

Technical Appendix 6.1: Preliminary Ecological Appraisal

Cossans Solar & BESS

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Executive Summary

Report purpose	ITPEnergised, a part of SLR, was appointed by TRIO POWER Limited to undertake a Preliminary Ecological Appraisal (PEA) for a proposed solar development site at Cossans, west of Forfar in Angus. The purpose of the assessment was to carry out a desk study and habitat survey, in order to determine the potential presence of important ecological features within the zone of influence to inform requirements for further survey, mitigation and compensation.				
Client and commission date	TRIO POWER Limited (the Applicant) commissioned ITPEnergised in May 2024				
Date and methods of survey	A desk study and extended UK Habitat Classification survey was carried out in June 2024 by a qualified and experienced ecologist. During the survey, habitats within the Site and a 50 m buffer (access permitting) were mapped, and the survey was 'extended' to include an assessment of the potential for habitats to support protected or otherwise notable species.				
	Designated Sites:				
	Four international designations, including one Special Area of conservation (SAC) located 0.18km south and three Special Protection Areas (SPAs) within 20km, designated for geese features.				
	One Local Nature Conservation Site (LNCS) directly adjacent to the Site.				
	 Numerous areas of ancient woodland inventory (AWI) woodland within 2km, including one area directly adjacent to the Site. 				
	Habitats:				
	Habitats comprise arable and modified grassland fields with neutral grassland margins. Areas with potential Ground Water Dependent Terrestrial Ecosystems (GWDTE) have been identified.				
	A watercourse and a number of ditches are present along field margins.				
Key findings	Areas of broadleaved woodland and plantation woodland lie within the Study Area.				
	A line of mature trees exists along the access track.				
	Species present or potentially present on Site include:				
	Bats:				
	Large number of mature trees present along access track with potential roost features. Buildings adjacent to the Site are also suitable.				
	Overall habitats within the Site are assessed as having moderate-high suitability for use by commuting and foraging bats, including the surrounding woodland and watercourses offering linear features.				
	Badgers:				
	Suitable habitat including grassland for foraging is present on Site. Setts may be present in adjacent woodlands.				
	Birds:				



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	Habitats on Site, in particular open fields and trees provide suitable habitat for breeding birds, in addition to adjacent woodlands.
	The arable fields provide suitable habitat for wintering birds for loafing and foraging.
	Otter:
	Suitable habitat is present for otter commuting and foraging along watercourse and ditches. Adjacent woodland may be used for denning.
	Water vole:
	Suitable habitat is present along watercourse and ditches for water vole burrowing.
	Beaver:
	Suitable habitat is present along watercourses and ditches.
	Pine marten and red squirrel:
	Suitable habitat is present in adjacent woodlands.
	Herptiles:
	Suitable habitat for amphibian terrestrial phases, including great crested newt, frog and toad present on Site including the neutral grassland field margins, ditch habitat and adjacent woodland habitats. The field margins may also support reptile.
	Hedgehog:
	This species may use neutral grassland field margins and woodlands for foraging.
	Designated Sites:
	Potential for impacts to SAC as a result of pollution in the absence of mitigation.
	Potential loss of foraging/loafing habitat for geese associated with SPAs.
	Potential for impacts to Local Nature Conservation Site adjacent to the Site.
	Habitats:
Determined	Potential for impact to the watercourses and ditches due to pollution
Potential significant impacts	Potential for impacts to adjacent woodland, and mature trees.
(in the absence of	Species:
mitigation)	Potential impacts to commuting and foraging bats through use of lighting. Impacts may occur to roosting bats if within 30m of works.

- lighting. Impacts may occur to roosting bats if within 30m of works.
- Impacts may also occur to badger, otter, water vole, beaver, pine marten, red squirrel and hedgehog if present on Site or within the Study
- Potential for killing/injury and loss of terrestrial habitat for great crested newt, and other herptiles.
- Potential for damage/destruction of birds nests and disturbance during the nesting season. Loss of ground nesting and wintering bird habitat.



	Further assessments and species-specific surveys will be required to inform an Ecological Impact Assessment, this includes:
	Shadow Habitat Regulations Assessment (screening) to assess Likely Significant Effects to international designations
	Assessment of potential GWDTE by a hydrogeologist to confirm if present
	Otter survey of the watercourse and ditches and 250 m buffer
Recommendations	Water vole survey of the watercourse and ditches and 50m buffer
for further survey	Beaver survey of the watercourses and ditches and 50m buffer
	Badger, pine marten and red squirrel survey of the Site and 50 m buffer
	Preliminary (bat) Roost Assessment and Ground Level Tree Assessment of the Site and 50m buffer
	Great crested newt eDNA survey of ponds within 250m
	Breeding bird survey of Site and 50m buffer.
	Habitats:
	Retention of watercourse and ditch habitats and their associated neutral grassland margins, and pollution prevention plan to avoid impacts to the
	 watercourses and ditches. Suitable root protection buffers maintained around mature trees and adjacent woodlands.
	Species:
Preliminary measures to avoid and/or reduce	Species Protection Plan produced and implemented for bats. For commuting/foraging bats - Sensitive lighting scheme to be implemented during and post development and suitable buffer of at least 30m along woodland edges.
significant impacts	Suitable buffer to be implemented around potential roost features for bats.
	Avoid works within the breeding bird season (March to September inclusive). If not possible, ECoW surveys required prior to works or removal of suitable habitat to prevent damage or loss of active bird nests.
	Species Protection Plan produced and implemented for herptiles.
	Pre-works checks of area for hedgehog and removal from works area if found. New fencing to be designed to allow passage of animals.
	Further protected species surveys as previously recommended will inform the need for further measures.
	Specific enhancements for habitats will be detailed within a subsequent Biodiversity Enhancement and Management Plan.
Opportunities for	Enhancements may include;
biodiversity	Species rich native hedgerow creation around boundaries
enhancement	Species rich grassland creation
	Pond creation within retained fields
	Woodland creation



Bird and bat boxes



1. Introduction

1.1 Overview

ITPEnergised was appointed by TRIO POWER Limited (the Applicant) to undertake a Preliminary Ecological Appraisal (PEA) comprising an ecological desk study and an extended UK Habitat (UKHab) Classification survey for a proposed solar development in Cossans, west of Forfar in Angus (hereafter referred to as the 'Site'). The Site has central Ordnance Survey Grid Reference NO 40042 49608 and is shown in **Drawing 1**.

The purpose of the survey is to document the habitats present within the Site and a 50 m survey buffer but extended to up to 250 m when considering potential groundwater dependent terrestrial ecosystems (GWDTEs) (the 'Study Area') and determine the likely or potential presence of protected or otherwise notable species.

The survey results are intended to facilitate the identification of potential constraints to development and where mitigation and/or further survey work may be required to inform a future planning application, as appropriate.

This report describes the methods used to gather and record habitat and protected species baseline information for the Site and wider Study Area and summarises the findings of the survey. Where appropriate, further recommendations are outlined.

1.2 Site Description

The Site is approximately 87 hectares (ha) in size and lies approximately 1.6 km west of Forfar. The Site sits within an area of farmland and the wider area comprises arable and pasture fields, with blocks of woodland and small farm steadings. A stretch of the River Tay lies within 150 m to the south of the Site. The Site itself comprises a mix of arable and pasture fields. A series of drainage ditches pass along field boundaries and mature trees and a small block of woodland lies along the access track.

1.3 Development Proposal

The surveys have been undertaken in support of a planning application for a solar photovoltaic (PV) farm and Battery Energy Storage System (BESS) within the Site ('the Proposed Development').

2. Legislation, Policy and Guidelines

An overview of relevant legislation, policy and guidance is provided below.

2.1 Legislation

Full consideration has been given to all relevant nature conservation legislation when carrying out this assessment. This includes the following:

- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended);
- Wildlife and Countryside Act 1981 (as amended) (WCA);
- The Nature Conservation (Scotland) Act 2004 (as amended);
- > The Wildlife and Natural Environment (Scotland) (WANE) Act, 2011 (as amended); and
- The Protection of Badgers Act 1992, as amended by the Wildlife and Natural Environment (Scotland) Act 2011.

Legislation specific to all relevant protected species is detailed fully within Appendix A.



2.2 Policy Framework

The policies set out in Appendix B are those relevant to nature conservation and include those from National Planning Framework 4 (NPF4) (Scottish Government, 2023), which replaced National Planning Framework 3 (Scottish Government, 2014a) and Scottish Planning Policy (Scottish Government, 2014b); Planning Advice Note 60: Planning for Natural Heritage (Scottish Government, 2000); and the Angus Council Local Plan.

2.3 Best Practice Ecological Guidance

In preparing this work, cognisance has been taken of the Chartered Institute of Ecology and Environmental Management (CIEEM) good practice guidelines and survey methods. The extended UK Habitat Classification survey is based on the standard UK Habitat (UKHab) Classification methodology (UKHab Ltd., 2023).

3. Biodiversity Priorities

3.1 Scottish Biodiversity List

Scottish Ministers created the Scottish Biodiversity List (SBL) (Scottish Government, 2013) in 2005 to satisfy the requirements under Section 2(4) of the Nature Conservation (Scotland) Act 2004 and assist public bodies in carrying out conservation of biodiversity, as well as to provide the general public with information regarding conservation within Scotland. The SBL comprises species and habitats listed using both scientific and social criteria. Only scientific criteria are considered relevant to this report. They include the following:

- All UK Priority Species present in Scotland;
- Species which Scotland has an international obligation to safeguard;
- All species defined as nationally rare at a UK level that are present in Scotland;
- Species with populations present (resident, wintering or breeding) in 5 or fewer 10km squares or sites in Scotland;
- All species that are endemic to Scotland;
- Any sub-species or race that is widely recognised and accepted by the scientific (or other relevant) community and that is endemic to Scotland, if it also meets one of the other criteria; and
- Natural and semi-natural habitats that are known to be particularly important for supporting assemblages of plant or animal groups that are data deficient, such as fungi, bryophytes, lichens, algae and invertebrates.

Nine species of bat are included on the SBL for avoidance of negative impacts: Brandt's bat (*Myotis brandtii*), Daubenton's bat (*Myotis daubentonii*), whiskered bat (*Myotis mystacinus*), Natterer's bat (*Myotis nattereri*), noctule (*Nyctalus noctule*), Nathusius' pipistrelle (*Pipistrellus nathusii*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and brown long-eared bat (*Plecotus auritus*).

3.2 Local Biodiversity Reporting

3.2.1 Local Development Plan

The current local development plan was adopted by Angus Council in 2016 (Angus Council, 2016) and contains policies revenant to the proposed development as listed below.

Policy PV4 Sites Designated for Natural Heritage and Biodiversity Value

Angus Council will work with partner agencies and developers to protect and enhance habitats of natural heritage value. Development proposals which are likely to affect protected sites will be assessed to ensure compatibility with the appropriate regulatory regime.



- International Designations Development proposals or land use change which alone or in combination with other proposals could have a significant effect on a Ramsar site or a site designated or proposed under the Birds or Habitats Directive (Special Areas for Conservation and Special Protection Areas) and which is not directly connected with or necessary to the management of the site, will only be permitted where:
 - an appropriate assessment demonstrates the proposal will not adversely affect the integrity of the site; or
 - there are no alternative solutions;
 - there are imperative reasons of overriding public interest, including those of social or economic nature; and
 - compensatory measures are provided to ensure that the overall coherence of the Natura Network is protected.
- The Council will seek to protect and enhance the nature conservation interests within the River Tay and River South Esk Catchment areas. In order to ensure no adverse effects on the River Tay SAC or the River South Esk SAC, development proposals should take account of the detailed advice on the types of appropriate information and safeguards to be provided in support of planning applications.

Policy PV5 Protected Species

Angus Council will work with partner agencies and developers to protect and enhance all wildlife including its habitats, important roost or nesting places. Development proposals which are likely to affect protected species will be assessed to ensure compatibility with the appropriate regulatory regime.

European Protected Species

Development proposals that would, either individually or cumulatively, be likely to have an unacceptable adverse impact on European protected species as defined by Annex 1V of the Habitats Directive (Directive 92/24/EEC) will only be permitted where it can be demonstrated to the satisfaction of Angus Council as planning authority that:

- there is no satisfactory alternative; and
- there are imperative reasons of overriding public health and/or safety, nature, social or economic interest and beneficial consequences for the environment, and
- the development would not be detrimental to the maintenance of the population of a European protected species at a favourable conservation status in its natural range.

Other Protected Species

Development proposals that would be likely to have an unacceptable adverse effect on protected species unless justified in accordance with relevant species legislation (Wildlife and Countryside Act 1981 and the Protection of Badgers Act 1992) subject to any consequent amendment or replacement.

Policy PV7 Woodland, Trees and Hedges

Ancient semi-natural woodland is an irreplaceable resource and should be protected from removal and potential adverse impacts of development. The council will identify and seek to enhance woodlands of high nature conservation value. Individual trees, especially veteran trees or small groups of trees which contribute to landscape and townscape settings may be protected through the application of Tree Preservation Orders (TPO). Woodland, trees and hedges that contribute to the nature conservation, heritage, amenity, townscape or landscape value of Angus will be protected and enhanced.

Development and planting proposals should:

protect and retain woodland, trees and hedges to avoid fragmentation of existing provision;



- be considered within the context of the Angus Woodland and Forestry Framework where woodland planting and management is planned;
- ensure new planting enhances biodiversity and landscape value through integration with and contribution to improving connectivity with existing and proposed green infrastructure and use appropriate species;
- ensure new woodland is established in advance of major developments;
- undertake a Tree Survey where appropriate; and
- identify and agree appropriate mitigation, implementation of an approved woodland management plan and re-instatement or alternative planting. Angus Council will follow the Scottish Government Control of Woodland Removal Policy when considering proposals for the felling of woodland.

3.2.2 Local Biodiversity Action Plan

Tayside Local Biodiversity Action Plan 2nd Edition 2016-2026 (Tayside Biodiversity Partnership, 2016), list the following priority habitats and species of potential relevance to the Site;

Priority Habitats;

- Rivers and Burns
- Lochs and StandingWater
- Ponds and Pools
- Wetlands
- Lowland and Raised Bogs
- Transition Fen
- Lowland Meadows
- Wet Grassland
- Farm Buildings
- Hedgerows and Treelines
- Native conifers: Scottish Pinewoods, Yew and Juniper
- Lowland Mixed Broadleaf (Deciduous)Woodlands
- Planted Coniferous Woodlands (especially the woodland edge/glades)

Key Species;

- Salmonid species
- Riparian mammals
- Wading, wetland and diving birds
- Freshwater invertebrates
- Riparian, peatland and wetland plants
- Bat species
- Farmland birds, including Barn owl, Tree sparrow, Grey partridge, Linnet, Lapwing, Corn bunting and Skylark
- Reptiles, including Common lizard and Slow worm
- Hirundine species (Swallow, House martin, Sand martin) and Swifts
- Woodland mammals, including Red squirrel and Pine marten
- Scottish crossbill and Nightjar
- Woodland invertebrates, inc. Scottish wood ant and moths
- Woodland plants, inc. Juniper, Blaeberry, Small Cow-wheat, Coral-root orchid and Twinflower
- Woodland lower plants and fungi.



3.3 Birds of Conservation Concern 5 (BoCC)

The leading government (JNCC) and non-government conservation organisations in the UK jointly reviewed the population status of the 246 bird species that are regularly found within the United Kingdom, using data from national monitoring schemes. This was most recently done in 2021 (Stanbury *et al.*, 2021). On the basis of seven quantitative criteria, each species has been placed on one of three lists, these being:

- ▶ Red red-listed species are those that are globally threatened, have had an historical population decline in the UK from 1800 -1995, a rapid (> or = 50%) decline in UK breeding population over the past 25 years, or a rapid (> or = 50%) contraction of UK breeding range over the past 25 years;
- Amber amber-listed species have had a historical population decline from 1800-1995 but are recovering; population size has more than doubled over the past 25 years, a moderate (25-49%) decline in UK breeding population over the past 25 years, a moderate (25-49%) contraction of UK breeding range over the past 25 years, a moderate (25-49%) decline in UK non-breeding population over the past 25 years, or species with unfavourable conservation status in Europe also known as Species of European Conservation Concern (SPEC); and
- Green green-listed species have no identified threat to their population status.

4. Methods

4.1 Desk Study

The ecological desk study was carried out using a range of publicly available information sources to provide an understanding of the ecological context of the Study Area.

In terms of statutory nature conservation designations, the desk study identified any international and national designations, such as Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) or Local Nature Reserves (LNRs) within 2 km of the Site boundary (extended to 20 km for SPAs with goose features). Only ecological (biological) features were considered relevant to the present study. Any non-statutory designations, such as Environmentally Sensitive Areas (ESA), Local Biodiversity Sites (LBS), Sites of Interest for Nature Conservation (SINCs), RSPB Important Bird Areas, Scottish Wildlife Trust Reserves (SWTR) or woodland areas included on the Ancient Woodland Inventory (AWI), were identified within a 2 km distance of the Site boundary.

Existing records for protected or otherwise notable species (e.g. SBL/LBAP priority species) were identified with a 2 km distance of the centre point of the Site. Only records from the last 10 years were considered relevant to the study.

The local biological records centre, North East Scotland Biological Records Centre (NESBReC), was approached for records. Additional data sources consulted included the following online databases:

- NBN Atlas (NBN Atlas, 2024);
- NatureScot SiteLink (NatureScot, 2022);
- Scotland's Environment Web (SEPA, 2015); and
- Ancient Woodland Inventory (Scotland) (Scottish Natural Heritage, 2018).

4.2 Extended UK Habitat Classification Survey

An extended UK Habitat Classification survey was carried out of the Study Area (within the Site and a 50 m survey buffer but extended to up to 250 m for GWDTE) (access permitting) on the 13th June 2024 by Senior Ecologist John McTague ACIEEM, and was based on the UK Habitat (UKHab) Classification methodology (UKHab Ltd., 2023), which has replaced the Joint Nature Conservation Committee (JNCC) Phase 1 habitat



survey methodology (JNCC, 2010). Each of the habitats present within the Study Area was mapped. The surveyor recorded all habitat features (areas, lines and/or points) within the Study Area with each feature assigned a Primary Habitat based on the UK Habitat Key and Secondary Code(s) as appropriate. The vegetation was described in a series of georeferenced target notes (TNs), with plant nomenclature following Stace (2010).

The survey also recorded incidental evidence of protected or otherwise notable species, as well as habitats or features with the potential to support such species within the Study Area. All other fauna were identified and recorded on an *ad hoc* basis while evidence of breeding birds was undertaken across the Study Area.

4.3 Survey Limitations

4.3.1 Extended UK Habitat Classification Survey

Access was not provided beyond the Site boundary due to different landownerships. An assessment of habitats beyond the Site boundary was therefore not possible and so these areas were viewed where possible using binoculars from field edges. Not all areas could be viewed however and so there is potential that areas of GWDTE within the 250m buffer may not have been identified. It is considered however that broad habitat types and their potential for protected species have been sufficient assessment and so this is not considered a significant limitation.

5. Results

5.1 Desk Study

5.1.1 Nature Conservation Designations

International statutory nature conservation designations within 5 km, (and extended to 20 km for SPA and Ramsar designated for Geese), statutory designations within 2km and non-statutory designations within 1km of the Site are shown in Drawings 2a and 2b and described in **Table 1**.

River Tay SAC was identified within 2 km and three SPAs whose qualifying interests include geese species were identified within 20 km of the Site boundary as detailed in **Table 1** below and shown on **Drawing 2a** and **Drawing 2b**. One non-statutory designation was identified within 2 km of the Site, Captain's Pond LNCS, as detailed in **Table 1** below and shown on **Drawing 2a**.

Table 1: Nature Conservation Designations

Name	Designation	Distance and Direction from Site	Designated Features (of relevance to the Site)
Statutory Design	ations		
River Tay	SAC	0.18 km S	Qualifying Interests for which the site is designated: > Lampetra fluviatilis River lamprey > Lampetra planeri Brook lamprey > Lutra lutra Otter > Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea- Clear-water lakes or lochs



			with aquatic vegetation and poor to moderate nutrient levels Petromyzon marinus Sea lamprey Salmo salar Atlantic salmon
River south Esk	SAC	4.06 km NE	River south Esk SAC is designated for the following features: Atlantic salmon Salmo salar Freshwater pearl mussel Margaritifera margaritifera
Loch of Kinnordy	SPA	5.2 km NW	Loch of Kinnordy SPA qualifies under Article 4.2 by regularly supporting populations of European importance of the migratory species: greylag goose Anser anser (1986/87 to 1990/91 average winter peak count of 910 individuals, 1% of the Iceland/UK/Ireland biogeographic population) and pink-footed goose Anser brachyrhynchus (1986/87 to 1990/91 average winter peak count of 3,960 individuals, 3% of the Eastern Greenland/Iceland/UK biogeographic population).
Loch of Kinnordy	Ramsar	5.2 km NW	Loch of Kinnordy Ramsar site also qualifies under Ramsar Criterion 6 by regularly supporting 1% or more of the individuals in a population of waterbirds: • Greylag goose (1986/87 to 1990/91, average winter peak count of 910 individuals, 1% of the Iceland/UK/Ireland biogeographic population); and • Pink-footed goose (1986/87 to 1990/91, average winter peak count of 3,960 individuals, 3% of the Eastern Greenland/Iceland/UK biogeographic population).
Loch of Lintrathen	SPA	11.80 km NW	Loch of Lintrathen SPA qualifies under Article 4.2 by regularly supporting, in winter, internationally important numbers of the Icelandic population of greylag geese <i>Anser Anser</i> . In the five-winter period 1985/86 to 1989/90 an average peak of 2,100 birds was recorded, representing 2% of the total population, all of which winters in Britain. Loch of Lintrathen is also of importance for its assemblage of wintering birds typical of open water and associated wetlands. These include: whooper swan <i>Cygnus cygnus</i> (an Annex I species), wigeon <i>Anas penelope</i> , teal <i>Anas crecca</i> , mallard <i>Anas platyrhynchos</i> , and goosander <i>Mergus merganser</i> .
Loch of Lintrathen	Ramsar	11.80 km NW	Loch of Lintrathen Ramsar site qualifies under Ramsar Criterion 6 by regularly supporting 1% or more of the individuals in a population of waterbirds:



			Greylag goose (1985/86 to 1989/90, winter peak mean of 2,100 individuals, 2% of the Iceland/UK/Ireland biogeographic population).
Firth of Tay and Eden Estuary	SPA	19.22 km S	The Firth of Tay and Eden Estuary SPA qualifies under Article 4.2 by regularly supporting populations of European importance of the migratory species: 1% of the Eastern Atlantic biogeographic population); greylag goose Anser anser (1990/91 to 1994/95 a winter peak mean of 1,200 individuals, 1% of the Iceland/UK/Ireland biogeographic population) and pink-footed goose Anser brachyrhynchus (1990/91 to 1994/95 a winter peak mean of 2,800 individuals, 1% of the Eastern Greenland/Iceland/UK biogeographic population). The Firth of Tay and Eden Estuary SPA also qualifies under Article 4.2 by regularly supporting in excess of 20,000 individual waterfowl. During the period 1990/91 to 1994/95 a winter peak mean of 48,000
			individual waterfowl was recorded, comprising 28,000 wildfowl and 20,000 waders, including nationally important populations of the following species: greylag goose (1,200 individuals, 1% of the GB population).
Firth of Tay and Eden	Ramsar	19.22 km S	Firth of Tay and Eden Estuary Ramsar site qualifies under Ramsar Criterion 2 by supporting:
Estuary			 Marsh harrier (1992 to 1996, an average of 4 females, 3% of the GB population), and
			• Little tern (1993 to1997, an average of 25 pairs, 1% of the GB population).
			Firth of Tay and Eden Estuary Ramsar site further qualifies under Ramsar Criterion 5 by regularly supporting waterbirds in numbers of 20,000 individuals or more. In the period 1990/91 to 1994/95 a winter peak mean of 48,000 individual waterbirds was recorded, comprising 28,000 wildfowl and 20,000 waders.
			Firth of Tay and Eden Estuary Ramsar site qualifies under Ramsar Criterion 2 by supporting:
			 Marsh harrier (1992 to 1996, an average of 4 females, 3% of the GB population), and
			 Little tern (1993 to1997, an average of 25 pairs, 1% of the GB population).
			Firth of Tay and Eden Estuary Ramsar site further qualifies under Ramsar Criterion 5 by regularly supporting waterbirds in numbers of 20,000 individuals or more. In the period 1990/91 to 1994/95 a winter peak mean of 48,000 individual



waterbirds was recorded, comprising 28,000 wildfowl and 20,000 waders.

The site also qualifies under Ramsar Criterion 4 by supporting the following waterbird species at a critical stage in their life cycles:

- Velvet scoter (730 individuals, 24% of the GB population).
- Cormorant (230 individuals, 2% of the GB population).
- Shelduck (1,200 individuals, 2% of the GB population).
- Eider (13,800 individuals, 18% of the GB population).
- Common scoter (3,100 individuals, 9% of the GB population).
- Black-tailed godwit (150 individuals, 2% of the GB population).
- Goldeneye (230 individuals, 1% of the GB population).
- Red-breasted merganser (470 individuals, 5% of the GB population).
- Goosander (220 individuals, 2% of the GB population).
- Oystercatcher (5,100 individuals, 1% of the GB population).
- Grey plover (920 individuals, 2% of the GB population).
- Sanderling (220 individuals, 1% of the GB population).
- Dunlin (5,200 individuals, 1% of the GB population), and
- Long-tailed duck (560 individuals, 2% of the GB population).

Bar-tailed godwit, redshank, greylag goose and pinkfooted goose, are also components of the waterbird assemblage.

Firth of Tay and Eden Estuary Ramsar site also qualifies under Ramsar Criterion 6 by regularly supporting 1% or more of the individuals in a population of waterbirds (1990/91 to 1994/95):

 Bar-tailed godwit (a winter peak mean of 2,400 individuals, 2% of the Western European biogeographic population).



Non-Statutory D	esignations		 Redshank (a winter peak mean of 1,800 individuals, 1% of the Eastern Atlantic biogeographic population). Greylag goose (a winter peak mean of 1,200 individuals, 1% of the Iceland/UK/Ireland biogeographic population), and Pink-footed goose (a winter peak mean of 2,800 individuals, 1% of the Eastern Greenland/Iceland/UK biogeographic population
Captain's Pond	LNCS and Local Wildlife Site	Borders the western boundary of the Site	Captain's Pond LNCS and Local Wildlife Site is designated for the following habitats: Basin bog; Semi-natural broadleaved woodland; Open water; Swamp; Marshy grassland; and Unimproved acid grassland.

As shown on **Drawing 2a** and detailed below in **Table 2** below, 11 areas of ancient woodland were identified within 2 km of the Site boundary.

Table 2: Ancient Woodland

Name	Distance to Site	Size (ha)	Туре
North Warren Plantation	Borders western Site boundary	26.92	Long-Established (of plantation origin)
Berrymoss Wood	20.68 m S	1.45	Long-Established (of plantation origin)
East Plantation/Lera Wood	1.42 km S	220.43	Long-Established (of plantation origin)
Unnamed	1.39 km S	2.16	Long-Established (of plantation origin)
Unnamed	1.69 km SE	3.42	Long-Established (of plantation origin)
Bents Wood	0.13 km SW	11.54	Long-Established (of plantation origin)
Warren Woods	1.15 km SW	32.11	Long-Established (of plantation origin)
Unnamed	0.71 km SW	8.17	Long-Established (of plantation origin)
Bents Wood	0.33 km S	0.67	Long-Established (of plantation origin)



Bents Wood	0.78 km SW	0.81	Long-Established plantation origin)	(of
Logie Woods	1.31 km NW	20.76	Long-Established plantation origin)	(of

5.2 Invasive Non-Native Species

Himalayan balsam has been recorded within 2 km of the Site (NBN Atlas, 2024).

5.3 Terrestrial Species

Data obtained from NBN Atlas (NBN Atlas, 2024) and NESBReC included records of three protected or otherwise notable species within 2 km of the Site boundary (see **Table 3**).

Table 3: Protected or Otherwise Notable Species

Common Name	Scientific Name	Legal/Conservation Status	Description			
Mammals						
European otter	Lutra lutra	EPS under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)	1 record from 2024 located approximately 0.4 km north of the Site.			
Red squirrel	Sciurus vulgaris	Protected under the Wildlife and Countryside Act 1981 (as amended). SBL: Priority species – conservation action needed; avoid negative impacts.	67 records of red squirrel were identified within 2 km of the Site boundary. The most recent was 1.94 km east of the Site boundary, recorded in 2023.			
Beaver	Castor fiber	EPS under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)	417 records of beaver were identified within 2 km of the Site boundary.			

5.4 Birds

The desk study returned five records of bird species within 2 km of the Site within the last ten years. Of these, none are Schedule 1 species, two are BoCC 'Red' listed, three are BoCC 'Amber' listed, and two are listed on the SBL; see **Table 4** below.

Table 4: Notable Bird Species Identified within 2 km of the Site Boundary

Common name	Scientific name	Schedule	SBL			ВоСС	LBAP
		1	Conservation action needed	Avoid negative impacts	Watching brief only	5	
Black-headed gull	Chroicocephalus ridibundus / Larus ridibundus		X	x		Amber	



Common name	Scientific name	Schedule 1	SBL			ВоСС	LBAP
			Conservation action needed	Avoid negative impacts	Watching brief only	5	
Dipper	Cinclus cinclus					Amber	
Dunnock	Prunella modularis					Amber	
Greenfinch	Chloris chloris					Red	
Herring gull	Larus argentatus		Х	Х		Red	



5.5 Extended Habitat Survey Results

Results of the survey are included in the following sections, and shown in **Figure 6.3** in Volume 2a of the EIA Report.

5.5.1 Habitats

5.5.1.1 Arable and horticulture (c1) / Other cereal crops (c1c7) / Non-cereal crops (c1d)

The majority of the Site is in active arable production, comprising oilseed rape, barley and potatoes. Some fallow, weedy patches were mapped as the Level 3 category 'Arable and horticulture'. These had cut cereal stalks spread on the ground and vegetation comprised frequent broad-leaved dock, occasional creeping buttercup and cleavers (TN11).

5.5.1.2 Other woodland; mixed (w1h)

Mixed semi-natural woodland (w1h 29) lies to the north-west of the Site along the Site boundary. This woodland is listed on the AWI as semi-natural (of plantation origin) and now has some semi-natural characteristics. The woodland is quite wet in places with reed canary grass. The trees range from young to mature and species include frequent Scots pine, silver birch, goat willow, with frequent elder, and red elder (non-native), European larch being rare. Ground flora comprises Yorkshire fog, common male fern, cock's-foot, false oat-grass, common nettle, cleavers, raspberry, broad buckler fern, reed canary grass, red fescue, rough meadow grass, lesser stitchwort, germander speedwell, broom, and heath bedstraw.

5.5.1.3 Other woodland - mixed - mainly broadleaved w1h5

A stand of mature sessile oak, beech and Scots pine lies just south of the access track towards the centre of the Site. Trees here are over 1m in diameter (at breast height). No regeneration is present and the ground flora comprises grassland with abundant cock's-foot, frequent creeping soft-grass, occasional false oat-grass, common nettle, cleavers and common hogweed.

5.5.1.4 Purple moor-grass and rush pastures (f2b)

One area recorded as this habitat was present outside the south-western Site boundary (TN6). This wetland habitat did not closely match any UKHab categories, and f2b was chosen as 'best fit'. The habitat did not closely match any NVC community but the best fit would be modified M6c or the non-NVC vegetation *Juncus effusus* acid grassland (Averis & Averis). The vegetation appeared to be on peat/ peaty soil and included abundant wavy hair-grass, tormentil, heath bedstraw and *Polytrichum commune*; frequent rough meadow-grass, soft-rush and common sorrel; occasional tufted hair-grass, Yorkshire-fog and marsh violet; rare purple moor-grass, heath wood-rush, heather, devil's-bit scabious and *Sphagnum fallax*. The habitat was separated from the Site by ditches and a low embankment with a track/footpath.

5.5.1.5 Other neutral grassland (g3c) / Holcus-Juncus neutral grassland (g3c8)

Twelve areas of g3c were recorded, comprising strips of vegetation bordering ditches, streams and tracks (TN3, 8, 19) as well as some uncropped areas of arable fields (TN18). These areas typically had frequent or abundant cock's-foot, Yorkshire-fog and false oat-grass. One area of g3c8 was recorded outside the northern Site boundary, consisting of grassland with soft-rush on former clearfell.

5.5.1.6 Modified grassland (g4)

Two areas of modified grassland were recorded. One comprised an uncropped area of previously cultivated land in the northern part of the Site (TN12). The vegetation comprised abundant Yorkshire-fog and creeping buttercup with occasional rough meadow-grass, soft-rush, creeping thistle, field forget-me-not and common hemp-nettle. The second area was outside the Site boundary, across the ditch from the first area, and comprised grassland with scattered scrub and trees on former clearfell.



5.5.1.7 Other native hedgerow (h2a6)

One short stretch of defunct hedgerow was recorded along the existing road/track (TN17). This was unmanaged and had become a line of outgrown hawthorns with occasional elder and goat willow.

5.5.1.8 Other standing water (r1g)

This habitat consisted of the network of drainage ditches across the Site (TN3, TN8). The ditches were sometimes unvegetated but sometimes supported reed canary grass, floating sweet grass, lesser reedmace, water forget-me-not, water plantain and branched bur-reed. The ditches were bounded by un-cropped strips of neutral grassland, typically including abundant Yorkshire-fog and frequent reed canary grass.

5.5.1.9 Other rivers and streams (r2b)

One named watercourse (Ballindarg Burn) was recorded on the Site (TN19). The burn was approximately 3 m in width, <0.5 m in depth and had a silty substrate and muddy, vegetated banks. The burn was modified and in a ditch. It was bounded by a strip of neutral grassland of the same habitat as the ditches on the Site. The burn flows into Dean Water, which is a tributary/channel of the River Tay SAC.

5.5.1.10 Suburban mosaic of developed and natural surface (u1d)

This habitat comprised the farmsteading, consisting of a private residential house and garden, agricultural buildings, farmyard and adjacent sparsely vegetated land. The private garden, including a band of young to mature sycamore, beech and horse chestnut trees, lies adjacent to the track.

5.5.1.11 Built linear features (u1e)

A dry-stone wall (TN4) was present at the western Site boundary, between the cropped field and the plantation. A road/track ran partly outside the Site boundary and partly within it, leading to the farmstead.

5.5.1.12 Other broadleaved woodland (w1g)

Four lines of trees were recorded, comprising three windbreak lines of hybrid poplar (with occasional sycamore and ash) (TN21) as well as an intermittent line of trees along the north-eastern track/road including immature, semi-mature and mature pedunculate oak, possibly hybrid oaks, sycamore and beech (including copper beech) (TN22).

Four parcels of this habitat were recorded, all outside the Site boundary. These comprised a plantation of silver birch outside the north-west corner of the Site; a stand of downy birch woodland outside the southwest of the Site (TN7); a plantation of young silver birch outside the northern Site boundary (TN13); a plantation of silver birch, an alien birch species, ash, hawthorn and European larch on former clearfell outside the northern Site boundary (TN15).

5.5.1.13 Other Scots pine woodland (w2b)

One area of Scots pine plantation (TN5) was present outside the western Site boundary. The habitat included the non-native species red elder as well as the invasive non-native species *Rhododendron ponticum*.

5.5.2 Potential GWDTE

Three areas of potential GWDTE have been identified within the Study Area and are mapped on **Figure 6.3**. It is considered that all of these areas are very unlikely to be groundwater fed due to poor fit of species with NVC categories and presence of drainage ditches which may be the primary cause of wetter ground.

5.5.3 Invasive Plant Species

No invasive plant species were recorded on the Site itself however *Rhododendron ponticum* was recorded in the woodland to the west of the Site.



5.5.4 Fauna

5.5.4.1 Bats

No incidental evidence of bats was recorded during the field survey, however there are numerous features on Site and within the Study Area that may support roosting bats. This includes numerous mature trees, many of which are located along the northern access track/road, and several within adjacent woodland areas. Farm and residential buildings also lie just south of the Site and may have potential to support roosting bats.

Arable and modified grassland habitats are generally suboptimal for bats due to the associated low insect diversity, however the areas of woodland, neutral grassland, tree lines, ditches and riparian corridors within the Site and surrounding area will be a valuable foraging and commuting resource for bats. These areas are well connected to suitable foraging and commuting habitat in the wider landscape. The Study Area is therefore considered to be of Moderate-High suitability for foraging and commuting bats.

5.5.4.2 Badger

Evidence of badger was recorded in the Study Area, with presence of guard hairs on a fence line to the north-west and snuffle holes located in the central area of the Site, which indicated foraging. The adjacent woodlands are considered suitable for sett building and foraging, and badger likely use the Site for foraging and commuting.

5.5.4.3 Beaver

A large number of beaver records were retuned through the data search, in very close proximity to the Site. The watercourse and ditches on Site are considered suitable to support beaver. There is good connectivity for beaver across the Site and beyond with the presence of burns connecting to Dean water to the south and further burns to the north.

5.5.4.4 Otter

Otter have been recorded locally to the north of the Site. The watercourse and ditches may provide suitable denning habitat, along with suitable foraging and commuting habitat. Otter may also use nearby woodlands for denning, though are unlikely to use the arable fields on Site. There is good connectivity for otter across the Site and beyond with the presence of burns connecting to Dean Water to the south and further burns to the north.

5.5.4.5 Water vole

The water course and ditches provide suitable habitat for water vole and may be used for burrowing and foraging. There is good connectivity for water vole across the Site and beyond with the presence of burns connecting to Dean water to the south and further burns to the north.

5.5.4.6 Pine marten

The woodlands adjacent to the Site to the west have potential to support pine marten, with good connectivity to the other woodlands in the west and south-west.

5.5.4.7 Red squirrel

Numerous records of red squirrel were returned through the desk study and this species has been recorded in woodland adjacent to the west of the Site. It is likely that red squirrel still reside in the local area and may use the woodlands for breeding and scattered trees for breeding, and foraging.



5.5.4.8 Great Crested Newt

The desk study identified no records of great crested newt within 2 km of the Site within the last ten years. There were no ponds identified on Site, though five were identified within the Study Area, within 250m of the Site (TN14, TN15 and TN16) and most of these within 100m of the Site boundary. It is possible that these ponds could support great crested newt, and if present the scrub, ditches, grassland and woodlands may provide suitable terrestrial habitat for foraging, commuting and hibernation. The arable fields are unlikely to be of significant importance to newts but they may use these fields for commuting.

5.5.4.9 Other amphibians and reptiles

The desk study did not identify any records of amphibians and reptiles within 2 km of the Site within the last ten years. The ditches and watercourse within the Site, could be used by common amphibian species for commuting and foraging. The nearby ponds also likely support common amphibian species. The arable fields are unlikely to be of importance to herptiles, however the neutral grassland areas, scrub and woodlands may provide basking, shelter, foraging and commuting habitat.

5.5.4.10 Bird Species

The woodland, trees, scrub and grassland habitats in the Study Area provide good nesting habitat for a variety of farmland, lowland and woodland species. The arable fields may also support ground nesting birds. Wintering birds may also use these fields for loafing or foraging; this may include geese species from SPA designated sites located within the Study Area.

5.5.4.11 Invertebrates

The Site itself is largely intensively managed with limited structure to support a significant assemblage of invertebrates, however the ditches and watercourse likely support species of invertebrate and adjacent woodlands are likely to support more significant assemblages. Small pearl-bordered fritillary was recorded to the west of the Site within the area of purple moor-grass and rush pastures, suggesting that this area may be of importance for invertebrates.

5.5.4.12 Other mammals

The adjacent woodlands and Site scrub habitats may support this species. The field margins may also offer good connectivity and foraging habitat.

6. Discussion and Recommendations

The following section assesses the likelihood of ecological receptors being impacted by the Proposed Development in the absence of mitigation. Where there is the potential for an ecological receptor to be present on Site, or in the zone of influence of the Proposed Development, and where potential impacts can be predicted at this stage without the need for further survey, mitigation measures have been recommended. Where there is the potential for a protected species or species group to be present on Site and the significance of development impacts cannot otherwise be accurately predicted and mitigated against, additional species-specific surveys are required. The findings of the surveys will inform a subsequent Ecological Impact Assessment and mitigation strategy.

6.1 Designated Sites

6.1.1 Assessment

6.1.1.1 Statutory sites

A section of the River Tay SAC, Dean Water, lies within 0.18km south of the Site. The Site boundary does not directly border the SAC and arable fields lie in between, however ditches present on Site do directly connect to the SAC. No direct impacts/land take of the SAC is anticipated, however there is potential for impacts through pollution of watercourses, which could impact the habitat and qualifying aquatic species of the SAC.



Otter are also a qualifying feature of the SAC and as a mobile species (with territories up to 40km), the SAC population may be present on Site and the Site ditches and watercourse would likely provide supporting habitat and so Likely Significant Effects (LSE) are possible.

The three SPAs located within the Study Area are in part designated for their goose features, and as geese are known to travel large distances, all habitat within 20km is considered within their foraging range. The Site arable fields are considered to provide suitable habitat for wintering geese and SPA populations may use the Site and so LSE are possible.

6.1.1.2 Non-statutory sites

A single LNCS lies within the Study Area. This site is Captain's Pond designated for its woodland, bog, wetland and grassland habitats, and lies directly adjacent to the west of the Site. There is potential for impact to this habitat as a result of the Proposed Development, primarily as a result of any pollution from run-off, and impacts as a result of de-watering if the habitat here is indeed a GWDTE, however the presence of GWDTE is considered unlikely based on the species composition and generally waterlogged ground in the area which suggests a surface water source.

6.1.2 Recommendations

In order to fully assess the potential for LSE to the SAC ad SPAs noted above having a detrimental impact to the conservation objectives of the designations, a Shadow Habitat Regulations Assessment (HRA) Stage 1 Screening is required. This may determine the requirement for Appropriate Assessment (Stage 2) if LSE are identified and mitigation measures are required.

Regarding the LNCS, further assessment by a hydrogeologist is required to confirm if the habitat within the LNCS is groundwater dependant, which may inform more specific mitigation or compensation measures. General mitigation measures will be required to include pollution prevention and buffering of the LNCS habitat to ensure no damage or negative impacts occur. These measures would be detailed within a Construction Environment Management Plan (CEMP).

6.2 Habitats

6.2.1 Assessment

6.2.1.1 Arable and horticulture (c1) / Other cereal crops (c1c7) / Non-cereal crops (c1d)

The majority of the Site was in active arable production. The arable fields are not of conservation priority as habitats themselves and so impacts to these habitats are not considered to result in significant effects.

6.2.1.2 Other woodland; mixed (w1h)

Mixed semi-natural woodland (w1h 29) lies to the west of the Site along the Site boundary. This woodland is listed on the AWI as semi-natural (of plantation origin) but now has some semi-natural characteristics. As an AWI woodland, this is habitat of high conservation priority. Any impacts to this habitat would be considered significant and should be avoided. The other woodland areas are not listed on the SBL but provides suitable habitat of value to birds, bats, invertebrates and mammals in the local area.

6.2.1.3 Other woodland – mixed – mainly broadleaved w1h5

A stand of mature sessile oak, beech and Scots pine lies just south of the access track towards the centre of the Site. The other woodland areas are not listed on the SBL but provides valuable habitat to birds, bats, invertebrates and mammals in the local area.

6.2.1.4 Purple moor-grass and rush pastures (f2b)

One area recorded as this habitat was present outside the south-western Site boundary (TN6), this is also the LNCS site. This wetland habitat may qualify as an SBL habitat and is of conservation priority. No direct impacts are likely to occur as it lies off-Site, though there is potential for indirect impacts.



6.2.1.5 Other neutral grassland (g3c) / Holcus-Juncus neutral grassland (g3c8)

The neutral grassland comprises relatively small areas along field margins and in the context of the Site, provides suitable areas of habitat of value for species on Site such as small mammals and invertebrates. However, the habitat itself is not of conservation priority, therefore any impacts are not considered significant.

6.2.1.6 Modified grassland (g4)

The modified grassland is considered to be relatively intensively managed and is species poor, comprising common and widespread grassland species. This habitat is not of conservation priority and so potential for impacts are not considered to result in significant effects.

6.2.1.7 Other native hedgerow (h2a6)

One short stretch of defunct hedgerow was recorded along the existing road/track. As a native hedgerow, this habitat is an SBL habitat of conservation priority and negative impacts should be avoided.

6.2.1.8 Other standing water (r1g)

This habitat type is not of conservation importance and is relatively common in the local area, though in the context of the Site, provides areas of habitat of value for local species and provides habitat connectivity in the local area. The ditches connect to the nearby watercourse on Site and off-Site, and so impacts as a result of pollution has the potential to result in significant effects.

6.2.1.9 Other rivers and streams (r2b)

One named watercourse (Ballindarg Burn) was recorded on the Site (TN19). This habitat is considered a priority habitat under the SBL and provides connectivity across the Site and to off-Site habitats, including Dean Water, part of the River Tay SAC. Impacts to this habitat type would be considered to result in significant effects.

6.2.1.10 Suburban mosaic of developed and natural surface (u1d)

This habitat comprised the farm steading, consisting of a private residential house and garden, agricultural buildings, farmyard and adjacent sparsely vegetated land. This is not listed as an SBL habitat and so is not of conservation priority, however native trees likely provide localised habitat for a number of species.

6.2.1.11 Built linear features (u1e)

A dry-stone wall (TN4) was present at the western Site boundary, between the cropped field and the plantation. This is not listed as an SBL habitat and so is not of conservation priority, however the stone wall provides niches for an array of species including invertebrates, herptiles and small mammals.

6.2.1.12 Other broadleaved woodland (w1g)

The Other broadleaved woodland is not listed on the SBL as it does not meet the criterial for Lowland mixed deciduous woodland, but provides suitable habitat of value to birds, bats, invertebrates and mammals in the local area. The mature oak trees along the access track, in particular, are considered to be of local importance as habitat and landscape features.

6.2.1.13 Other Scots pine woodland (w2b)

The Scots pine woodland is not listed on the SBL but provides suitable habitat for birds, bats, invertebrates, pine marten, red squirrel and other mammals in the local area.

6.2.2 Recommendations

Those habitats of conservation priority on Site and in the Study Area, including the watercourse, and AWI woodlands adjacent to Site boundaries must be retained and protected. The ditches should also be retained and protected as habitat features and due to their connectivity to other watercourses. It is recommended



that other areas of woodland, mature trees, hedgerow and neutral grassland are also retained and protected and enhanced were possible.

Working methods should proceed in line 'BS 5837 (2012) – Trees in relation to Design, Demolition and Construction' to protect woodland adjacent to the Site that is to be retained. This must include the demarcation of a suitable root protection area in advance of any works commencing within the Site. The Root Protection Area is calculated by multiplying the diameter of a tree at breast height (dbh) by 12, up to a maximum of 12 metres, and aims to avoid impaction of soil around the trees root system which can damage the tree.

Working measures must be adopted to prevent silt run-off into the drainage ditch and watercourses within and adjacent to the Site.

Regarding the adjacent purple moor-grass and rush pastures habitat (LNCS), further assessment by a hydrogeologist is required to confirm if the habitat within the LNCS is groundwater dependant, which may inform more specific mitigation or compensation measures. General mitigation measures will be required to include pollution prevention and buffering of the LNCS habitat to ensure no damage or negative impacts occur. These measures would be detailed within a CEMP.

A biodiversity enhancement plan should be produced for the Site detailing measures to enhance habitats and increase biodiversity within the Site. Suitable biodiversity enhancement measures are included within **Section 6.4**.

6.3 Species

6.3.1 Assessment

6.3.1.1 Bats

All bat species are European Protected Species (EPS) and are listed on the SBL as a species on which negative impacts should be avoided. Bat presence within the local area is likely along watercourses and woodland habitats within the Study Area providing good foraging and commuting habitat that is well connected to suitable habitat within the wider landscape. The Site is considered to be of moderate to high suitability for foraging and commuting, and the linear watercourses and ditches and woodland boundaries are likely to be of value on the Site. The open arable fields and modified grassland are unlikely to be of significant value to bats. The buildings associated with the farm to the centre of the Site as well as a large number of mature trees along the access road were identified as having features that may be suitable for roosting bats.

There is potential for impact to bats if any of the foraging and commuting features (woodland edges, ditches, watercourse) were to be disrupted/impacted/lost, in addition the use of lighting can negatively impact commuting as bats may actively avoid lit areas. Impacts to roosting bats may occur if any works take place within 30m of roost sites which may result in disturbance, however it is considered that this can be effectively mitigated.

6.3.1.2 Badger

Under the Protection of Badgers Act 1992, badgers and their setts are fully protected. Badgers were confirmed to be active within the Study Area and the woodland habitats adjacent to the Site could support badger. The field margins along ditches within the Site may be used by badger as a foraging resource. There is potential for impacts if badger setts are present within 30m of works as damage or disturbance may occur. The loss of relatively small area of foraging habitat is unlikely to result in significant impacts to badgers.

6.3.1.3 Beaver

Beaver is an EPS and so is fully protected. The watercourse on Site and ditches have the potential to support beaver, primarily for commuting, foraging and denning. Significant impacts may occur if a breeding or resting site lies within 100m of the works as disturbance, damage or killing/injury may occur.



6.3.1.4 Otter

Otter is an EPS and is listed on the SBL as a species on which negative impacts should be avoided. The watercourse on Site and ditches have the potential to support otter, primarily for commuting, and the adjacent woodlands may be used for denning. Holts may also be present along water courses. Significant impacts may occur if a natal holt lies within 200m, or non-natal holt within 50m, of the works as disturbance or direct impact may occur.

6.3.1.5 Water vole

Water vole is fully protected under the Wildlife and Countryside Act 1981 (as amended) and is listed as a priority species on the SBL. No incidental evidence of water vole was found along the ditches on the Site though these habitats were assessed as potentially suitable for water vole. Significant impacts to water vole may occur if present within the watercourse and ditches on Site, as a result of direct damage or disturbance.

6.3.1.6 Pine marten

Pine marten is fully protected under the Wildlife and Countryside Act 1981 (as amended) and is listed as a priority species on the SBL. The woodland habitats adjacent to the Site have the potential to support pine marten and disturbance may occur as a result of the proposed development if dens are located within 50m.

6.3.1.7 Red squirrel

Red squirrel is fully protected under the Wildlife and Countryside Act 1981 (as amended) and is listed as a priority species on the SBL. The woodland habitats adjacent to the Site have the potential to support pine marten and disturbance may occur as a result of the proposed development if dens are located within 50m.

6.3.1.8 Great Crested Newt

Great crested newt is an EPS and is listed on the SBL as a species on which negative impacts should be avoided. The ponds within 250m of the Site have the potential to support this species. There will be no direct impacts to ponds as a result of the works and so no loss of potential breeding habitat is anticipated. If present, great crested newt may however use the habitats on Site including ditches and neutral grassland margins for foraging, and woodland habitats may be used for hibernation. They may also use arable and modified grassland fields for commuting. If present, there may be potential for impacts to newts in their terrestrial phase if any of these habitats are impacted.

6.3.1.9 Other amphibians and reptiles

Reptiles and amphibians are protected under the Wildlife and Countryside Act 1981, with reptiles given additional protection from killing or injury. Common toad, slow-worm, common lizard and adder are listed on the SBL as species on which negative impacts should be avoided. As per section 6.3.1.8 above, there may be potential for impacts if species pass through working areas or if grassland margins and ditches are impacted.

6.3.1.10 Bird Species

All wild birds and their nests are protected under the WCA 1981 (as amended) (with Annex 1/Schedule 1 species afforded additional protection). The Site has potential to support a number of species during the breeding and wintering seasons. There is potential for direct impacts - destruction or disturbance - of nests to ground nesting birds if nesting within the fields during works. The development would also result in a long-term loss of ground nesting habitat in the local area. There is also potential for disturbance to nesting birds if present in adjacent woodlands during works. Impacts to wintering birds may occur due to displacement caused by disturbance as a result of the works. The Proposed Development will also likely result in a long-term loss of an area of wintering bird habitat.

6.3.1.11 Invertebrates

The majority of the Site is unlikely to support an important assemblage of invertebrates, though the watercourse and ditches and surrounding habitats including the purple moor-grass and rush pasture, and



woodlands may support more significant assemblages. Lighting can impact invertebrate species however and if lighting is used at night, it may negatively impact invertebrates in adjacent habitats.

6.3.1.12 Other mammals

Hedgehog is listed on the SBL and may be present on Site and use neutral grassland and adjacent woodlands for foraging and shelter and so impacts may occur if these habitats are impacted or lost.

6.3.2 Recommendations - Further Survey or Assessment

Based on the above assessment, it is considered that further survey is required for a number of species/species groups in order to inform the baseline and fully assess impacts as a result of the proposed development. Further survey is required for the following.

- Designated sites A Shadow HRA will be undertaken to assess impacts to international statutory designated sites and identify requirements for mitigation measures.
- Protected mammals A full survey will be undertaken for protected mammals, including badger, beaver, otter, water vole, pine marten and red squirrel. This will include the Site itself and up to 250m buffer (for otter) where access is possible. This should be undertaken between March and October.
- Preliminary (bat) Roost Assessment (PRA) and Ground Leel Tree Assessment (GLTA) A PRA of buildings and structures and GLTA of trees on Site and within 50m of the Site will be undertaken to assess their suitability for roosting bats. This will inform mitigation requirements and the need for further survey.
- ➤ Great crested newt The ponds within 250m will be assessed for their suitability for great crested newt and an eDNA survey will be undertaken to confirm presence/likely absence, with the survey completed between mid-April and end of June.
- ▶ Breeding birds A breeding bird survey will be undertaken of the Site and 50m buffer where access is possible with four visits between April and July.
- Repeat Surveys The survey data in the present report are considered valid for 18 months. Should construction of the Proposed Development not commence before December 2025, it is recommended that an update survey is undertaken, as per the methods section of this report, to ensure there has been no significant change to the baseline outlined within this report.

6.3.3 Recommendations - Preliminary Mitigation Measures

The following measures are recommended based on best practice and/or where further survey is not considered necessary.

6.3.3.1 Bats

An appropriate buffer should be implemented around potential bat roosts on any buildings and trees within the Study Area and it is assumed this will be possible. If not possible, further assessment will be required.

In the first instance an appropriate no-disturbance buffer between the features and the works should be observed where possible, dependent on the nature of the proposed works. Table 5 below outlines the recommended protection zones for different site activities (adapted from Shawyer, 2011¹).

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¹ Note this reference relates to barn owl *(Tyto alba)* mitigation; however, the reasoning behind the size of disturbance buffers is considered applicable to bats also, and similar bat disturbance buffers have been accepted by NatureScot on other schemes.



Table 5: Recommended protection zones for different levels of disturbance

Predicted Level of Disturbance	Example Site Activities	Minimum Protection Zone
Low	> Pedestrian movement	10 m
	> Storage of materials	
	 Artificial lighting (not directed towards potential roost feature) 	
Moderate	 General building and landscaping works – laying of concrete, bricks, roofing etc. using mechanised plant 	15 m
High	 Heavy construction works – ground levelling, pile driving, use of compacting roller etc. using heavy plant 	30 m

A Species Protection Plan including a Bat section must be produced, detailing mitigation measures to minimise the impact of the Proposed Development on the local bat population in relation to habitats and potential roost features. Temporary and permanent lighting should be directed to where it is needed and light spillage (whether direct and/or in-direct) should be avoided as far as practicable. A sensitive lighting scheme must be adopted during construction as and as part of the permanent lighting design to avoid disturbance to foraging and commuting bats as described in **Section 6.3.4.**

6.3.3.2 Reptile & common amphibians

A herptile Species Protection Plan will be produced and implemented for the proposed works. This may include avoidance of suitable habitat and appropriate timing, or ecology supervision of any clearance works.

6.3.3.3 Birds

It is recommended that any vegetation clearance works are undertaken outside the nesting bird season (March to August, inclusive). If not possible however and 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 must be installed, within which there can be no works until the nest has fledged.

Measures to enhance the Site for birds should be incorporated within a Biodiversity Enhancement and Management Plan.

6.3.3.4 Hedgehog

Prior to Site clearance works commencing, the site team should check for presence of hedgehogs within areas of scrub and field margins. If any hedgehogs are encountered these should be carefully lifted and moved into suitable areas of habitat, outside the footprint of works. The design of Site fencing (both temporary and permanent) should also include features to allow continued passage of hedgehogs and other mammals through the Site (e.g. leaving a 20 cm gap under fencing).

The general best practice measures as described in **Sections 6.3.5** must be adhered to.

6.3.4 Artificial Lighting

Research has indicated that artificial lighting can have an adverse effect on the behaviour of nocturnal mammals including bats and badger (ILP, 2021; BCT&ILP, 2023). A sensitive lighting scheme that aims to avoid disruption to bat, otter, water vole and badger foraging and commuting behaviour and nesting bird activity will be adopted. The following measures are to be incorporated into the design and installation of temporary lighting during works, and the permanent lighting scheme:



- 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;
- Lighting will be positioned to avoid illuminating suitable foraging, commuting and nesting habitat within hedgerows and edge habitat adjacent to the Site and any newly created woodland and hedgerow habitats that form part of the planting design for the Site; and
- The times during which lighting is on should be limited to provide dark periods.

6.3.5 General Good Practice

During the construction phase the following good practice measures, endorsed by NatureScot are recommended (NatureScot, 2020):

- Wherever possible 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.

6.4 Preliminary Biodiversity Enhancement Measures

A Biodiversity Enhancement and Management Plan (BEMP) will be produced for the development in consultation with the local authority ecologist, secured under an appropriately worded planning condition. The following guidance document should be consulted:

Developing with Nature Guidance: Guidance on securing positive effects for biodiversity from local development to support NPF4 policy 3(c) (NatureScot, 2023).

Examples of suitable biodiversity enhancement measures to maximise plant and species diversity within the Site are detailed below.

6.4.1 Boundary Features

It is recommended that, where practicable, species-rich hedgerows and / or hedgerows with trees are planted as boundary features within the Site, to provide suitable breeding habitat for birds. This could be achieved by planting native and beneficial plant species and restricting maintenance within the breeding season (March – August, inclusive).

The following recommendations apply to areas of new hedgerow and tree planting:

- The mix should include a minimum of five locally native species;
- If possible, planting will be undertaken between November and March when plants are dormant and avoiding heavy frost;



- To enable newly planted areas of hedgerow and tree planting to become established, a management regime for this habitat type must be detailed within a Landscape and Habitat Management Plan (LHMP); and
- Whips must be of local or regional provenance.

6.4.2 Woodland creation

Woodland could be created in areas of the Site to provide increased connectivity to off-Site habitats. Woodland planting should be appropriately designed and comprise of locally native trees, with measures following those outlined on Section 6.4.1 above.

6.4.3 Species-rich grassland

Species-rich neutral grassland areas should be incorporated within the landscape design to support pollinator species. The following measures should be taken to maintain and increase species diversity within wildflower grassland and amenity grassland areas:

- Seeds must be of local or regional provenance;
- Suitable seed mixes for wildflower meadow creation (depending on the ground conditions) would be the MG5 mix from Scotia Seeds (<u>www.scotiaseeds.co.uk</u>);
- Within areas of amenity grassland a seed mix should be used which contains low growing wildflower species that are tolerant to being regularly cut. A suitable mix for this purpose is the Flowering Lawn Mix available from Scotia Seeds (<u>www.scotiaseeds.co.uk</u>);
- The grassland management should aim to encourage a range of plant species with different flowering seasons, to increase the abundance and diversity of invertebrates within the Site;
- To enable newly seeded areas of wildflower grassland to become established, a management regime for this habitat type must be detailed; and
- Use of artificial pesticides and herbicides should be limited. If necessary, aggressively spreading weeds should be spot-treated or hand-pulled.

6.4.4 Bats and Birds

The following enhancement measures for bats and birds could be considered:

- ➤ Bat boxes could be included throughout the Site, either on retained trees or new buildings. The following provides an overview of suitable resources: https://www.bats.org.uk/our-work/buildings-planning-and-development/accommodating-bats-in-buildings; and
- The Proposed Development has the potential to increase nesting provisions for birds by installing nest boxes throughout the Proposed Development. A variety of bird boxes could be installed on retained trees within the woodland to provide nesting resource. Furthermore, species-specific nest boxes, such as swift boxes, should also be considered in the appropriate aspects of the Proposed Development, such as the industrial buildings to the south and east of the Proposed Development.

6.4.5 Sustainable Drainage System

Any SuDS proposed may be designed to promote biodiversity. This can include features such as:

- shallow undulating sides and uneven surfaces;
- marginal vegetation, including trees, shrubs and flower-rich grass buffer zones; and
- the use of native plants that occur in the wider landscape.

Further information can be found in RSPB guidance on Sustainable Drainage Systems: Maximising the potential for people and wildlife (Graham, et al. 2012).

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6.4.6 Pond and Wetland Creation

The Site could benefit from the creation of ponds similar to SuDS in order to improve invertebrate habitat, herptile suitable habitat and foraging habitat for protected mammals and birds. Suitable features for maximising biodiversity benefit include;

- shallow undulating sides and uneven surfaces;
- marginal vegetation, including trees, shrubs and flower-rich grass buffer zones; and
- the use of native plants that occur in the wider landscape.

6.4.7 Fencing

Fencing is to be designed to allow continued passage of mammals, such as hedgehog, through provision of gaps or tunnels in the base of fencing.



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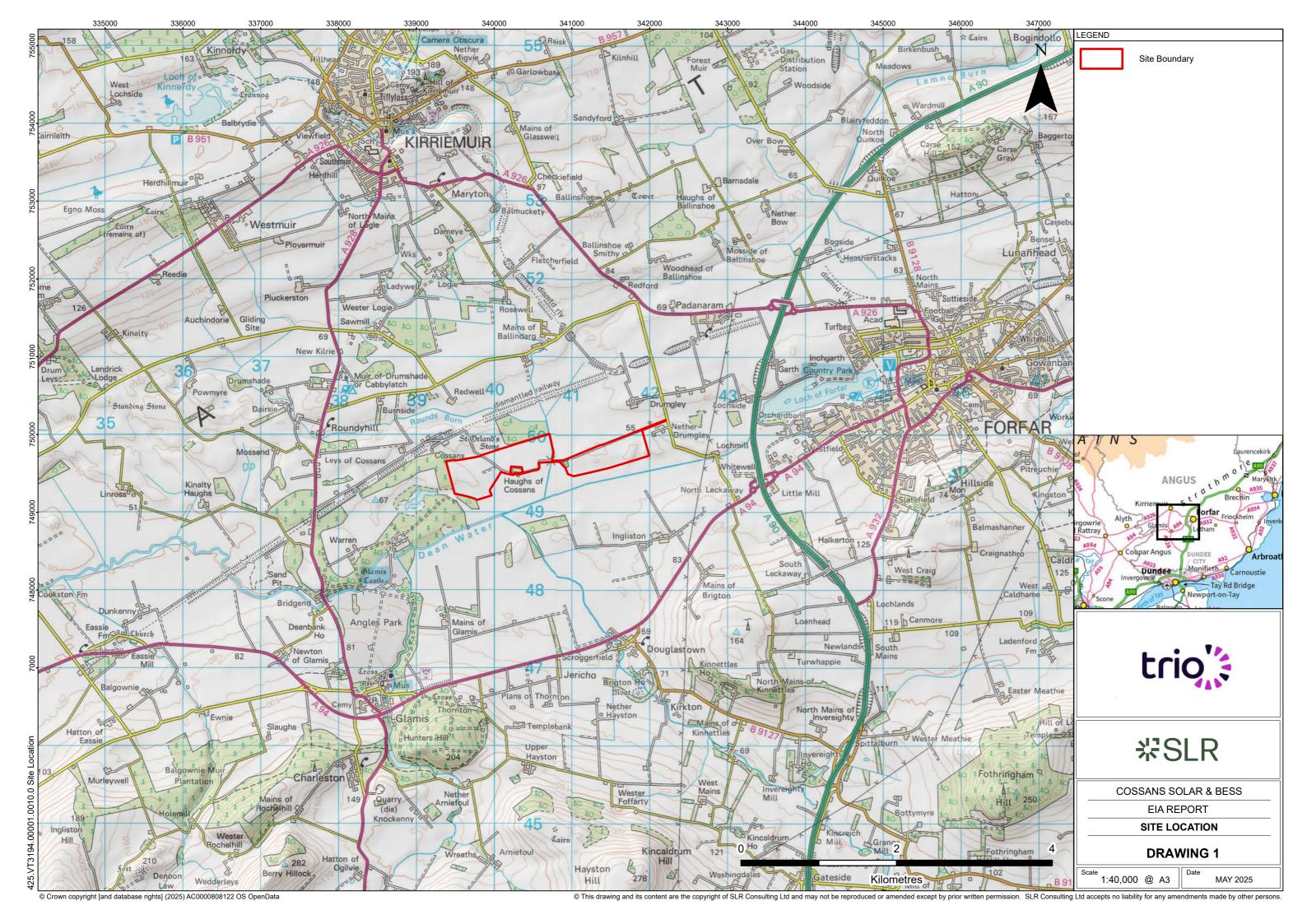
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Drawing 1: Site Location



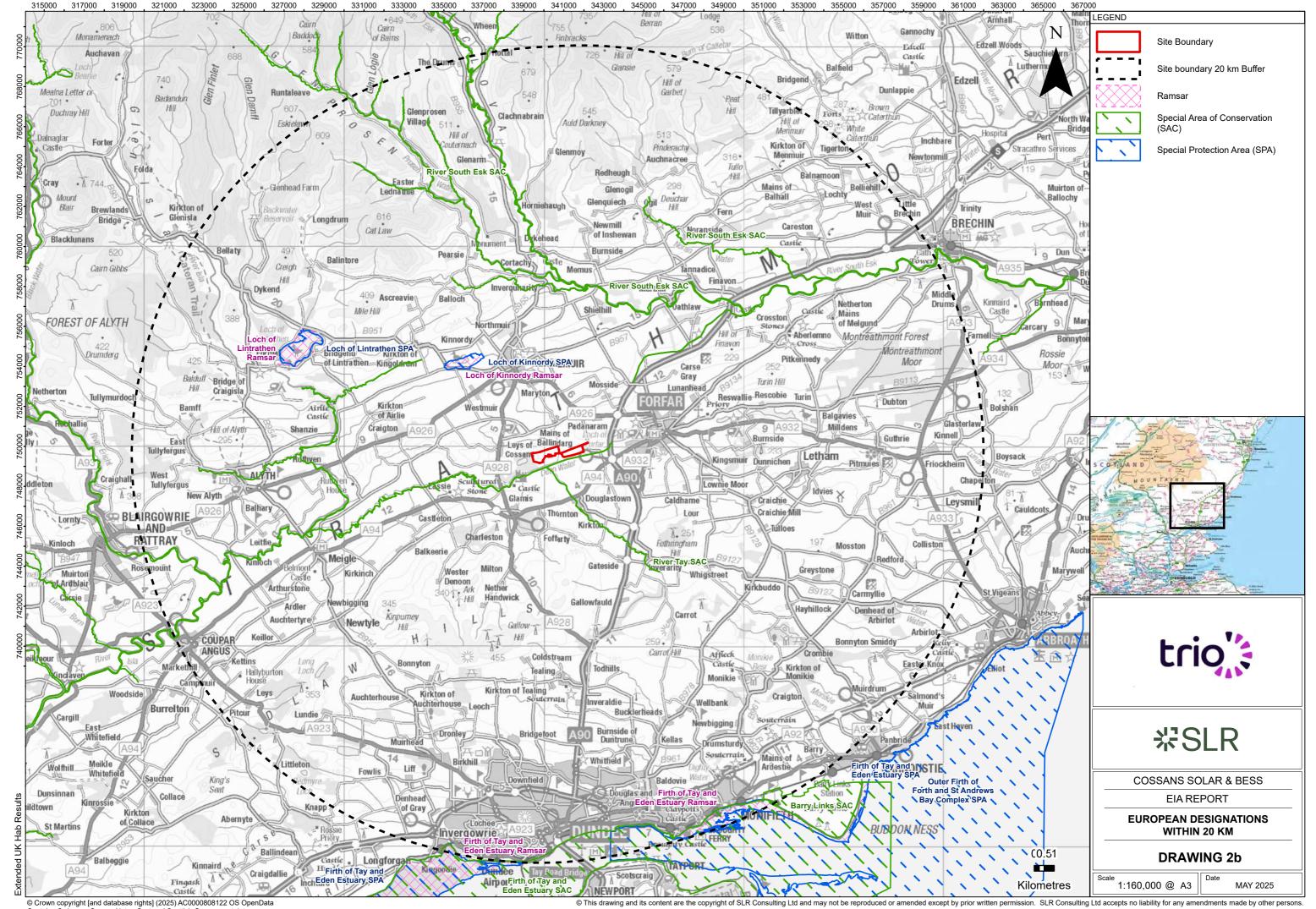




Drawing 2a&b: Nature Conservation Designations



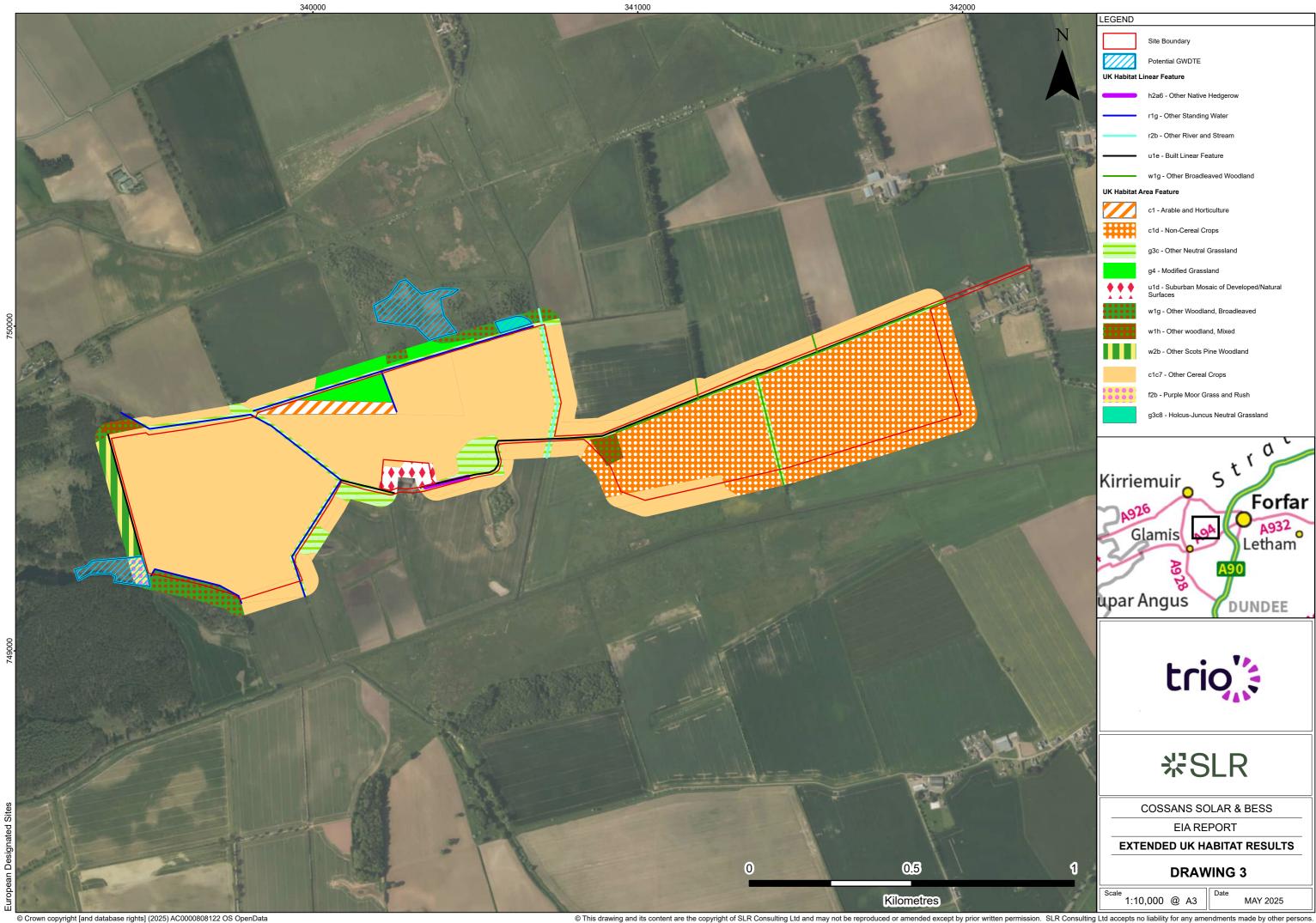






Drawing 3: UKHab Results







Appendix

Appendix A: Species Specific Legislation

Badger

Badgers and their setts are protected under the Protection of Badgers Act 1992, as amended by the Wildlife and Natural Environment (Scotland) Act 2011. Under this legislation it is an offence to intentionally or recklessly:

- Kill, injure, take, possess or cruelly ill-treat a badger or attempt to do so;
- Interfere with a sett by damaging or destroying it;
- Obstruct access to a badger sett;
- Disturb a badger whilst it is occupying a sett;
- Cause or allow a dog to enter a sett;
- Sell a live badger, or offer one for sale, or possess a live badger; and
- Be in the possession, or control of, a dead badger or anything derived from a dead badger.

Under the Protection of Badgers Act 1992, a badger sett is defined as 'any structure or place which displays signs indicating current use by a badger'. Following NatureScot guidance, in the absence of any case law to define current use, the presence of field signs such as bedding, fresh spoil heaps, signs of recent digging, hair, latrines, or footprints in or around the potential sett or evidence of badgers entering or exiting the structure or place in question would indicate current use of the structure / place by a badger (SNH, 2018). Where a possible sett has no immediate evidence of current use, and is to be impacted by works, the structure should be actively monitored for a minimum of two weeks.

This legislation means that badgers are fully protected in Scotland, and that any planned activity, which may affect them, requires prior consultation with the appropriate statutory nature conservation organisation (i.e. NatureScot). Under Section 10 (1) of The Protection of Badgers Act 1992, licences may be granted by NatureScot for certain purposes that would otherwise be illegal.

Bats

Bats are protected as European Protected Species under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). For any wild bat species, it is an offence to deliberately or recklessly:

- Capture, injure or kill a bat;
- Harass a bat or group of bats;
- Disturb a bat in a roost (any structure or place it uses for shelter or protection);
- Disturb a bat while it is rearing or otherwise caring for its young;
- Obstruct access to a bat roost or otherwise deny an animal use of a roost;
- Disturb a bat in a manner or in circumstances likely to significantly affect the local distribution or abundance of the species;
- Disturb a bat in a manner or in circumstances likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young; and
- Disturb a bat while it is migrating or hibernating.

It is also an offence to:

Damage or destroy a breeding site or resting place of such an animal (whether or not deliberately or recklessly); and



Keep, transport, sell or exchange, or offer for sale or exchange any wild bat (or any part or derivative of one) obtained after 10 June 1994.

It is a strict liability offence to damage or destroy a bat roost. A bat roost is protected at all times irrespective as to whether any bats are using the roost at a given time. If the work proposed is to affect bats or their roosts, an EPS licence, issued by the licensing authority NatureScot under Regulation 44 of the Habitats Regulations will be required in order to permit an otherwise illegal activity.

Great crested newt

Great crested newts are classed as EPS under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). There is no change to the protection of European protected species as a result of EU Exit. It is therefore an offence to deliberately or recklessly:

- kill, injure, capture or harass a great crested newt;
- disturb a great crested newt whilst it is using any structure or place for shelter or protection (e.g. a pond or hibernation site), or in any way that impairs its ability to survive or breed, or significantly affects the local distribution or abundance of great crested newts;
- obstruct access to a great crested newt breeding site or resting place, or otherwise prevent their use.

And whether or not deliberate or reckless:

to damage or destroy a great crested newt breeding site or resting place.

This means that if great crested newts could be affected in these ways by a development and no action is taken to prevent it, an offence may be committed. The advice below will help ensure that impacts on wildcats are minimised and no offences occur.

Otter

Otter is listed on Appendix II of the Bern Convention and on Annexes II and IV of the European Union Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (i.e. the "Habitats Directive"), and it is protected as a European Protected Species under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). As such, it is an offence to deliberately or recklessly:

- Capture, injure or kill an otter;
- Harass an otter or group of otters;
- Disturb an otter in a holt or any other structure or place it uses for shelter or protection;
- Disturb an otter while it is rearing or otherwise caring for its young;
- Obstruct access to a holt or other structure or place otters use for shelter or protection, or otherwise deny the animal use of that place;
- Disturb an otter in a manner or in circumstances likely to significantly affect the local distribution or abundance of the species; and
- Disturb an otter in a manner or in circumstances likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young.

It is also an offence to:

- Damage or destroy a breeding site or resting place of such an animal (whether or not deliberately or recklessly); and
- Keep, transport, sell or exchange, or offer for sale or exchange any wild otter (or any part or derivative of one) obtained after 10 June 1994.



It should be noted that otter shelters are legally protected whether an otter is present or not. Actions that are prohibited can be made lawful by a licence issued by the appropriate Statutory Nature Conservation Organisation, which in this case is NatureScot.

Nesting birds

All breeding wild birds are protected by the Wildlife and Countryside Act (WCA) 1981 (as amended) and the Nature Conservation (Scotland) Act 2004 (as amended), whereby it is illegal to:

- Intentionally or recklessly kill, injure or take any wild bird;
- Damage or destroy or otherwise interfere with the nest of any wild bird; and
- To take or destroy an egg of any wild bird.

Certain species are listed on Schedule 1 of the WCA 1981 (as amended) and these species are additionally protected against intentional or reckless disturbance on or near an active nest. The Wildlife and Natural Environment (Scotland) (WANE) Act 2011 (as amended) affords further protection to particular Schedule 1 species by protecting their nests out with the breeding season.

Pine marten

The pine marten receives full protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Certain methods of killing or taking pine martens are illegal under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).

Offences: wild pine marten

It is an offence to intentionally or recklessly:

- kill, injure or take a pine marten
- damage, destroy or obstruct access to a nest or den i.e. any structure or place which such an animal uses for shelter or protection
- disturb such an animal when it is occupying a nest or den for shelter or protection (except when this is inside a dwelling house)
- Possession, sale and transport offences are ones of strict liability (they don't require intention or recklessness).

It is an offence to:

- possess or control, sell, offer for sale or possess or transport for the purpose of sale any living or dead pine marten or any derivative of such an animal
- It is also an offence to knowingly cause or permit any of the above acts to be carried out.

Water vole

The water vole receives partial protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). In Scotland, this legal protection is currently restricted to the water vole's places of shelter or protection and doesn't extend to the animal itself. Full protection, to also cover the animal, is proposed.

Offences: wild water vole

It is an offence to intentionally or recklessly:

- damage, destroy or obstruct access to any structure or place that water voles use for shelter or protection
- disturb a water vole while it is using any such place of shelter or protection

Reptiles (common lizard, slow-worm and adder)

Under the Wildlife and Countryside Act 1981 (as amended), these species are protected against:



- > Intentional or reckless killing and injury; and
- > Trade i.e. sale, barter, exchange, transport for sale, or advertise for sale or to buy.

It is not an offence to possess these species.



Appendix B: Policy Framework

National Planning Framework 4 (NPF4)

National Planning Framework 4 (NPF4) (Scottish Government, 2023) replaces National Planning Framework 3 (Scottish Government, 2014a) and Scottish Planning Policy (Scottish Government, 2014b). NPF4 outlines the duty of planning authorities to further the conservation of biodiversity as defined in the Nature Conservation (Scotland) Act 2004.

The planning system has an important role to play in improving the environment, for example by strengthening green and blue infrastructure, safeguarding, and enhancing urban and rural biodiversity, and contributing to the improvement of water, air and soil quality. Development plans should also seek to achieve a net enhancement of landscape quality and biodiversity. Policies relevant to nature conservation include:

- Policy 1: Tackling the climate and nature crisis;
- Policy 3: Biodiversity;
- Policy 4: Natural places;
- Policy 5: Soils;
- Policy 6: Forestry, woodland and trees;
- Policy 8: Green belts;
- Policy 11: Energy; and
- Policy 20: Blue and green infrastructure.

Planning Advice Note (PAN) 60

National planning policy on landscape and natural heritage is supported by Planning Advice Note (PAN) 60 Planning for Natural Heritage, the key elements include:

- Taking a broader approach to landscape and natural heritage than just conserving designated or protected sites and species, taking into account ecosystems and natural processes.
- > Facilitating positive landscape change whilst maintaining and enhancing distinctive character.
- Seeking benefits for species and habitats from new development including the restoration of degraded habitats.
- Siting and design of development should be informed by local landscape character.
- Encouraging connectivity between habitats, through green networks.
- Protecting internationally and nationally designated habitats and species.
- Protecting and enhancing woodland and trees of high nature conservation value.





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