

B47: u1b B48: u1b B1: h3h 32 B19: g4 B4: c1 B9: h3e B8: h3e 32 B7: g4 10 14 B6: c1 600 B17: h3e LB1: u1e 114 612 B5: g4 10 100 B10: g4 10 102 B11: h3e B14: h3e B15: g4 B13: g4 10 B12: g4 B18: c1 600 B16: g3c 10 12

B30: g4 102 B29: w1h B31: h3h 32 B26: w1h5 LB3: u1e 114 B25: h3h 32 B2: u1 B3: h3h 32 532 B28: g4 529 B49: g3c 801 B46: u1d 827 B24: w1h6 524 827 LB2: h2b 516 B27: u1d LB4: h2b 516 B23: g4 529 B20: g3c6 10 16 32 B22: h3h 532 WB1: r2b 50 B33: g3c 10 32 B32: c1c WB2: r2b 50 B35: g3c 524 801 B21: c1c B40: g1c 32 B37: w1g B44: g3c 16 521 B45: c1c B43: g3c 32 801 B36: h3h 524 532 B34: w1g 524 B39: w1g B50: g3c 14 503 521 B41: g1c 32 B38: c1c B42: w1g

A912

0 250 500
Metres

405.065788.00001.0001.0 Habitat Survey

LEGEND

Site Boundary
Target Note
Area Not Surveyed

Primary Habitat Classification

Urban - Built-up Areas and Gardens
u1e - Built Linear Feature

Heathland and Shrub - Hedgerows
h2b - Non-native and Ornamental Hedgerow

Rivers and Lakes - Rivers and Streams
r2b - Other Rivers and Streams

Cropland - Arable and Horticulture
c1 - Arable and Horticulture
c1c - Cereal Crops

Grassland - Acid Grassland
g1c - Bracken

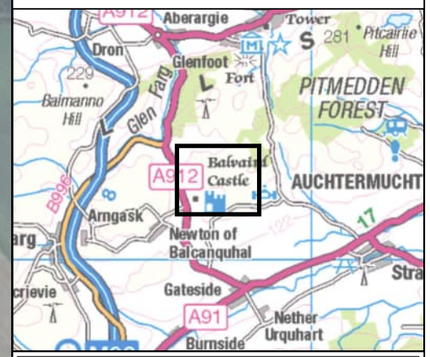
Grassland - Neutral Grassland
g3c - Other Neutral Grassland
g3c6 - Lolium-Cynosurus Neutral Grassland

Grassland - Modified Grassland
g4 - Modified Grassland

Heathland and Shrub - Dense Scrub
h3e - Gorse Scrub
h3h - Mixed Scrub

Urban - Built-up Areas and Gardens
u1 - Built-up Area and Garden
u1b - Developed Land; Sealed Surface
u1d - Suburban / Mosaic of Developed / Natural Surface

Woodland and Forest - Broadleaved Mixed and Yew Woodland
w1g - Other Woodland; Broadleaved
w1h - Other Woodland; Mixed
w1h5 - Other Woodland; Mixed; Mainly Broadleaved
w1h6 - Other Woodland; Mixed; Mainly Conifer



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SLR

BINN FARM SOLAR

PRELIMINARY ECOLOGICAL APPRAISAL

UK HABITAT CLASSIFICATION

FIGURE 3

Scale 1:6,500 @ A3

Date DECEMBER 2025

316500 317000 317500 318000 318500

713000 712500 712000

N

T5 T3 T4 T6 T7 T8 T10 T11 T9 T12 T13 T1 T2

0 250 500

Metres

LEGEND

Site Boundary

Site Infrastructure

Solar and BESS 30 m Buffer

Solar Fence and Access Track 20 m Buffer

Solar Fence 30 m Buffer

Access Track

BESS

BESS Compound

Solar Fence

Gate

Solar PV

DNO Substation

Construction Compound

Spares Container

Switch Gear

Transformer

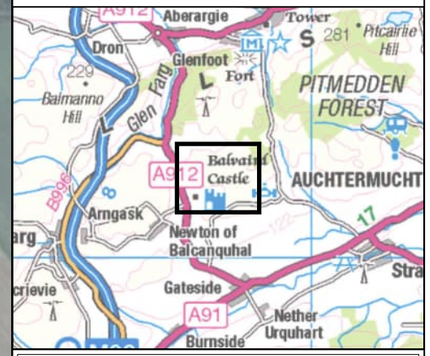
Water Tank

Ground Level Tree Assessment

PRF-M (Multiple Bats/Maternity)

PRF-I (Individual Bats)

FAR (Further Assessment Required)



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SLR

BINN FARM SOLAR

PRELIMINARY ECOLOGICAL APPRAISAL

GROUND LEVEL TREE ASSESSMENT

FIGURE 4

Scale 1:6,500 @ A3

Date DECEMBER 2025

405.065788.00001.0011.0 GLTA

Annex A Relevant Legislation and Planning Policy

A.1.1 Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)

Under the conservation (Natural Habitats, &c.) Regulations 1994 (The Habitats Regulations) (as amended in Scotland) it is an offence to deliberately capture, kill or disturb wild animals listed under Schedule 2 of the Regulations. It is also an offence to damage or destroy a breeding site or resting place of such an animal (even if the animal is not present at the time). Otter, wildcat and all bat species are listed under Schedule 2 of the Habitat Regulations.

A.1.2 The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2019

These Regulations amend the Conservation (Natural Habitats, &c.) Regulations 1994, which make provision for the transposition of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.

Regulation 2 amends schedule 2 of the 1994 Regulations to add the Eurasian Beaver (otherwise known as the European Beaver) to the list of European Protected Species of Animals that are given protection under the 1994 Regulations.

A.1.3 Wildlife and Countryside Act 1981 (as amended)

Under the Wildlife and Countryside Act 1981 (as amended in Scotland) it is an offence to intentionally or recklessly:

- Kill, injure or take and wild animal listed under Schedule 5 to the Act;
- Damage, destroy or obstruct any place used for shelter or protection by any wild animal listed under Schedule 5 to the Act; and
- Disturb certain Schedule 5 animal species while they occupy a place used for shelter or protection.

Otter, water vole, pine marten, red squirrel, wildcat and all bat species are listed under Schedule 5 of the Act.

Water voles receive partial protection of their places of shelter only; this has long since been expected to change with water vole receiving full protection in future to align with their steep populations declines and increasing risk of extinction on mainland Great Britain.

A.1.4 Nature Conservation (Scotland) Act 2004 (as amended)

The Nature Conservation (Scotland) Act 2004 places duties on public bodies in relation to the conservation of biodiversity, increases protection of Sites of Special Scientific Interest (SSSI), amends legislation on Nature Conservation Orders, provides for Land Management Orders for SSSIs and associated land and strengthens wildlife enforcement legislation, among other requirements. It also amends the legislation for protected species, introducing new conditions to the ‘incidental results of a lawful operation’ defence for all wild birds and certain species of animal and plant.

The Act places a duty on every public body to further the conservation of biodiversity consistent with the proper exercise of their functions.

It also requires Scottish Ministers to designate one or more strategies for the conservation of biodiversity as the Scottish Biodiversity Strategy, and to publish lists of species of flora, fauna and habitats of principal importance. The lists of species of flora and fauna and habitats of principal importance in Scotland is known as the Scottish Biodiversity List (SBL).

A.1.5 The Wildlife and Natural Environment (Scotland) Act 2011 (as amended)

The Wildlife and Natural Environment (WANE) (Scotland) Act 2011 (as amended) makes changes to existing legislation covering specific wild fauna (e.g., birds, rabbits, hare etc), deer management, game management/licensing, species licensing, snaring, protection of badgers, muirburn, invasive non-native species, protected areas and enforcement/liability in relation to certain offences. In relation to bats, the WANE Act:

- Introduces the offence of 'knowingly causing or permitting' certain 'acts' within Sections 6, 7 and 15A as 'offences' under the W&C Act 1981;
- Permits derogation of disturbance and/or destruction of bat roosts by the appropriate authority for development purposes, subject to specific requirements of licensing; and furthermore
- Wildlife crime now requires to be documented in an annual report, as a result of Section 20 of the WANE Act, which inserted a new Section 26B into the W&C Act 1981. It prescribes that Ministers must lay a report every calendar year on offences which relate to wildlife, to include information on incidences and prosecutions during the year and on research and advice relevant to those offences.

A.1.6 Protection of Badgers Act 1992 (as amended)

The Protection of Badgers Act 1992 (as amended in Scotland) makes it illegal to kill, injure or take a badger or to interfere with a badger sett intentionally or recklessly (i.e., damage/destroy a sett). Sett interference includes disturbing badgers whilst they are occupying a sett or obstructing access to it.

A.1.7 Animals and Wildlife (Penalties, Protections and Powers) (Scotland) Act 2020

The Animals and Wildlife (Penalties, Protections and Powers) (Scotland) Act 2020 increases the maximum available sentences in relation to a range of offences concerning animal health and welfare and wildlife; provides regulatory powers for the issuing of fixed penalty notices; and provides authorised persons with new powers regarding animals taken into their possession.

Note that the Scottish Government has passed legislation to maintain the same levels of legal protections of wildlife in Scotland post EU-exit3.

A.2 Relevant Planning Policy

A.2.1 National Planning Policy

National Planning Framework 4 (NPF4)

The National Planning Framework 4 (NPF4) was adopted by Scottish Ministers on 13 February 2023. In order to accord with the biodiversity provisions of NPF4, development proposals should demonstrate that they contribute to the enhancement of biodiversity. Of particular relevance to this project, Policy 3 of NPF4 states:

3a) Development proposals will contribute to the enhancement of biodiversity, including where relevant, restoring degraded habitats and building and strengthening nature networks and the connections between them. Proposals should also integrate nature-based solutions, where possible.

…

c) Development proposals for national or major development, or for development that requires an EIA will only be supported where it can be demonstrated that the proposal will conserve, restore and enhance biodiversity, including nature networks so they are in a demonstrably better state than without intervention. This will include future management. To inform this, best practice assessment methods should be used. Proposals within these categories will demonstrate how they have met all of the following criteria:

i. the proposal is based on an understanding of the existing characteristics of the site and its local, regional and national ecological context prior to development, including the presence of any irreplaceable habitats;

ii. wherever feasible, nature-based solutions have been integrated and made best use of;

iii. an assessment of potential negative effects which should be fully mitigated in line with the mitigation hierarchy prior to identifying enhancements;

iv. significant biodiversity enhancements are provided, in addition to any proposed mitigation. This should include nature networks, linking to and strengthening habitat connectivity within and beyond the development, secured within a reasonable timescale and with reasonable certainty. Management arrangements for their long-term retention and monitoring should be included, wherever appropriate; and

v. local community benefits of the biodiversity and/or nature networks have been considered.

d) Any potential adverse impacts, including cumulative impacts, of development proposals on biodiversity, nature networks and the natural environment will be minimised through careful planning and design. This will take into account the need to reverse biodiversity loss, safeguard the ecosystem services that the natural environment provides, and build resilience by enhancing nature networks and maximising the potential for restoration.

Tayside Local Biodiversity Action Plan (LBAP) (2nd Edition)

The Tayside Local Biodiversity Action Plan (LBAP)(2nd Edition) was published in 2016 and sets out a 10-year action plan to ensure Scottish, UK and European polices, plans and strategies are delivered at a local scale. The LBAP identifies priority habitats and priority species present across the county, recommending additional mitigation to help avoid negative impacts. The FNRC data search returned records of 40 priority species recorded within the last 15 years.

Local Development Plan (LDP)

The Local Development Plan (LDP) was adopted by the Perth and Kinross Council on 29 November 2019. In order to accord with the biodiversity provisions of LDP, new development should be sympathetic to the landscape in which it is set, and will not place unnecessary burden on the environment. Of particular relevance to this project, policy 41 states:

The Council will seek to protect and enhance all wildlife and wildlife habitats, whether formally designated/protected or not, taking into account the ecosystems and natural processes in the area. Proposals that have a detrimental impact on the ability to achieve the guidelines and actions identified in these documents will not be supported unless clear evidence can be provided that the ecological impacts can be satisfactorily mitigated. Planning permission will not be granted for development that would be likely to have an adverse effect on protected species unless it can be justified in accordance with the relevant protected species legislation (Wildlife and Countryside Act 1981 (as amended) and the Protection of Badgers Act (1992)).

Annex B Protected, Notable and Invasive Species Records

Table B-1: Protected, Notable and Invasive Species Records within 2km of the Site within the Last 15 Years

Scientific Name	Common Name	Number of Records within the Last 15 Years	Date of Last Record	Protection/Conservation Status
Amphibians				
Rana temporaria	Common Frog	2	20/03/2011	LBAP
Bufo bufo	Common toad	1	20/03/2011	SBL, LBAP
Triturus cristatus	Great Crested Newt	1	20/03/2011	HR2, SBL, LBAP
Lissotriton helveticus	Palmate Newt	1	20/03/2011	LBAP
Birds				
Tyto alba	Barn Owl	7	2019	WCA1, SBL, LBAP
Chroicocephalus ridibundus	Black-headed gull	5	16/04/2017	BoCC-Amb, SBL
Pyrrhula pyrrhula	Bullfinch	7	24/08/2023	BoCC-Amb, SBL, LBAP
Larus canus	Common Gull	13	24/08/2023	BoCC-Amb
Loxia curvirostra	Crossbill	5	24/08/2023	WCA1
Cuculus canorus	Cuckoo	1	24/05/2015	BoCC-Red, SBL
Numenius arquata	Curlew	4	07/06/2018	BoCC-Red, SBL, LBAP
Cinclus cinclus	Dipper	5	22/02/2011	BoCC-Amb
Calidris alpina	Dunlin	1	20/01/2019	BD1, BoCC-Red, SBL
Prunella modularis	Dunnock	29	23/05/2021	BoCC-Amb
Turdus pilaris	Fieldfare	1	26/03/2013	WCA1, BoCC-Red, LBAP
Larus marinus	Great Black-backed Gull	2	03/07/2019	BoCC-Amb
Chloris chloris	Greenfich	25	September 2020	BoCC-Red
Perdix perdix	Grey Partridge	13	16/04/2016	BoCC-Red, SBL, LBAP
Motacilla cinerea	Grey Wagtail	5	16/04/2017	BoCC-Amb
Anser anser	Greylag goose	2	07/06/2018	WCA1, BoCC-Amb, LBAP
Larus argentatus	Herring Gull	29	11/02/2019	BoCC-Red, SBL, LBAP

Scientific Name	Common Name	Number of Records within the Last 15 Years	Date of Last Record	Protection/Conservation Status
Delichon urbicum	House martin	10	16/07/2020	BoCC-Red, LBAP
Passer domesticus	House sparrow	21	October 2020	BoCC-Red, SBL, LBAP
Falco tinnunculus	Kestrel	10	04/09/2023	BoCC-Amb, SBL, LBAP
Vanellus vanellus	Lapwing	19	23/05/2021	BoCC-Red, SBL, LBAP
Larus fuscus	Lesser Black-backed Gull	3	16/04/2017	BoCC-Amb
Acanthis cabaret	Lesser Redpoll	19	23/05/2021	SBL
Linaria cannabina	Linnet	18	24/04/2017	BoCC-Red, SBL, LBAP
Anas platyrhynchos	Mallard	30	23/04/2019	BoCC-Amb
Anthus pratensis	Meadow Pipit	6	23/05/2017	BoCC-Amb
Falco columbarius	Merlin	2	10/08/2014	WCA1, BD1, BoCC-Red, SBL, LBAP
Turdus viscivorus	Mistle Thrush	9	14/06/2020	BoCC-Red
Pandion haliaetus	Osprey	1	17/08/2017	WCA1, BD1, BoCC-Amb, SBL, LBAP
Haematopus ostralegus	Oystercatcher	9	20/05/2019	BoCC-Amb, LBAP
Anser brachyrhynchus	Pink-footed Goose	2	12/09/2023	BoCC-Amb, LBAP
Turdus iliacus	Redwing	1	26/11/2013	WCA1, BoCC-Amb, SBL, LBAP
Emberiza schoeniclus	Reed Bunting	7	20/05/2019	BoCC-Amb, SBL, LBAP
Corvus frugilegus	Rook	51	20/04/2023	BoCC-Amb
Acrocephalus schoenobaenus	Sedge Warbler	2	23/05/2021	BoCC-Amb
Spinus spinus	Siskin	14	24/08/2023	SBL
Alauda arvensis	Skylark	21	23/05/2021	BoCC-Red, SBL, LBAP
Gallinago gallinago	Snipe	3	09/03/2019	BoCC-Amb, LBAP
Turdus philomelos	Song Thrush	46	20/08/2023	BoCC-Amb, SBL, LBAP
Accipiter nisus	Sparrowhawk	1	November 2020	BoCC-Amb, LBAP

Scientific Name	Common Name	Number of Records within the Last 15 Years	Date of Last Record	Protection/Conservation Status
Muscicapa striata	Spotted Flycatcher	3	24/08/2023	BoCC-Red, SBL, LBAP
Sturnus vulgaris	Starling	20	October 2020	BoCC-Red, SBL
Columba oenas	Stock Dove	9	01/06/2019	BoCC-Amb
Apus apus	Swift	10	16/07/2020	BoCC-Red, SBL, LBAP
Strix aluco	Tawny Owl	7	27/02/2019	BoCC-Amb, LBAP
Passer montanus	Tree Sparrow	17	23/04/2019	BoCC-Red, SBL, LBAP
Oenanthe oenanthe	Wheatear	3	20/04/2023	BoCC-Amb, LBAP
Saxicola rubetra	Whinchat	2	2011	BoCC-Red, LBAP
Haliaeetus albicilla	White-tailed Eagle	1	28/09/2012	WCA1, BD1, BoCC-Amb, SBL
Curruca communis	Whitethroat	10	20/05/2019	BoCC- Amb
Phylloscopus trochilus	Willow Warbler	41	20/08/2023	BoCC- Amb
Scolopax rusticola	Woodcock	1	13/05/2014	BoCC-Red, SBL
Columba palumbus	Woodpigeon	76	24/08/2023	BoCC-Amb
Troglodytes troglodytes	Wren	43	24/08/2023	BoCC-Amb
Motacilla flava	Yellow Wagtail	1	2009	BoCC-Red, SBL
Emberiza citrinella	Yellowhammer	72	23/05/2021	BoCC-Red, SBL, LBAP
Insect - butterfly				
Boloria selene	Small Pearl-bordered Fritillary	1	24/06/2021	SBL, LBAP
Insect - Moth				
Eugnorisma glareosa	Autumnal Rustic	1	06/09/2014	SBL
Ceramica pisi	Broom Moth	3	25/06/2016	SBL
Arctia caja	Garden Tiger	1	29/07/2019	SBL, LBAP
Acronicta rumicis	Knot Grass	1	13/07/2014	SBL

Scientific Name	Common Name	Number of Records within the Last 15 Years	Date of Last Record	Protection/Conservation Status
Caradrina morpheus	Mottled Rustic	1	23/07/2016	SBL
Litoligia literosa	Rosy Minor	1	11/07/2015	SBL
Hydraecia micacea	Rosy Rustic	1	06/09/2014	SBL
Scotopteryx chenopodiata	Shaded Broad-bar	1	29/07/2019	SBL
Leucania comma	Shoulder-striped Wainscot	1	11/07/2015	SBL
Ecliptopera silaceata	Small Phoenix	4	23/07/2016	SBL
Diarsia rubi	Small Square-spot	5	29/07/2019	SBL
Chesias legatella	Streak	1	28/10/2016	SBL
Spilosoma lubricipeda	White Ermine	2	11/07/2015	SBL
Mammals				
Meles meles	Badger	3	05/02/2024	PBA, LBAP
Chiroptera	Bat (species unknown)	1	07/02/2024	WCA5, HR2, SBL, LBAP
Lepus europaeus	Brown Hare	25	23/05/2021	SBL
Erinaceus europaeus	Hedgehog	1	31/07/2023	SBL, LBAP
Martes martes	Pine Marten	4	27/06/2024	WCA5, HR3, SBL, LBAP
Sciurus vulgaris	Red Squirrel	46	22/10/2024	WCA5, SBL, LBAP

Protection / conservation status:

WCA1 = Wildlife & Countryside Act 1981 (as amended in Scotland): Schedule 1

WCA5 = Wildlife & Countryside Act 1981 (as amended in Scotland): Schedule 5

HR2 = The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland): Schedule 2

HR3 = The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland): Schedule 3

SBL = Scottish Biodiversity List

BD1 = The Birds Directive 2009: Annex 1

BoCC-Amb = Birds of Conservation Concern 5: Amber List

BoCC-Red = Birds of Conservation Concern 5: Red List

LBAP = Local Biodiversity Action Plan

PBA = Protection of Badgers Act 1992

Annex C Survey Results

Table C-1: PEA Target Notes

Target Note ID	OS Grid Reference	Description	Photo
1	NO 17133 12043	Pond 1 - Larger of the two garden ponds approximately 45m east of Millden Road.	
2	NO 17272 12115	Pond 2 - Smaller of the two garden ponds approximately 190m east of Millden Road.	

Target Note ID	OS Grid Reference	Description	Photo
3	NO 17703 12516	Pond 3 - A pond within the larch woodland approximately 80m north of the Site.	
4	NO 18445 12437	Pond 4 – A pond within the off-road driving area approximately 75m west of the Site.	

Target Note ID	OS Grid Reference	Description	Photo
5	NO 17533 12092	A drainage ditch in a grazed field with standing water. This is likely to regularly dry up and is therefore unsuitable for great crested newts.	
6	NO 17699 12441	A larch plantation woodland with limited opportunities for roosting bats. There is occasional standing deadwood and windblow further inside the woodland which may have potential roost features for bats.	

Target Note ID	OS Grid Reference	Description	Photo
7	NO 17792 11846	Stands of juvenile ash *Fraxinus sp* planted across the top of the slope to the southwest of the Site. An understory of bracken had died back at the time of survey.	
8	NO 17784 11809	A small stand of mixed woodland sits within the largest area of other neutral grassland in the western half of the Site. The species consist of Scots pine *Pinus sylvestris*, and ash, with gorse and bracken in the understory.	

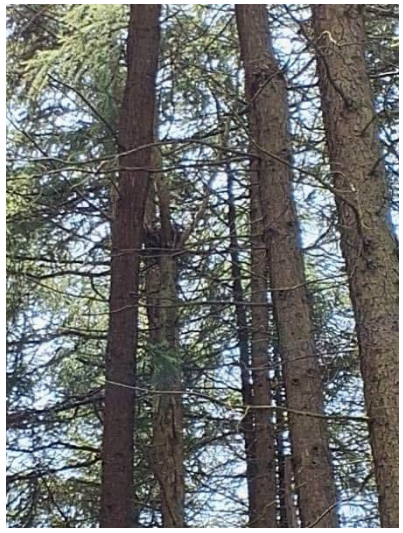
Target Note ID	OS Grid Reference	Description	Photo
9	NO 18410 11923	Mature trees along the Site's southern boundary observed at a distance from Site access. PRFs noted including lifting bark and rot holes.	 

Target Note ID	OS Grid Reference	Description	Photo
10	NO 17869 12364	An area highly suitable for foraging badgers with dense scrub and food sources in the form of arable, pasture, and elder. The rocky substrate and exposed bedrock are likely to be a constraint to sett building. No field signs of badger noted.	
11	NO 17618 11830	An underground burrow entrance which meets the dimensions required for badger. Not in current use and no field signs of badger noted.	

Target Note ID	OS Grid Reference	Description	Photo
12	NO 17795 11802	A rabbit warren with large tunnel entraces at the base of some pine trees. No evidence of badger.	
13	NO 17057 12188	Series of mammal paths and holes, smaller than badger, under ornamental conifer. Leading to private residence, no access.	

Target Note ID	OS Grid Reference	Description	Photo
14	NO 17776 12517	Six instances of squirrel feeding signs (chewed cones) were identified throughout the larch planation woodland bordering the Site to the north.	 

Target Note ID	OS Grid Reference	Description	Photo
15	NO 17741 12564	Potential squirrel drey.	
16	NO 17760 12525	Potential squirrel drey.	

Target Note ID	OS Grid Reference	Description	Photo
17	NO 17678 12494	Potential squirrel drey.	
18	NO 17722 12466	Potential squirrel drey.	

Target Note ID	OS Grid Reference	Description	Photo
19	NO 17816 12362	A kestrel hovering over gorse scrub above Site.	
20	NO 18299 12250	Three buzzards and a kestrel over the Site.	No photo.
21	NO 17911 12100	Pair of buzzards over the Site.	No photo.
22	NO 17092 12070	Five lapwings over managed grassland bordering the Site.	No photo

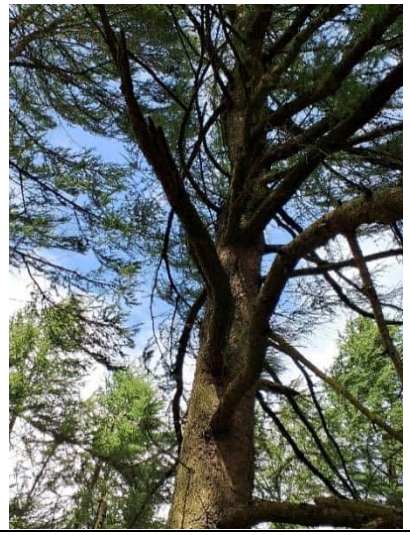
Target Note ID	OS Grid Reference	Description	Photo
23	NO 17071 12253	A raptor or owl pellet within woodland north of Millden Road.	
24	NO 17076 12204	Invasive Non-Native Species: Rhododendron.	

Target Note ID	OS Grid Reference	Description	Photo
25	NO 17034 11918	Invasive Non-Native Species: Rhododendron.	
26	NO 17020 11918	Invasive Non-Native Species: Rhododendron.	

Table C-2: Ground Level Tree Assessment Results

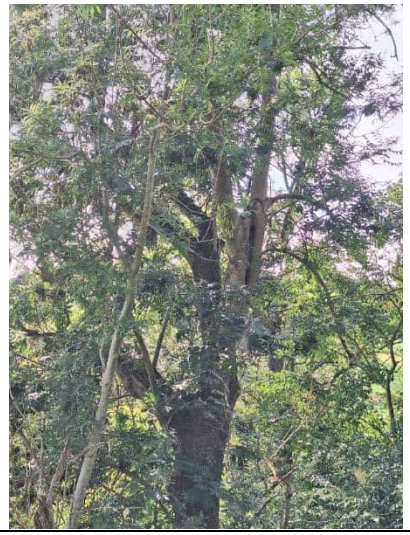
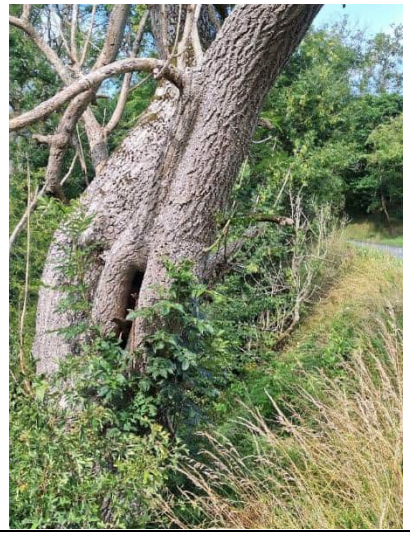
Tree ID	Tree Species	Diameter (m)	Height (m)	Grid Reference	PRF types	Preliminary Classification	Notes	Photo
1	Ash	0.6	8	NO 18260 11854	• Crack/split; • tear out; and • large hollow	PRF-M (multiple bats/ maternity)	No bat evidence but two large, connecting hollows at 2m are potentially suitable for multiple bats. A split leads to hollow interior section of tree with gap extending approximately 1m. A tear out on a branch at 6m could not be fully inspected. Tree was deemed unsafe for climbing due to ash dieback.	

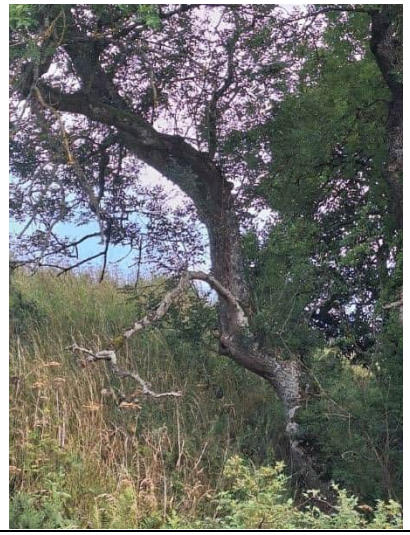
Tree ID	Tree Species	Diameter (m)	Height (m)	Grid Reference	PRF types	Preliminary Classification	Notes	Photo
2	Ash	0.7	14	NO 18234 11835	None	FAR (further assessment required)	Mature ash tree with no visible PRFs. Tree was in full leaf at time of survey so potential for PRFs to be obscured. Tree is safe to climb.	
3	Larch (dead)	-	-	NO 17823 12476	• Woodpecker hole	FAR (further assessment required)	Dead conifer with woodpecker hole at 10m on south aspect.	

Tree ID	Tree Species	Diameter (m)	Height (m)	Grid Reference	PRF types	Preliminary Classification	Notes	Photo
4	Larch	-	-	NO 17833 12475	• Crack/split	PRF-I (individual bats)	Long split along main stem at 3m on north aspect creating small gaps potentially suitable for individual bats.	
5	Larch	-	-	NO 17709 12516	• Crack/split	FAR	Large crack in branch at 5m on south aspect creating small gaps potentially suitable for individual bats.	

Tree ID	Tree Species	Diameter (m)	Height (m)	Grid Reference	PRF types	Preliminary Classification	Notes	Photo
6	Ash	1	14	NO 16685 11820	• Knot hole; and • tear out	FAR	Mature ash along Millden Road with PRFs unable to be fully assessed from ground. Tree was deemed safe to climb.	
7	Ash	0.9	14	NO 16662 11804	• Knot hole; and • tear out	FAR	Mature ash along Millden Road with PRFs unable to be fully assessed from ground. Tree was deemed safe to climb.	

Tree ID	Tree Species	Diameter (m)	Height (m)	Grid Reference	PRF types	Preliminary Classification	Notes	Photo
8	Unknown	0.5	12	NO 16652 11788	• Lifting bark	FAR	Bare, likely dead tree along Millden Road with partially lifted bark that could not be fully assessed due to steep terrain. Unsafe to climb.	
9	Unknown	1	20	NO 16659 11778	• Knot hole; and • Lifting bark	FAR	Large standing deadwood along Millden Road with knot hole and lifting bark which could not be fully inspected due to varying height of PRFs and steep terrain. Unsafe to climb.	

Tree ID	Tree Species	Diameter (m)	Height (m)	Grid Reference	PRF types	Preliminary Classification	Notes	Photo
10	Ash	0.6	18	NO 16648 11753	• Large hollow; • wound; and • rot hole	FAR	Large mature ash along Millden Road with two visible holes. Transverse hole/wound on NE aspect at 10m and snapped branch/wound on SE aspect. Tree on steep slope but climbing deemed potentially suitable.	
11	Ash	1	18	NO 16632 11737	• Rot hole; • knot hole; and • large hollow	FAR	Mature ash along Millden Road with three large trunk holes noted between 3-5m. Tree on steep slope but climbing deemed potentially suitable.	

Tree ID	Tree Species	Diameter (m)	Height (m)	Grid Reference	PRF types	Preliminary Classification	Notes	Photo
12	Unknown	0.15	4	NO 16589 11690	• crack/split; and • many small features	FAR	Small standing deadwood along Millden Road with transverse cracks, a half-torn branch with cracks and a hole leading back down branch.	
13	Ash	0.8	20	NO 16563 11659	• knot hole	FAR	Mature ash along Millden Road with knot hole at 3m on E aspect.	

Annex D SureScreen GCN Report

Folio No:	3549-2025
Purchase Order:	017048-413
Contact:	SLR Consulting Ltd
Issue Date:	17.07.2025
Received Date:	03.07.2025

GCN Report

Technical Report

SureScreen Scientifics

Folio No: 3549-2025
Purchase Order: 017048-413
Contact: SLR Consulting Ltd
Issue Date: 17.07.2025
Received Date: 03.07.2025

SureScreen Scientifics

GCN eDNA Analysis

Summary

When great crested newts (GCN), *Triturus cristatus* , inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analyzing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

Results

Lab ID	Site Name	OS Reference	Degradation Check	Inhibition Check	Result	Positive Replicates
GCN25 9454	West Scales - P1	NY 26713 67293	Pass	Pass	Negative	0/12
GCN25 9455	West Scales - P3	NY 27349 68131	Pass	Pass	Negative	0/12
GCN25 9456	Knarie - 6	NX 77258 82341	Pass	Pass	Negative	0/12
GCN25 9457	Knarie - 5	NX 77617 81181	Pass	Pass	Negative	0/12
GCN25 9458	Knarie - 4	NX 77617 81169	Pass	Pass	Negative	0/12
GCN25 9459	Knarie - 3	NX 77674 81169	Pass	Pass	Negative	0/12
GCN25 9460	Knarie - 2	NX 77766 79920	Pass	Pass	Negative	0/12

Matters affecting result: none

Reported by: Amy Bermudez

Approved by: Consuela Sopronyi

SureScreen Scientifics

Methodology

The samples detailed above have been analyzed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample tube which then undergoes DNA extraction. The extracted sample is then analyzed using real-time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded. Analysis of eDNA requires attention to detail to prevent the risk of contamination. True positive controls, negative controls, and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added analytical security.

SureScreen Scientifics Ltd is ISO9001 accredited and participates in Natural England's proficiency testing scheme for GCN eDNA testing.

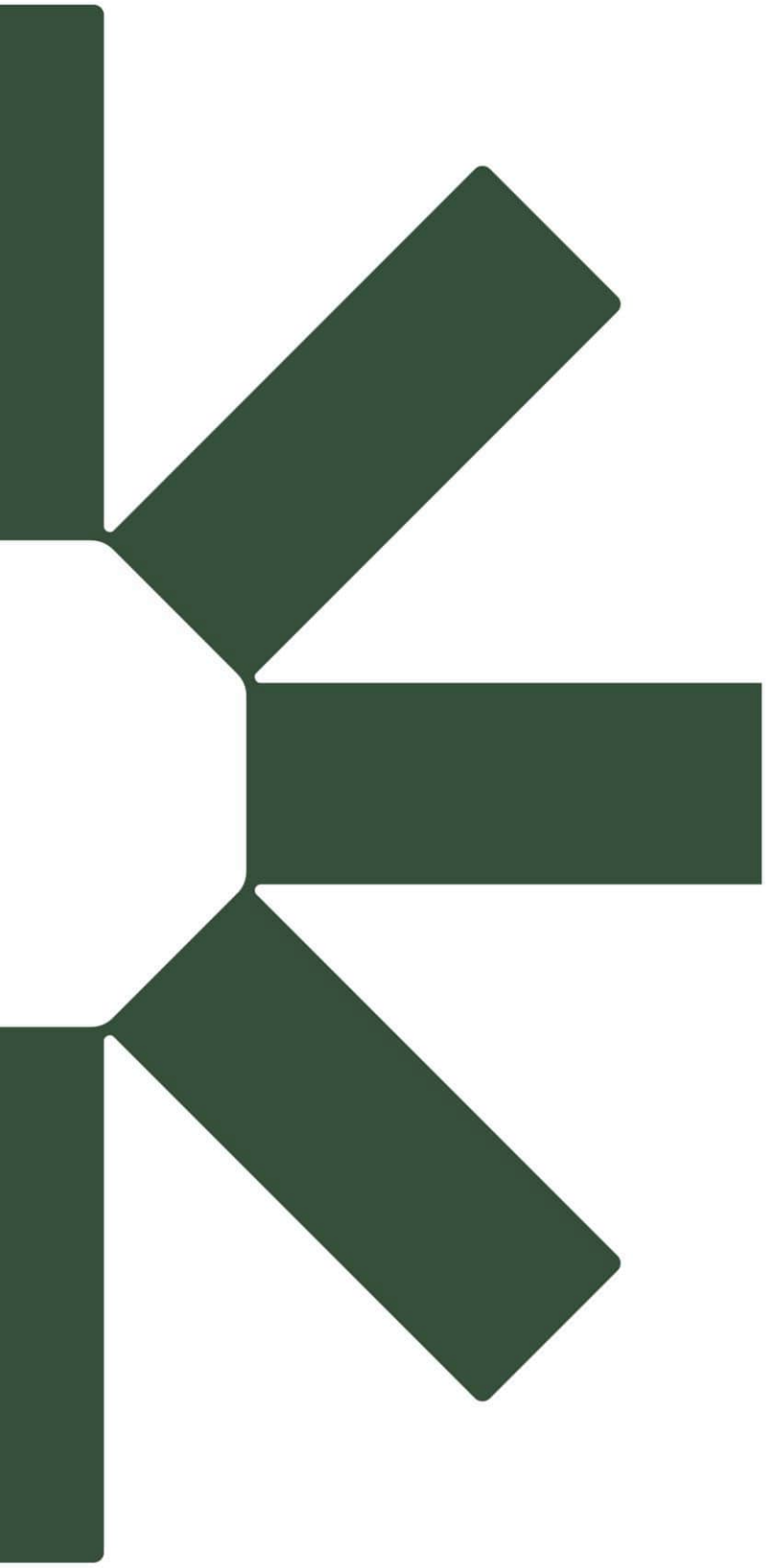
Interpretation of Results

Sample Integrity Check: When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results. Any samples which fail this test are rejected and eliminated before analysis.

Degradation Check: **Pass/Fail**. Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.

Inhibition Check: **Pass/Fail.** The presence of inhibitors within a sample is assessed using a DNA marker. If inhibition is detected, samples are purified and re-analyzed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

Result: **Presence of GCN eDNA (Positive/Negative/Inconclusive)**
Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.
Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with the WC1067 Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.
Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.
Inconclusive: Controls indicate inhibition or degradation of the sample, resulting in the inability to provide conclusive evidence for GCN presence or absence.



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