Environmental Impact Assessment (EIA) Report

LT384 Tealing to Westfield Overhead Line (OHL) 400 kV Upgrade

November 2024

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- Appendix 8.7: Biodiversity Net Gain (BNG) Report.

8. ECOLOGY

8.1 Introduction

8.1.1 This chapter addresses the potential impacts and effects of the construction, operation (including maintenance) and decommissioning / restoration of the Proposed Development on ecological features. Where appropriate, it provides details of mitigation and/or enhancement measures which have been identified to avoid, minimise, reverse, or compensate for adverse effects on ecological features.

8.1.2 This chapter concerns non-avian ecological features only. An assessment of impacts and effects on ornithological features is considered separately in Chapter 9 (Volume 2).

8.1.3 This chapter is supported by the following Appendices (Volume 4):

- Appendix 8.1: Legislation and Policy;
- **Confidential** Appendix 8.2: Bat Survey;
- **Confidential** Appendix 8.3: Mammal Survey Results;
- **Confidential** Appendix 8.4: Great Crested Newt Survey Results;
- Appendix 8.5: Statement to Inform Habitats Regulations Appraisal (HRA);
- Appendix 8.6: MD-SEDD Checklist; and,
- Appendix 8.7: Biodiversity Net Gain (BNG) Report.

8.1.4 The following figures accompany this chapter (Volume 3):

- Figure 8.1a: Natural Heritage Zone 16;
- Figure 8.1b: Statutory Designated Sites for Nature Conservation;
- Figure 8.1c: Non-statutory Designated Sites for Nature Conservation;
- Figure 8.1d: Habitat Survey Results;
- Figure 8.1e: Scottish Biodiversity List (SBL) Priority and Annex I Habitats;
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- **Confidential** Figure 8.4: Habitat Sustainability Index (HSI) and Environmental DNA (eDNA) Results.

8.1.5 Appendix 8.5 (Volume 4) describes the assessment conducted to test for adverse effects from the Proposed Development on the qualifying features of European sites, including Special Areas of Conservation (SAC) which are designated for the conservation of important habitats and/or species and Special Protection Areas (SPA) which are designated for the protection of birds (these are discussed in Chapter 9: Ornithology (Volume 2)). Where appropriate, reference is made in this chapter to analysis presented in the Statement to Inform HRA (Appendix 8.5).

8.1.6 Throughout this chapter, species are given their common and scientific names when first referred to and their common names only thereafter. Nomenclature for vascular plants follows Stace (2019)[1] and for bryophytes, Smith (2004)[2] and Paton (1999)[3]. Where no common name is available to distinguish between species (for example, within the *Sphagnum* genus of mosses), these are referred to by their scientific name on every mention.

8.1.7 All distances are cited as the shortest distance 'as the crow flies', unless otherwise specified.

8.1.8 The area encompassed by the Limit of Deviation (LOD) shown on Figure 3.1 (Volume 3) is referred to throughout. Where applicable, reference is also made to the 'wayleave corridor' which is defined as a 45 m buffer at either side of the OHL route.

8.2 Assessment Methodology and Significance Criteria

Scope of the Assessment

8.2.1 The scope of survey and assessment described in this chapter was informed by the guidance contained in the published documents listed below, on the responses of consultees (as set out in Chapter 6: Scope and Consultation (Volume 2)), and on the results of detailed study once underway.

8.2.2 NatureScot has devised 21 'Natural Heritage Zones' (NHZ) covering the whole of Scotland[4], which reflect biogeographical differences across the country. Assessment of the impacts on ecological features in this EIA has been carried out in the context of the Eastern Lowlands NHZ (NHZ 16)[5], within which the Proposed Development is located (see Figure 8.1a (Volume 3)). This includes the assessment of cumulative effects, which has considered the potential for in-combination effects to arise due to other developments and land use changes within NHZ 16.

8.2.3 NHZ 16 is characterised by its low coastline and extensive floodplains. It is part of the Midland Valley in Scotland, a low-lying region framed by the Grampian Highlands to the north-west and the Southern Uplands to the south-west. This NHZ is of particular importance for agriculture, river systems, coast and estuaries and settlements.

8.2.4 This assessment has been carried out in the context of relevant nature conservation legislation and planning policy. The Proposed Development lies within three local council areas: Angus Council (AC) in the far north-east, Perth and Kinross Council (PKC) in the west and Fife Council (FC) in the south-east. Details of relevant legislation and policies are provided in Appendix 8.1 (Volume 4). Furthermore, the following guidance was used when designing the field survey carried out to inform this assessment, and to determine the scope and method of the assessment itself:

- Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine[6];
- Standing advice notes for protected species by NatureScot[7];
- Tayside Local Biodiversity Action Plan (Tayside LBAP)[8];

[1] Stace, C. (2019). New Flora of the British Isles (4th edition). C&M Floristics, Middlewood Green.
[2] Smith, A. J. E. (2004). The Moss Flora of Britain and Ireland (2nd Edition). Cambridge University Press.
[3] Paton, J. A. (1999). The liverwort flora of the British Isles. Harley Books.
[4] SNH (2002). Natural Heritage Futures: An Overview. Perth
[5] SNH (2002). Natural Heritage Futures: Eastern Lowlands. Perth
[6] CIEEM (2022). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.2 – Updated April 2022. Chartered Institute of Ecology and Environmental Management, Winchester.
[7] NatureScot (2024). Planning and development: standing advice and guidance documents. Available at: https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/planning-and-development-standing-advice-and-guidance-documents [Accessed: September 2024]
[8] Tayside Biodiversity Partnership (2016). Tayside Local Biodiversity Action Plan. 2nd Edition 2016-2026. (online) Available at: https://www.taysidebiodiversity.co.uk/action-plan/action-plan-new-lbap-2015/ [Accessed August 2024]

- Fife Local Biodiversity Action Plan (Fife LBAP)[9]; and
- The River Tay SAC Guidance[10].

8.2.5 In addition, other industry-standard good practice guidelines for surveying protected / important ecological features (as described in Section 8.3 below) were also followed and are referenced throughout this chapter.

8.2.6 The scope of the Section 37 application is limited to the upgrade and operation of the OHL between Tower 182 (west of Tealing Substation) and the licence boundary with Scottish Power Energy Networks (SPEN) (Westfield / Glenrothes) (mid span Towers 66 and 65). The Proposed Development will not have a fixed operational life, however, it is assumed that it will be operational for 50 years or more. Once the design life of the OHL has been reached, a decision will be taken on whether to decommission and remove the transmission infrastructure or potentially to replace or upgrade it. Consequently, this chapter does not specifically assess potential decommissioning impacts. However, the impacts of decommissioning are likely to be very similar to those associated with the construction of the Proposed Development, which itself involves upgrading an existing OHL.

8.2.7 The main components of the Proposed Development comprise the replacement of conductors, insulators and fittings on the existing steel lattice towers of the existing OHL. Where required, tower condition works including steelwork and tower leg foundation work to strengthen existing steel lattice towers would also be undertaken. Towers 155 and 156 may change in height by up to 2 m and either Tower 129 or 132 would need replaced as discussed in Chapter 3: Project Description (Volume 2). Associated works required to facilitate the Proposed Development include vegetation clearance, temporary access track construction and permanent track upgrades, crane pads, Equipotential Zones (EPZs) and temporary measures to protect road, rail and water crossings. EPZ would typically consist of Aluminium TPA HD Panels covering a maximum area of **38.9 m x 26 m**, with a further **15 m buffer** for cut / fill, bunding etc. Some towers may require two EPZ areas to be set up, depending on location. The area within which works around towers would be conducted is herein referred to as “Working Areas”. Habitats would be reinstated to baseline condition where temporary stone roads would be constructed and then removed once construction is complete. Upgrades to existing roads / tracks would be permanent. For a full project description, see Chapter 3 (Volume 2) of this EIA Report.

Extent of the Study Area

8.2.8 The Zone of Influence (ZoI) of the Proposed Development is the area over which ecological features may be subject to impacts as a result of its construction, operation and/or decommissioning, and may extend beyond the boundary of the LOD.

8.2.9 The ZoI will vary for different ecological features depending on their sensitivity to an environmental change. It is therefore appropriate to identify different ZoI for different features. As recommended by the Chartered Institute of Ecology and Environmental Management (CIEEM)[6], professionally accredited or published studies and guidance, where available, were used to help determine the likely ZoI, as well as professional judgement. However, CIEEM also highlight that establishing the ZoI should be an iterative process and can be informed by further desk study and field survey. Where limited information was available, the Precautionary Principle[11,12] was adopted and a ZoI estimated on that basis.

[9] Fife Council (2013). Fife Local Biodiversity Action Plan 2013-2018 Fourth Edition. (online) Available at: https://www.fife.gov.uk/__data/assets/pdf_file/0024/191175/FifeLBAP_4thEd.pdf [Accessed: August 2024]

[10] Perth and Kinross Council (2020). River Tay Special Area of Conservation (SAC): Advice to developers when considering new projects which could affect the River Tay Special Area of Conservation.

[11] The Precautionary Principle aims to ensure a higher level of environmental protection by enabling precautionary measures to be adopted in lieu of sufficient scientific evidence.

[12] European Union (2000). Communication from the Commission on the precautionary principle. COM(2000) (online) Available at: https://eur-lex.europa.eu/EN/legal-content/summary/the-precautionary-principle.html. [Accessed: August 2024]

8.2.10 The study areas used for desk study and field survey, and which are in the Method of Baseline Data Collection section below and in Appendices 8.2, 8.3, and 8.4 (Volume 4), were designed to allow sufficient data to be collected to establish the baseline condition of ecological features.

8.2.11 The field survey areas adopted do not necessarily extend to the full ZoI of the Proposed Development. As stated above, the ZoI of a project is the area over which impacts on ecological features could occur. However, at distance from a project, any such impacts may not give rise to significant effects which are the focus of this EIA as per guidance published by CIEEM[6]. The field survey areas adopted for this assessment were sufficiently precautionary to allow for an assessment of potentially significant effects from the Proposed Development on ecological features, including within the wider ZoI, beyond the field survey areas[13].

Consultation Carried out to Date

8.2.12 The assessment of impacts and effects on ecological features has been informed and influenced by consultation held with several statutory and non-statutory stakeholders. A summary of the consultations held is provided in Chapter 6: Scope and Consultation (Volume 2) of this EIA Report. Information / recommendations provided by consultees which are relevant to ecology are detailed below.

8.2.13 NatureScot was consulted by letter on the proposed scope of ecological survey on 08th March 2024. On 27th March 2024, NatureScot confirmed agreement with the proposed ecological survey scope and provided pre-application advice in relation to designated sites; shown in Table 8-1 below.

Table 8-1 NatureScot Pre-application Advice

Designated Site	Pre-application Advice
River Tay SAC	The project crosses the SAC where the OHL spans the River Tay at St Madoes. There are no towers within the SAC, but they are adjacent in a few places. To protect the SAC interests good working practices are essential. Construction Environmental Management Plans (CEMPs), General Environment Management Plans (GEMPs), pollution plans etc., will all need to include details of working in proximity and above the River Tay SAC. NatureScot recommends that site specific plans for each crossing, detailing all aspects of construction and the mitigation needed to avoid adverse effects are produced and submitted in support of the application.
Turflundie Wood SAC and SSSI	NatureScot welcomes the precautionary approach taken to carry out Habitat Suitability Index (HSI) assessments of waterbodies within **500 m** of the project (and only those which are south of the River Earn, which will act as a barrier to any northward movement by great crested newt *Triturus cristatus*). In addition, eDNA testing of these waterbodies will also be completed. NatureScot warned that should any waterbody be found to support great crested newt, further survey may be required to determine the size of the population present.

[13] As a theoretical example: otter hold large home ranges and use the habitat within these for foraging. Construction activities within the home range of an otter could be said to have a ZoI which extends to the full home range, which may extend to dozens of kilometres. However, these works may only have a significant effect on the impacted otter in their immediate vicinity, for example by preventing them from foraging within a few hundred metres of the activities. The field survey area in this case would focus on the area over which significant effects could occur, rather than the potential ZoI, which could encompass the entire home range.

Designated Site	Pre-application Advice
Lochmill Loch SSSI	The lowland dry heath will be unaffected by the project. The mesotrophic loch is hydrologically connected by springs that lie underneath the OHL. This is out with the SSSI but spanned by the OHL, and upstream of the loch. This wet zone will need to be treated sensitively as it feeds the loch and any ground disturbance could lead to increased sediment, nutrients or pollution etc finding its way into the SSSI. NatureScot recommend existing tracks are used and that intrusive ground works are avoided in this area. However, if impacts to the ground/ springs are unavoidable, they recommend that this area is looked at in detail and the hydrology understood. If it is not straightforward to avoid risk here, a site-specific plan detailing the mitigation needed to avoid negative impacts on the SSSI should be produced and submitted in support of the application.

8.2.14 NatureScot was further consulted by letter on the proposed bat survey methodology on 14th August 2024 (as described in in the Method of Baseline Data Collation section below). On the same day, NatureScot confirmed agreement with the proposed approach.

8.2.15 The Scoping Report was sent to relevant statutory consultees on 5th July 2024. A summary of responses to the Scoping Opinion in relation to ecology is provided in Table 8-2.

Table 8-2 Summary of Consultation

Consultee	Summary of Response
Marine Directorate – Science Evidence Data and Digital (MD-SEDD)	MD-SEDD provided standing advice in relation to freshwater and diadromous fish and fisheries. They highlight that potential impacts and appropriate mitigation measures associated with the River Tay SAC should be discussed in the EIA. The MD-SEDD checklist is found in Appendix 8.6 (Volume 4).
NatureScot	Naturescot's scoping response reflects prior consultation as described above in Table 8-1. This highlighted that standard mitigation measures would avoid significant impacts to the River Tay SAC and Firth of Tay and Eden Estuary SSSI, and that appropriate survey is being undertaken to assess impacts on Turflundie Wood Sac and SSSI. NatureScot provided further guidance relating to Lochmill Loch SSSI, highlighting potential impacts may arise from construction of access tracks in the area. These should be carefully planned to avoid direct and indirect effects.
Perth And Kinross Heritage Trust (PKHT)	PKHT highlight that any biodiversity enhancement measures implemented as part of the project should be designed to ensure they do not create inadvertent adverse impacts on cultural heritage assets.

Method of Baseline Data Collation

Desk study

8.2.16 A desk study was carried out to identify nature conservation designations and records of important habitats and species (as defined in the section on 'Scope of the Assessment', above) which are potentially relevant to the Proposed Development. A stratified approach was taken when defining the desk study area, based on the likely ZoI of the Proposed Development on different ecological features. Accordingly, the desk study sought to identify:

- any SACs and Wetlands of International Importance (Ramsar sites) within at least **10 km** of the Proposed Development (or further where a hydrological or other ecological connection may exist). Note that SPAs and Ramsar sites designated for ornithological features are identified and assessed in Chapter 9 (Volume 2);

- Any SSSIs within **2 km** of the Proposed Development (or further where a hydrological or other ecological connection may exist);
- Any other locally designated nature conservation sites within **2 km** of the Proposed Development; and
- Records of protected and/or important habitats and species within **1 km** of the OHL route[14], made in the last 20 years.

8.2.17 A desk study for great crested newt was carried out to identify ponds within the ZoI of the Proposed Development. The River Earn is a large river which is impassable to great crested newt, and north of this is considered outside of their core range[15]. Therefore, great crested newt are considered absent from the LOD north of this river and no further survey is considered necessary north of this barrier to movement. A total of 12 ponds were identified during the desk study and incidentally during survey for other species. These 12 ponds were labelled TW01 to TW12 and their locations are shown on Confidential Figure 8.4 (Volume 3).

8.2.18 A range of data sources were used for the desk study, as set out in Table 8-3.

Table 8-3 Desk Study Data Sources

Data Source	Date Accessed	Data Obtained
Angus Local Development Plan (LDP)[16]	1st July 2024	LDP policies relevant to nature conservation.
Angus Local Nature Conservation Sites[17,18]	1st July 2024	Location and details of Local Nature Conservation Sites (LNCS) in Angus local authority area.
Fife LBAP[9]	14th August 2024	Information on locally important ecosystems, habitats and species.
FIFEplan[19]	14th August 2024	LDP policies relevant to nature conservation.
FIFEplan Supplementary Guidance[20]	14th August 2024	Additional guidance relating to development and biodiversity.
Lowland Raised Bog Inventory[21]	14th December 2023	Location of lowland raised bog habitat.
Mammal Society Species Hub[22]	3rd July 2024	Information on protected and important mammals including distribution in the UK.
Marine Scotland Maps NMPI[23]	3rd July 2024	Atlantic salmon *Salmo salar* and sea trout *Salmo trutta* distribution in Scotland.

[14] A record search was carried out in advance of initial surveys in 2023 when the extent of Proposed Development was not understood.

[15] NatureScot (2024). Scotland's native reptiles and amphibians. (online) Available at: https://www.nature.scot/plants-animals-and-fungi/amphibians-and-reptiles/scotlands-native-reptiles-and-amphibians. [Accessed: June 2024]

[16] Angus Council (2016). Angus Local Development Plan. (online) Available at: https://www.angus.gov.uk/directories/document_category/development_plan [Accessed: July 2024]

[17] Angus Council (2023). Report No 319/23 - Local Nature Conservation Sites in Angus - Initial Phase of Local Biodiversity Sites – App 1. (online) Available at: https://www.angus.gov.uk/committees/communities_committee/communities_committee_21_november_2023 [Accessed: July 2024]

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[18] Smith, A. (2023) Report No 319/23 - Local Nature Conservation Sites in Angus - Initial Phase of Local Biodiversity Sites - App 2. Communities Committee – 21 November 2023. (online) Available at: https://www.angus.gov.uk/committees/communities_committee/communities_committee_21_november_2023 [Accessed: July 2024]

[19] Fife Council (2017). FIFEplan. (online) Available at: https://fife-consult.objective.co.uk/kse/event/30240/section/4395822 [Accessed: July 2024]

[20] Fife Council. Making Fifes Places Supplementary Guidance. (online) Available at: https://www.fife.gov.uk/__data/assets/pdf_file/0021/162318/Making-Fifes-Places-Supplementary-Guidance-Appendices-A-F.pdf

[21] Lindsay, R and Immirzi, P. (1996). An inventory of lowland raised bogs in Great Britain. Scottish Natural Heritage.

[22] Mammal Society (2024). British mammal species. (online) Available at: https://mammal.org.uk/british-mammals [Accessed: July 2024]

[23] Scottish Government (2024). National Marine Plan Interactive. (online) Available at: https://marinescotland.atkinsgeospatial.com/nmpi/ [Accessed: July 2024]

Data Source	Date Accessed	Data Obtained
NatureScot SiteLink[24]	1st July 2024	• SACs and Ramsar sites; and • SSSIs.
NBN Atlas Scotland[25]	14th December 2023	Commercially available records of protected and / or important species.
Ordnance Survey (OS) 1:25,000 maps and aerial photography[26]	1st July 2024	Habitats and connectivity relevant to interpretation of planning policy and potential protected / notable species constraints.
Perth and Kinross Council (PKC) website[27]	1st July 2024	Location of proposed LNCS in Perth and Kinross local authority area.
Perth and Kinross LDP2[28]	1st July 2024	LDP policies relevant to nature conservation.
Perth and Kinross LDP2 Supplementary Guidance[29]	14th December 2023	Additional guidance relating to development and biodiversity.
Record Pool[30]	3rd July 2024	Positive records of amphibians and reptiles commercially available at hectad resolution.
Saving Scotland's Red Squirrels[31]	3rd July 2024	Red squirrel *Sciurus vulgaris* records.
Scotland's environment map[32]	14th December 2023	• Carbon and Peatland 2016; • Caledonian Pine Forest Inventory; • Wildcat *Felis silvestris* Priority Areas; and • Woodland listed on the Ancient Woodland Inventory (AWI).
Scottish Environment Protection Agency (SEPA) Water Classification Hub[33]	3rd July 2024	Water Framework Directive (WFD)34 condition assessment for relevant watercourses.
Tayside LBAP[8]	1th July 2024	Information on locally important ecosystems, habitats and species.
The National Water Vole Database and Mapping Project[35]	3rd July 2024	Hectad records of water vole Arvicola amphibius and American mink Neovison vison.

8.2.19 A summary of the ecological field surveys carried out to collect baseline data relevant to the Proposed Development is given under the following sub-headings. Full details of protected species surveys can be found

24 NatureScot (2024). SiteLink. (online) Available at: https://sitelink.nature.scot/home [Accessed: July 2024]
25 NBN Atlas Partnership (2023). NBN Atlas Scotland. (online) Available at: https://scotland.nbnatlas.org/ [Accessed: June 2023]
26 Ordnance Survey Data © CrownCopyright and database right [2024] OS0100031673.
27 Perth and Kinross Council (2024). Planning & Biodiversity - Local Nature Conservation Sites. (online) Available at: https://www.pkc.gov.uk/ldp2naturesites [Accessed: July 2024]
28 Perth and Kinross Council (2019). Perth and Kinross Local Development Plan 2. (online) Available at: https://www.pkc.gov.uk/media/45242/Adopted-Local-Development-Plan-2019/pdf/LDP_2_2019_Adopted_Interactive.pdf?m=1576667143577 [Accessed: July 2024]
29 Perth and Kinross Council (2020). Local Development Plan - Supplementary Guidance. Available at: https://www.pkc.gov.uk/ldp2guidance [Accessed 03 June 2023]
30 ARG UK and ARC (2024). Record Pool. (online) Available at: https://www.recordpool.org.uk/index.php [Accessed: July 2024]
31 Saving Scotland's Red Squirrels (2024). Sightings of Red and Grey Squirrels across Scotland. (online) Available at: https://scottishsquirrels.org.uk/squirrel-sightings/ [Accessed: July 2024]
32 Scottish Government (2023). Scotland's environment web. (online) Available at: https://www.environment.gov.scot/ [Accessed: June 2023]
33 SEPA (2024). Water Classification Hub. (online) Available at: https://www.sepa.org.uk/data-visualisation/water-classification-hub [Accessed: July 2024]
34 Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, more commonly referred to as the 'Water Framework Directive'.
35 The Wildlife Trusts (2020). The National Water Vole Database and Mapping Project. (online) Available at: https://www.wildlifetrusts.org/national-water-vole-database-mapping-project [Accessed: July 2024]

in Appendices 8.2, 8.3, and 8.4 (Volume 4). Field surveys were carried out by trained and experienced AECOM ecologists. All are members of the CIEEM at the appropriate grade and adhered to their strict Code of Professional Conduct.

Habitat Survey

8.2.20 A UK Habitat Classification (UKHab) survey was completed within **50 m** of the existing OHL route between 15th March and 20th March 2023. The survey followed the standard methods described by UKHab guidance[36] and drew upon the formatting styles used in the Joint Nature Conservation Committee (JNCC) Phase 1 habitat survey guidance[37], by which areas of land are assigned standard habitat types and ecological notes are recorded. Notes were made for each habitat of dominant, typical and notable plant species, and relevant ecological characteristics. These reflect conditions at the time of survey. The habitat survey area is shown on Figure 8.1d (Volume 3).

National Vegetation Classification Survey

8.2.21 In all areas of important habitat identified by the UK Hab survey (those shown on Figures 8.1e and 8.1f (Volume 3); for example, habitats listed on the Scottish Biodiversity List (SBL) or GWDTE which would be affected by the Proposed Development, a National Vegetation Classification (NVC) survey was completed. Homogenous vegetation stands were classified according to the NVC as described in the relevant original NVC volumes[38,39,40,41]. Reference was also made to the NVC review and other guidance[42,43,44] that describe some additional vegetation types not covered in the original NVC volumes or provide additional advice. Vegetation was assigned to sub-community except where it did not fit published descriptions well, where close access was not possible, or where vegetation was of negligible ecological value (for example, bracken *Pteridium aquilinum* stands were not closely inspected). Since NVC communities often occur in patches too small to map amongst more extensive communities, or in complexes that cannot be feasibly mapped within a reasonable timescale, NVC polygons were described as mosaics where necessary. Where habitats lacked vegetation, or the vegetation did not correspond to a community described in the NVC volumes or other guidance, a brief descriptive term was used to describe the habitat (for example, 'open water').

8.2.22 The survey was carried out on 13th and 26th June 2024 by a suitably experienced AECOM ecologist with extensive habitat survey experience, including in upland NVC. Habitat types were mapped with the aid of aerial photography and Global Positioning System (GPS) as necessary.

Bat Roost Suitability Assessment

8.2.23 In accordance with industry-standard guidelines published by the Bat Conservation Trust (BCT)[45], an initial Daytime Bat Walkover (DBW) was carried out between 15th March and 20th March 2023 to assess the suitability of habitats within the LOD and in the surrounding area for roosting, commuting and foraging bats. Further to this, a ground level tree assessment (GLTA) was carried out between 3rd April and 1st August 2024 to search for trees

[36] UKHab (2023) UK Habitat Classification. (online) Available online: https://ukhab.org/. [Accessed: November 2023]
[37] JNCC (2010). Handbook for Phase 1 habitat survey – a technique for environmental audit. Joint Nature Conservation Committee, Peterborough.
[38] Rodwell, J.S. (ed.). (1991a). British Plant Communities Volume 1 Woodlands and Scrub. Cambridge University Press, Cambridge.
[39] Rodwell, J.S. (ed.) (1991b). British Plant Communities Volume 2 Mires and Heaths. Cambridge University Press, Cambridge.
[40] Rodwell, J.S. (ed.) (1992). British Plant Communities Volume 3 Grassland and Montane Communities. Cambridge University Press, Cambridge.
[41] Rodwell, J.S. (ed.) (1995). British Plant Communities Volume 4 Aquatic Communities, Swamps and Tall-herb Fens. Cambridge University Press, Cambridge.
[42] Rodwell, J.S., Dring, J.C., Averis, A.B.G., Proctor, M.C.F., Malloch, A.J.C., Schaminée, J.N.J. and Dargie, T.C.D. (2000). Review of coverage of National Vegetation Classification, JNCC Report No. 302. Joint Nature Conservation Committee, Peterborough.
[43] Averis, A., Averis, B., Birks, J., Horsfield, D., Thompson, D. and Yeo, M. (2004). An Illustrated Guide to British Upland Vegetation. Joint Nature Conservation Committee, Peterborough.
[44] Hall, J.E., Kirby, K.J. and Whitbread, A.M. (2004). National Vegetation Classification: Field guide to woodland. Joint Nature Conservation Committee, Peterborough.
[45] Collins, J. (ed.). (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition). Bat Conservation Trust, London.

with potential roost features (PRFs) which could be used by bats within **10 m** of the Proposed Development as understood at the time of survey. Trees were assessed as having 'PRF-I', where they contained features suitable only for individual or very small numbers of bats, or 'PRF-M', where they had suitability for use by multiple bats, including a maternity colony. Where the survey was limited such that assessment of PRFs could not be carried out, the further assessment required ('FAR'_ category was used. The suitability of buildings to support roosting bats was categorised as None, Negligible, Low, Moderate, or High as detailed in Table A8.2-2 in Confidential Appendix 8.2 (Volume 4).

8.2.24 PRFs searched for included suitable holes, cracks or splits in trees, and any possible ingress points to buildings or structures. Where such features existed, searches were made for evidence of bat use such as droppings, staining, foraging remains, auditory evidence and the presence of live or dead bats.

Automated Static Bat Detector Survey

8.2.25 In line with the landscape-scale assessment approach taken for a very similar neighbouring development (Kintore to Tealing 400 kV connection[46,47]), six ultrasonic recorder devices were deployed between 22nd August and 2nd September 2024 at locations intended to target groups of PRF-Ms (locations are displayed in Confidential Figure 8.2 (Volume 3)). To best align with BCT guidelines[45] for a site of Low suitability for bats (as defined in Table A8.2-2; Confidential Appendix 8.2; Volume 4) in the time available, the survey aimed to collect data from ten consecutive nights in autumn. The devices used were Wildlife Acoustics Song Meter Mini Bat 2.

8.2.26 Analysis of recorded bat calls was carried out using Kaleidoscope Pro software to allow identification to species level where possible. All recordings were first processed using the Kaleidoscope Pro auto-identification feature then an ecologist experienced in bat call analysis checked a proportion of auto-analysed recordings to ensure results were accurate.

Otter, Beaver and Water Vole Survey

8.2.27 Survey for otter *Lutra lutra*, beaver *Castor fiber* and water vole was conducted between 3rd April and 1st August 2024. This survey covered all watercourses within a buffer (**200 m** for otter and beaver and **50 m** for water vole) of the Proposed Development as understood at the time of survey, as far as access was feasible and safe. Since the initial survey was within the optimal survey period, and water vole are considered unlikely to be present within the LOD, a second survey visit for water vole was not considered necessary.

8.2.28 Survey for otter, beaver and water vole followed guidance in published literature[48,49,50,51,52,53].

8.1.1 [46] See
8.1.2 Table 8-9 for further information

[47] Dennis, A. (2024). Kintore to Tealing 400kV Overhead Line (OHL) – Bat Survey Methods. File note produced by LUC for SSEN Transmission.
[48] Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). The Water Vole Mitigation Handbook. The Mammal Society, London.
[49] Chanin, P. (2003). Monitoring the Otter Lutra lutra, Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough.
[50] Liles, G. (2003). Otter Breeding Sites. Conservation and Management, Conserving Natura 2000 Rivers Conservation Techniques Series No. 5. English Nature, Peterborough.
[51] Strachan, R. (2007). National survey of otter Lutra lutra distribution in Scotland 2003-04. Scottish Natural Heritage Commissioned Report No. 211 (ROAME No. F03AC309).
[52] Strachan, R., Moorhouse, T. and Gelling, M. (2011). Water Vole Conservation Handbook (3rd Edition). Wildlife Conservation Research Unit, University of Oxford.
[53] Campbell, R.D., Harrington, A., Ross, A. and Harrington, L. (2012). Distribution, population assessment and activities of beavers in Tayside. Scottish Natural Heritage Commissioned Report No. 540

Badger and Pine Marten Survey

8.2.29 Survey for badger *Meles* meles and pine marten *Martes martes* was carried out in areas of suitable habitat within a **50 m** buffer of the Proposed Development as understood at the time of survey. This did not include areas of dense conifer plantation which are generally unsuitable for setts / dens and are difficult and/or unsafe for surveyors to access. The survey was carried out between 3rd April and 1st August 2024 and followed standard good practice guidance[54,55,56].

Great Crested Newt Habitat Suitability Assessment

8.2.30 An HSI score was calculated for ponds TW01– TW12 to assess their suitability for great crested newt and the potential that they would be used by the species for breeding. HSI assessment included field-based observations of various habitat attributes, in addition to the use of Esri ArcGIS software to calculate the surface area of the waterbodies.

8.2.31 Ponds can be classed as having Poor, Below Average, Average, Good, or Excellent suitability (as detailed in Confidential Appendix 8.4; Volume 4). The HSI assessment of ponds TW01– TW12 was carried out between 29th April and 1st July 2024 following standard good practice guidance.

Great Crested Newt Environmental DNA Sampling

8.2.32 eDNA survey involved the collection of water samples from ponds TW03– TW12 which were then sent for laboratory analysis to detect the DNA of great crested newt. No samples were collected from TW01 and TW02 as these ponds are obviously unsuitable for great crested newt. The sampling procedure was conducted as prescribed in the published[57]. eDNA sampling was carried out between 29th April and 1st July 2024.

Other Notable Mammals, Reptiles and Amphibians

8.2.33 No dedicated wildcat, red squirrel, mountain hare *Lepus timidus*, brown hare *Lepus europaeus* or hedgehog *Erinaceus europaeus* survey was carried out for the reasons given in the Limitations section of this chapter. However, any sightings of these mammal species, or evidence of them (such as squirrelled cones), were noted if encountered during other field surveys. Similarly, observations of reptiles and amphibians were incidentally recorded as encountered during all fieldwork, but no targeted survey was carried out for these species.

Fish

8.2.34 Fish were incidentally recorded when encountered during all fieldwork, but no targeted survey was carried out for fish.

Assessment Modelling

8.2.35 The assessment of impacts and effects on ecological features described in this chapter was conducted in accordance with the guidelines published by CIEEM[6]. The principal steps involved in the CIEEM approach can be summarised as:

[54] Harris, S. and Yalden, D.W. (2008). Mammals of the British Isles (4th Edition). The Mammal Society, London.
[55] Birks, J. (2002). The Pine Marten. The Mammal Society, London.
[56] Scottish Badgers (2018). Surveying for Badgers: Good Practice Guidelines. Version 1, 2018.
[57] Biggs, J., Ewald, N., Valentini, A., Gaboriaud, C., Griffiths, R.A., Foster, J., Wilkinson, J., Arnett, A., Williams, P. and Dunn, F. (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067. Freshwater Habitats Trust, Oxford.

- baseline conditions are determined through targeted desk study and field survey to identify features that are both present and might be affected by the Proposed Development (both those likely to be present at the time works begin, and for comparison, those predicted to be present at a set time in the future);
- the importance of identified ecological features is evaluated to place their relative biodiversity and nature conservation value into a geographic context, determining those that need to be considered further within the impact assessment;
- the potential impacts of the Proposed Development on relevant ecological features are described, considering established best practice, legislative requirements and embedded design measures;
- the likely effects (adverse or beneficial) on relevant ecological features are assessed and, where possible, quantified;
- measures to avoid or reduce (or, if necessary, compensate for) any predicted significant effects, if possible, are developed in conjunction with other elements of the design (including mitigation for other environmental disciplines);
- any residual effects of the Proposed Development and their significance are reported; and,
- scope for enhancement measures is considered.

8.2.36 In line with CIEEM guidelines[6], the terminology used within this chapter draws a clear distinction between the terms 'impact' and 'effect'. Within this chapter, these terms are defined as follows:

- impact – actions resulting in changes to an ecological feature (for example, demolition of a building which supports roosting bats); and
- effect – the outcome resulting from an impact acting upon the conservation status or structure and/or function of an ecological feature (for example, killing/injuring bats and reducing the availability of breeding habitat because of the loss of a bat roost may lead to an adverse effect on the conservation status of the population concerned).

8.2.37 Impacts are assessed in view of the conservation status of the habitats and species under consideration. CIEEM[6] states that, for habitats, *"conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area"*. NatureScot[58] defines the conservation status of a species as *"the sum of the influences acting on it which may affect its long-term distribution and abundance, within the geographical area of interest"*. A species' conservation status is considered to be 'favourable' when:

- population dynamics indicate that the species is maintaining itself on a long-term basis as a viable component of its habitats;
- the natural range of the species is not being reduced, nor is it likely to be reduced for the foreseeable future; and,
- there is (and probably will continue to be) a sufficiently large habitat to maintain its population on a long-term basis.

8.2.38 NatureScot recommends that the concept of the favourable conservation status of a species should be applied at a national (Scottish) level in order to determine the level of significance of an effect arising from the impact(s) of development[58]. However, as highlighted in Section 8.2.2, this assessment has also been conducted in the context of NHZ 16, within which the Proposed Development is located. Therefore, even where an impact may not

[58] SNH (2018). Assessing Significance of Impacts from Onshore Windfarms on Birds out with Designated Areas. Version 2 – February 2018. (online) Available at: https://www.nature.scot/doc/guidance-assessing-significance-impacts-bird-populations-onshore-wind-farms-do-not-affect-protected [Accessed: April 2024]

affect the conservation status of a species at the national level, the potential for effects on the conservation status of that species within the NHZ has also been considered.

8.2.39 The assessment of impacts on ecological features follows the industry-standard guidelines for Ecological Impact Assessment (EcIA) published by CIEEM[6] and does not follow the matrix-based approach described in Chapter 5: EIA Approach and Methodology (Volume 2), as such a method is not recommended by CIEEM. Therefore, for the purposes of this EIA, effects predicted to be significant on an ecological feature at the regional or greater geographic level are considered to be 'Significant' in broader EIA terms, whereas those predicted to be significant only at the Local, Site or Negligible levels, are considered to be 'Not Significant'.

Limitations and Assumptions

8.2.40 The aim of the desk study was to help characterise the baseline context of the Proposed Development and provide valuable background information that may not be captured by field survey alone. Information obtained during the desk study is dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for particular species does not necessarily mean they do not occur in the study area. Likewise, the presence of records for a particular species does not automatically mean that these still occur within the area of interest or are relevant to the Proposed Development.

8.2.41 Similarly, records of invasive non-native species (INNS) identified through the desk study may have been recorded as part of control programmes. Therefore, whilst species were present at the time of record submission, this does not necessarily indicate their continued presence in the area thereafter.

8.2.42 Where habitat edges are sharp and coincide with features on base mapping or aerial photography that are considered correct, their placement is based on the accuracy of that data in GIS. Otherwise, habitat edges are best estimates as judged in the field. Note also that habitat transitions can be gradual without sharp boundaries.

8.2.43 UKHab survey took place at a sub-optimal time (early spring) for survey of habitat and plants. As a result, the floristic diversity of habitats may have occasionally been underestimated, in particular in semi-natural woodlands. However, given the nature of the vast majority of surveyed habitats were primarily arable and agriculturally improved fields of limited interest, and the additional NVC survey of interesting habitats being carried out within the growing season (an optimal time to survey), it is very unlikely that habitats have been undervalued.

8.2.44 Due to its size, it was not feasible to closely inspect every small part of the habitat survey area during UKHab survey. This is not a significant constraint and not necessary for this type of survey, particularly where the habitats are mainly intensively managed agricultural fields, non-native conifer plantations and built-up areas. Most areas mapped as buildings or hardstanding were not surveyed in detail and were mapped from a distance. In addition, areas mapped as 'Not accessed' in Figure 8.1d (Volume 3) are, in most cases, private residential grounds and likely also fall into the 'Buildings' or 'Hardstanding' categories, with occasional gardens, though they could not be seen during the survey. This is not considered a significant limitation for the following reasons:

- There are only a small minority of instances in which full survey was not carried out;
- Most areas could be at least partially seen from adjacent accessible land;
- The areas concerned are small; and,
- Few of the habitat features in these cases are likely to be of any note.

8.2.45 Within the estuarine habitats associated with the River Tay and the River Earn (Figure 8.1f (Volume 3)) access was restricted for safety reasons. When the tide was high, habitats were not always visible, particularly during surveys of the south bank of the River Tay and the north bank of the River Earn. Furthermore, the intertidal riverbanks were unstable and largely unsafe to walk across, and therefore habitats were surveyed from a distance

from the terrestrial edge of the bank. These areas were reviewed during NVC survey but, where necessary, aerial imagery has been used to supplement the field survey results.

8.2.46 The likelihood of deviations from the baseline conditions reported in this chapter increases with elapsed time since survey. While the baseline is not expected to change sufficiently to alter the impact assessment, the precise situation regarding protected/ important species may nevertheless differ at the time of construction.

8.2.47 The desk study does not guarantee to definitively identify all waterbodies present and was limited by the data available. Therefore, it is possible that additional waterbodies suitable for great crested newt, which were not identified by the desk-based review or during field surveys, may exist within the ZoI and may be discovered during pre-construction survey. Should this be the case, further field survey may be required to confirm the presence or likely absence of the species from any such ponds.

8.2.48 The Local Wildlife Sites referenced in the Fife LBAP[9] are undergoing review and the location of these sites is not publicly available, therefore, it is possible that there are more Local Wildlife Sites in proximity to the LOD than identified during the desk study. However, the portion of the LOD within the FC local authority area largely comprises Pitmedden Wood and agricultural fields of limited ecological value so it is unlikely there are any Local Wildlife Sites within the LOD.

8.2.49 The GLTA was carried out to within **10 m** of the Proposed Development as understood at the time of survey. No GLTA was carried out for trees affected by the wayleave expansion. Due to the approach taken, which includes further survey prior to construction, this limitation is not anticipated to have any legal implications. Wayleave expansion largely affects isolated individual trees or, where larger areas are affected, trees are immature. Furthermore, surrounding habitat is of low suitability for bats, hence major roosts are unlikely to have been missed, and the assessment is considered robust.

8.2.50 No PRF surveys of trees identified as having PRF-M or FAR were carried out. Instead a landscape-scale approach was applied to consider the bat assemblage and bat activity in the vicinity of these PRFs. This approach is in line with that taken for a very similar neighbouring development (Kintore to Tealing 400 kV connection[59]). Pre-construction surveys will be carried out to inspect all PRFs liable to impacts as a result of the Proposed Development.

8.2.51 No dedicated red squirrel survey was carried out since it was assumed impacts to woodland and existing linear features would be minimal. Survey for red squirrel dreys would however be carried out during pre-construction surveys, in the limited locations that woodland will be impacted.

8.2.52 No survey was carried out for mountain hare, brown hare or hedgehog, although incidental sightings, if made, were recorded. Brown hare and hedgehog, although SBL priority species, are still common and widespread in suitable habitat in this region. The LOD is at the edge of the range of mountain hare which is typically widespread in suitable hilly terrain and often reasonably common. However, habitats within the LOD are unsuitable or at best suboptimal for mountain hare, particularly with the absence of any extensive open moorland. The upland habitats in the south are isolated in the wider environment by surrounding intensive agriculture thus mountain hares are likely absent from the LOD. Brown hare and hedgehog are likely to occur in suitable habitat across the LOD.

8.1.3 [59] See

8.1.4 Table 8-9 for further information

8.2.53 No targeted survey was carried out for wildcat as the Proposed Development lies outside the generally accepted range of this species[60] and any suitable habitat within the LOD is highly isolated in the wider environment. Furthermore, no records of wildcat were identified within **1 km** of the OHL during the desk study.

8.2.54 No targeted aquatic survey was carried out, however, desk study information is sufficient to assess the impact on aquatic species given the nature of works associated with the Proposed Development.

8.2.55 Due to the seasonality of surveys, vegetation on the banks of most watercourses was very tall, and the smaller channels were overgrown. Consequently, visibility to survey for signs of water vole was impeded. It is possible that, if present, field signs of water vole were missed along these watercourses. However, no records of water vole were identified during the desk study, and American mink (an invasive mammal which predates water vole and has significantly contributed to their decline in Britain) is present in the area. It is therefore highly unlikely that water vole are present and, as stated further below, they are assumed to be absent.

8.2.56 Habitats north and east of Tower 174 were flooded at the time of survey and unsafe to survey. Due to the high water level, the habitat is not suitable for water vole burrows or otter refuges. There may be undetected underwater beaver burrows in this area, however, these would not be directly affected by the Proposed Development. An area of reedbed northwest of Tower 174 may provide suitable habitat for otter to rest in, however, it is not considered extensive enough to be used for breeding purposes. Pre-construction surveys would be conducted which can clarify the use of this reedbed by otter prior to vegetation clearance. For the purposes of this assessment, it is assumed the reedbed is used as an otter layup area[61].

8.2.57 Field surveys were carried out within a suitable buffer of the Proposed Development as understood at the time. Subsequent updates to the Proposed Development resulted in some areas within the ZoI of the expanded Proposed Development not being surveyed. The most notable differences relate to access routes which generally follow existing tracks or are within agricultural fields. Owing to the nature of works in these locations and that embedded pre-construction survey would cover these areas to ensure compliance with legislation, this limitation does not affect conclusions made within this impact assessment.

8.2.58 There were no further significant limitations to the desk study, field survey or subsequent analysis which could affect the reliability of this impact assessment. However, other minor limitations associated with field surveys are given in Appendices 8.2, 8.3 and 8.4 (Volume 4) which accompany this chapter, none of which are considered significant.

8.3 Sensitive Receptors

8.3.1 The guidelines for EcIA published by CIEEM recommend that only those features that are 'important' and that could be significantly affected by the Proposed Development require detailed assessment, stating that *"it is not necessary to carry out detailed assessment of ecological features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable".*

8.3.2 Consequently, for the purposes of the desk study, field survey and assessment described in this chapter, 'important' ecological features were taken to be:

- sites designated for nature conservation, including those designated at national and local levels;

[60] NatureScot (2024). Wildcats. (online) Available at: https://www.nature.scot/plants-animals-and-fungi/mammals/land-mammals/wildcats [Accessed: June 2024]

[61] A layup is a partially-sheltered otter refuge which is protected under the Habitats Regulations, though they are typically of less importance than enclosed holts.

- the qualifying features of SACs and Ramsar sites within at least **10 km** of the Proposed Development (or further where a hydrological or other ecological connection may exist), and the notified features of SSSIs within at least **2 km** of the Proposed Development;
- woodland listed on the AWI;
- habitats listed on Annex I of the Habitats Directive[62];
- species listed on Annex II of the Habitats Directive[62];
- species listed on Schedules 2 and 4 of the Habitats Regulations[63];
- species listed on Schedules 5 and 8 of the Wildlife and Countryside Act 1981 (WCA)[64];
- badger, which is afforded protection under the Protection of Badgers Act[65];
- habitats and species listed on the SBL[66], which are thus identified as being of principal importance for biodiversity conservation in Scotland;
- species or species assemblages shown to indicate good habitat conditions, for example Good Ecological Status or better in relation to the WFD[33]; and
- invasive non-native species listed on Schedule 9 of the WCA[64] (although this no longer legally applies in Scotland) and those considered to be of EU concern under the Invasive Alien Species Regulation[67].

8.3.3 Other habitats or species that may be rare, scarce or otherwise important are also included where deemed appropriate through available information and / or professional judgement.

8.4 Baseline Conditions

Statutory Designated Sites

8.4.1 There are eight designated sites within the ZoI of the Proposed Development. Of those, there are four European sites (SACs), and four other statutory designations (SSSI). Details of these designated sites are given in Table 8-4 below (listed in order of increasing distance from the Proposed Development) and their locations shown on Figure 8.1b (Volume 3).

62 Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive')
63 Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) (the 'Habitats Regulations')
64 Wildlife and Countryside Act 1981 (as amended) (the 'WCA')
65 Protection of Badgers Act 1992 (as amended)
66 NatureScot (2020). Scottish Biodiversity List. (online) Available at: https://www.nature.scot/doc/scottish-biodiversity-list. [Accessed: July 2024]
67 Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species

Table 8-4 Summary of Statutory Designated Sites for Nature Conservation

Designated Site	Reason for Designation	Location of Designated Site[68]
European Sites / Ramsar		
River Tay SAC	• Fauna: Atlantic salmon *Salmo salar*, brook lamprey *Lampetra planeri*, river lamprey *Lampetra fluviatilis*, sea lamprey *Petromyzon marinus*, otter; and • Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels.	Within the LOD at the westernmost end where the OHL crosses the River Tay.
Firth of Tay and Eden Estuary SAC	• Estuaries; • Intertidal mudflats and sandflats; • Subtidal sandbanks; and • Harbour seal *Phoca vitulina*.	**500 m** east of the LOD. The Proposed Development is upstream of this SAC and there are multiple hydrological connections between them, most notably via the River Tay and River Earn. The Site continues almost parallel to the SAC between Towers 91 and 141 remaining within **3 km** across this section. Intervening land comprises the River Tay SAC, River Earn, agricultural land, patches of woodland, and scattered settlements including Errol.
Turflundie Wood SAC	• Great crested newt.	**930 m** west of the LOD. There is no direct hydrological connectivity, though, tributaries of the River Tay (which within the LOD) reach within **50 m** of this SAC. Intervening land comprises predominantly woodland, mainly conifer plantation, with some grazed pasture and agricultural land.
Pitkeathly Mires SAC	• Transition mires and quaking bogs; and • Slender green feather-moss *Hamatocaulis vernicosus*.	**8.1 km** west of the LOD. There is direct hydrological connectivity between this SAC and the Proposed Development, however, the SAC is upstream of the Proposed Development. Intervening land comprises predominantly agricultural land and the River Earn.
Nationally Important Sites		
Lochmill Loch SSSI	• Lowland dry heath; and • Mesotrophic loch.	Partly within the LOD; proposed access track borders the southern boundary of this SSSI. Springs located under the OHL feed into Lochmill Loch. Intervening land comprises grazed pasture with scattered scrub.
Inner Tay Estuary SSSI	• Saltmarsh; and • Transition saltmarsh.	Largely coincides with Firth of Tay and Eden Estuary SAC.
Den of Fowlis SSSI	• Upland mixed ash woodland.	**1.4 km** east of the Site. This SSSI is located downstream of the Proposed Development and is connected by a continuous hedgerow with trees. Intervening land comprises predominantly agricultural land as well as the settlement of Fowlis.

[68] Where designated sites are situated outside of the Site boundary, the distance and direction are given at the closest point of the designated site from the Site

Designated Site	Reason for Designation	Location of Designated Site[68]
Turflundie Wood SSSI	• Amphibian assemblage including great crested newt.	Coincident with Turflundie Wood SAC.

Non-statutory Designated Sites

8.4.2 PKC and AC are currently conducting the Local Nature Conservation Sites Project, whereby local biodiversity sites (and local geodiversity sites) will be selected. A selection of sites are proposed, but formal adoption of these is not anticipated to be concluded until mid-2025[27]. Therefore, sites are subject to change and additional sites may be designated which are within or near the LOD. At the time of writing, Pitroddie Den is the only proposed LNCS within the ZoI of the Proposed Development.

8.4.3 The Communities Committee for AC formally designated 28 sites as LNCS in November 2023[69] which will be included in the forthcoming LDP2 due to be finalised in 2029[70]. One LNCS within AC local authority area is situated within the ZOI of the Proposed Development; Backmuir Wood. The locations of these LNCS in relation to the LOD are shown on Figure 8.1c (Volume 3).

8.4.4 These LNCS and other locally important sites are detailed in Table 8-5.

Table 8-5 Summary of Locally Designated Sites for Nature Conservation

Local Site	Reason for Designation	Location of Designated Site[71]
Tay Reedbeds RSPB Reserve	Largest continuous reedbed in the UK.	**860 m** south of the LOD. Overlaps the Firth of Tay and Eden Estuary SAC and the Inner Tay Estuary SSSI.
Backmuir Wood LNCS	Semi-natural woodland.	**810 m** south of the LOD.
Auchtermuchty Common Wildlife Site	Key lowland and farmland ecosystem site identified in Fife LBAP[9].	**1.1 km** south-east of the LOD.
Inner Tay Estuary Local Nature Reserve (LNR)	• The most extensive continuous reed beds in Britain; and • Other diverse habitats including mudflats, beaches and dunes.	**1.5 km** south-east of the LOD. Overlaps the Firth of Tay and Eden Estuary SAC and the Inner Tay Estuary SSSI.
Pitroddie Den LNCS	• Botanical inland rock; • Base rich rocks; and • Rustyback fern *Asplenium ceterach*.	**1.6 km** north of the LOD.

[69] Smith, A. (2023). Local Nature Conservation Sites in Angus - Initial Phase of Local Biodiversity Sites. Communities Committee – 21 November 2023. (online) Available at: https://www.angus.gov.uk/committees/communities_committee/communities_committee_21_november_2023 [Accessed: July 2024]

[70] Angus Council (2023). Development Plan Scheme and Participation Statement 2023. (online) Available at: https://www.angus.gov.uk/sites/default/files/2023-12/Development%20Plan%20Scheme%20and%20Participation%20Statement%202023.pdf [Accessed: July 2024]

[71] Where designated sites are situated outside of the Site boundary, the distance and direction are given at the closest point of the designated site from the Site.

Habitats

8.4.5 Habitat descriptions are provided under headings broadly corresponding to Phase 1 habitat types. UKHab types are described below. NVC classifications are provided for notable habitats only. Habitats listed on Annex I of the Habitats Directive are shown in bold italic. SBL priority habitats are underlined. Habitats which align with those mentioned in the Tayside LBAP[8] are referred to as Tayside local priority habitats (LPH)[72].

8.4.6 The recorded habitats are shown on Figure 8.1d (Volume 3), as are target notes which here act as reference numbers for particular habitat descriptions below. SBL priority habitats and Annex 1 habitats are shown on Figure 8.1e (Volume 3), along with corresponding NVC codes, and GWDTE are shown on Figure 8.1f (Volume 3) with corresponding NVC codes.

Lowland Raised Bog Inventory

8.4.7 This resource is mentioned briefly here because it lists a lowland raised bog north of Longforgan (see "Bog target note" on Figure 8.1d; Volume 3). However, the area is now a small patch of rough grassland with ruderal (weed) species and scrub, and is surrounded by extensive agricultural fields. There are no bog species or other signs of bog at this location. In addition, Scotland's Environment webmap[32] does not identify any peat at this location. Consequently, there is not considered to be any bog habitat here, or anywhere else in the survey area. Given the existing habitats, even if there was found to be significant peat at this location (which appears very unlikely), it would not be possible to restore bog within 30 years, and therefore it could not qualify even as degraded raised bog capable of natural regeneration (an Annex I type).

Ancient Woodland Inventory

8.4.8 There are 40 parcels of woodland listed on the AWI within the ZoI (as shown in Figure 8.1c (Volume 3)). This includes one area of ancient semi-natural woodland around Balruddery Burn, approximately **330 m** east of the LOD. The remaining parcels are of long-established woodlands of plantation origin (hereafter, LEP), 12 of which are situated within the LOD. Woodlands within the survey area are described in further detail below.

Wet Woodland

8.4.9 Wet Woodland (UKHab = w1d, Wet woodland; and SBL priority habitat Wet Woodland) within the survey area includes a stand within the Fallaws Burn wetland complex[73] of planted crack willow *Salix* × *fragilis* and frequent alder *Alnus glutinosa* over soft-rush *Juncus effusus*, common nettle *Urtica dioica* and cleavers *Galium aparine* adjacent to a pond. The habitat is not a natural example of a wet woodland and therefore it does not fit a published NVC woodland type well, although it approaches W6 *Alnus glutinosa – Urtica dioica* woodland. Two smaller patches of Wet Woodland are also present in the Fallaws Burn Wetland and are dominated by grey willow *Salix cinerea* subsp. *oleifolia*. These loosely fit the NVC type W1 *Salix cinerea-Galium palustre* woodland.

8.4.10 Two small areas of immature alder wet woodland (UKHab = w1d, Wet Woodland) are present immediately south of the River Earn. These possess trees that are small and spindly with a maximum height of approximately 4 m. A small number of eared willow *Salix aurita* were also present, and the ground flora appeared to be more or less identical to the surrounding habitat (see the description of NVC S5 *Glyceria maxima* swamp below) but could not be inspected closely, as the ground was treacherously unstable. This woodland does not satisfactorily fit into any published NVC wet woodland type and has been assigned the code 'Alder-Gmax'. This is Wet Woodland (UKHab = w1d5). Although small, since it is part of the wider riparian wetland complex, it is also considered to constitute

[72] The Tayside LBAP identifies numerous Local Priority Habitats within each action plan. Tayside LPH are not necessarily habitats of particular quality, and these categories are more useful in indicating where action which would be beneficial to biodiversity could be undertaken.

[73] This is associated with a wider network of wetlands along the Fallaws Burn (hereafter referred to as 'Fallaws Burn wetland' for the purposes of this report).

the Annex I type ***H91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae).*** However, it is not a good example of this type given the dominant non-native ground flora, small size and isolation.

8.4.11 The north and south bank of the River Tay and the north bank of the River Earn possess periodically inundated Wet Woodland of willows and alders. Species include white willow *Salix alba*, the invasive plant Japanese knotweed *Reynoutria japonica*, water forget-me-not *Myosotis scorpioides*, meadowsweet *Filipendula ulmaria*, hemlock water-dropwort *Oenanthe crocata*, and neutral grasses such as Yorkshire fog *Holcus lanatus* over a thick layer of driftwood and silt. These woodlands loosely correspond to the NVC type W1 *Salix cinerea-Galium palustre* woodland. In this case, they are also constitute Annex I ***H1130 Estuaries*** because they are within the bounds of the Tay estuary.

8.4.12 The remaining Wet Woodland is found between the River Tay and the River Earn and is co-dominated by immature birch *Betula* sp., alder and willows *Salix* spp. The ground flora is dominated by tufted hair-grass *Deschampsia cespitosa* with locally abundant common reed *Phragmites australis*, abundant Yorkshire-fog and occasional soft-rush.

8.4.13 All areas of Wet Woodland above are also Wet Woodlands Tayside LPH. Wet woodlands are potential GWDTE, as discussed further below.

Upland Mixed Ashwoods

8.4.14 A patch of Upland Mixed Ashwood (UKHab = w1b5) constituting the Annex I habitat ***H9180 Tilio-Acerion forests of slopes, screes and ravines*** is located south of the A913 in the south of the LOD and is associated with Wester Greenside Farm. This upland-fringe woodland is within a steep-sided valley containing a stream and waterfall. Taken as a whole, including the ivy-dominated areas and the occasional species-rich areas, this woodland has been classified as NVC W9a *Fraxinus excelsior-Sorbus aucuparia-Mercurialis perennis* woodland, Typical sub-community. Mature ash *Fraxinus excelsior* is dominant and there is occasional wych elm *Ulmus glabra*, bird cherry *Prunus padus*, holly *Ilex aquifolium* and hawthorn *Crataegus monogyna.* Rarely, yew *Taxus baccata* and rowan *Sorbus aucuparia* were also present. The ground flora is predominantly ivy *Hedera helix,* with localised species-rich patches containing dog's mercury *Mercurialis perennis* and hard shield-fern *Polystichum aculeatum*. Other species present include male-fern *Dryopteris filix-mas*, ground-elder *Aegopodium podagraria*, lesser celandine *Ficaria verna*, water avens *Geum rivale*, wood avens *Geum urbanum*, hedge woundwort *Stachys sylvatica*, sanicle *Sanicula europaea*, common dog-violet *Viola riviniana*, herb-Robert *Geranium robertianum*, primrose *Primula vulgaris*, false wood-brome *Brachypodium sylvaticum*. Rarely wood sorrel *Oxalis acetosella,* marsh hawksbeard *Crepis paludosa,* common nettle and great wood-rush *Luzula sylvatica* were also present. There are flushed areas within the woodland which possess meadowsweet and opposite-leaved golden saxifrage *Chrysosplenium oppositifolium,* as well as abundant liverworts on exposed rocks. These very small neutral flushed woodland patches constitute W7a *Alnus glutinosa-Fraxinus excelsior-Lysimachia nemorum* woodland. This woodland has been partially felled in the past to create a wayleave for the existing OHL, with the felled area grassier and containing occasional dog rose *Rosa canina*.

8.4.15 Upland Mixed Ashwood is also a Tayside LPH.

Lowland Mixed Deciduous Woodland

8.4.16 Within the survey area there are two locations where semi-natural broad-leaved woodland is present and considered to be Lowland Mixed Deciduous Woodland (LMDW) SBL Priority habitat (UKHab = w1f7, Other lowland mixed deciduous woodland). Both contain some ancient woodland indicator species, although neither of these woods are listed in the AWI (however, the AWI is not exhaustive and does not include all small patches of ancient woodland). These two woods are described below:

- The LMDW woodland associated with the Pow of Errol, north-west of Errol, is a remnant stand of woodland in a wide strip within agricultural fields. It may be of ancient origin despite not being noted on the AWI, which does not cover all smaller areas of woodland. The canopy is dominated by mature pedunculate oak *Quercus robur*, with abundant sycamore *Acer pseudoplatanus*, occasional yew and rarely holly. Elder *Sambucus nigra* as a frequent component of a sparse shrub layer. In some localised areas, non-native rhododendron *Rhododendron ponticum* dominates beneath the canopy. The woodland has undergone some disturbance and replanting, evidenced by larch *Larix decidua* at the periphery. The ground flora is often sparse with much leaf litter. Throughout there are localised patches of wood sedge *Carex sylvatica*, with tufted hair-grass, rough meadow-grass *Poa trivialis* and broad buckler-fern *Dryopteris dilatata*. Occasional there are holly seedlings, as well as scattered bluebell *Hyacinthoides non-scripta* and enchanter's-nightshade *Circaea lutetiana* (both possible indicators of antiquity). The woodland aligns best with the NVC type W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland.
- The LMDW immediately south-east of St Madoes is a strip of mature ash and sycamore with abundant hazel *Corylus avellana*, white willow and elder. Rarely, yew, holly, and sweet chestnut *Castanea sativa* are also present. The ground flora contains several species potentially indicating ancient woodland origins including locally abundant bluebell, ramsons *Allium ursinum*, and false wood-brome. Wood sedge, tufted hair-grass, ground-elder and ivy are common in the ground flora, as well as lesser celandine, common nettle, herb-robert, cleavers, primrose, great wood-rush and the moss *Atrichum undulatum*. Locally there is tuberous comfrey *Symphytum tuberosum*, and the naturalised species lungwort *Pulmonaria officinalis*, lords-and-ladies *Arum maculatum* and snowdrops *Galanthus nivalis*. The woodland best fits NVC type W8e *Fraxinus excelsior-Acer campestre-Mercurialis perennis* woodland, *Geranium robertianum* sub-community.

8.4.17 Areas of LMDW are also Lowland Mixed Broadleaf (Deciduous) Woodlands Tayside LPH.

Other Broad-leaved Woodland

8.4.18 The remaining broad-leaved woodlands, which comprise both semi-natural and plantation woodlands, contain similar tree species to those above. However, none of these are Annex I or SBL Priority habitat for one or more of the following reasons:

- the ground flora is particularly poor comprising predominantly neutral grasses, scrub, ruderal species or leaf litter;
- the woodland is immature;
- the woodland contains appropriate tree species but is not sufficiently wet or does not contain sufficient wetland herbs to qualify as Wet Woodland;
- the woodland is dominated by non-native species (to Scotland) such as sycamore or beech *Fagus sylvatica*; and/ or
- the woodland is infested by invasive shrub or ground flora species, such as rhododendron.

8.4.19 Other broad-leaved woodland is considered to include all LEP, none of which are considered to qualify as SBL Priority or Annex I habitats for one or more of the above reasons.

Mixed Plantation Woodland

8.4.20 All mixed woodland is of plantation origin, and none is particularly ecologically notable. It includes semi-mature Scots pine *Pinus sylvestris* (strictly speaking, non-native to the region[74]) and birch woodland, which were planted to screen the A90 (UKHab = w1h5, Other mixed woodland, mainly broadleaved), Sitka spruce *Picea sitchensis*

[74] Forestry Commission (2006). Seed Sources for Planting Native Trees and Shrubs in Scotland.

with scattered birch throughout (UKHab = w1h6, Other mixed woodland; mainly conifer), and other areas dominated by sycamore or alders with Scots pine, spruce or larch (UKHab = w1h5). The ground flora is generally grassy or bare, with occasional bramble *Rubus fruticosus* and ruderal species.

Coniferous Plantation

8.4.21 Locally within Dronley Wood (in the north) and Pitmedden Wood (in the far south) there are coniferous plantations of moderate quality dominated by Scots pine (UKhab = w2b, Other Scots pine woodland), often with scattered birch, and having a more natural ground flora. The ground flora in these areas is mainly bramble, bracken and neutral grasses, with occasional bilberry *Vaccinium myrtillus*, broad buckler-fern, wood sorrel, heath bedstraw *Galium saxatile* and broom *Cytisus scoparius*. Within Dronley Wood, the Scots pine dominated canopy with heathy understorey is reminiscent of the NVC type W18 *Pinus sylvestris-Hylocomium splendens* woodland. However, since Scots pine is strictly speaking not native to this region (only to the Highlands), these coniferous plantations are not Caledonian pinewood (essentially synonymous with 'native pinewood'), nor are they Native Conifers: Scottish Pinewoods, Yew and Juniper Tayside LPH.

8.4.22 The remainder of the coniferous plantation is Other coniferous woodland (UKHab = w2c), overwhelmingly dominated by Sitka spruce, with localised larch, birch and pine, and is of little to no note. The ground flora is typically poor, often bare needles with occasional scattered common plant species. This is Planted Coniferous Woodlands Tayside LPH, though the LBAP[8] notes that it is the glades and woodland edges that have been identified for their ecological value, not the plantations themselves, and these habitats are ubiquitous in this region.

Felled Woodland

8.4.23 Two areas of felled broad-leaved woodland are present around Wester Greenside in the south. These were likely felled to make way for the existing OHL, and now comprise grasses, bare ground and scattered scrub, with fragments of woodland ground flora including ivy, opposite-leaved golden saxifrage and dog's-mercury. These felled patches are likely to develop into grassland and scrub in due course.

Scrub

8.4.24 Dense and scattered scrub is overwhelmingly dominated by gorse *Ulex europaeus* (UKHab = h3e), particularly in the upland fringe parts of the far south. Also common are broom and hawthorn. Less often, recorded dense scrub contains bramble, willow, elder, holly, hazel, dog rose, blackthorn *Prunus spinosa* and raspberry *Rubus idaeus,* as well as immature sycamore, Sitka spruce and birch. In UKHab this is Mixed scrub (h3h) or Bramble scrub (h3d).

Scattered Trees

8.4.25 Scattered trees are common along field boundaries, in landscaping, and near woodland edges. These are predominantly mature ash, pedunculate oak, and sycamore. Occasionally elm *Ulmus glabra*, poplar *Populus* sp., alder, beech, cherry *Prunus avium,* and lime *Tilia x europaea* are found. Rarely horse-chestnut *Aesculus hippocastanum*, rowan, willow, and larch are present. Around conifer plantations to the south scattered trees are mainly Sitka spruce.

Dry Dwarf Shrub Heath

8.4.26 All heathland is dry dwarf shrub heath (acid) (UKHab = h1a5) and represents ***H4030 European Dry heaths*** Annex I habitat and Upland Heathland SBL Priority habitat.

8.4.27 Heathland is restricted to the south of the survey area amongst patches of conifer plantation, grazed fields and acid grassland within the low-upland fringe of Pitcairlie Hill. It comprises common heather with frequent bilberry, heath bedstraw and wavy hair-grass *Avenella flexuosa*. Often this is on a carpet of mosses including *Rhytidiadelphus squarrosus* and *Hylocomium splendens*. This heathland corresponds to the NVC type H12c *Calluna vulgaris-Vaccinium myrtillus* heath, *Galium saxatile-Festuca ovina* sub-community. The heathland is often in a mosaic with acid grassland as described below.

Acid Grassland

8.4.28 Acid grassland (UKHab = g1a6; Lowland Dry Acid Grassland SBL Priority habitat) in the south of the survey area is located in the low-upland fringe within Pitmedden Wood, where the wayleave cuts through dense conifer plantation. These grasslands are mostly dominated by wavy hair-grass with occasional male-fern, broad buckler-fern, and Yorkshire-fog. Rarely there is bell heather *Erica cinerea*, harebell *Campanula rotundifolia* and foxglove *Digitalis purpurea*. Broom and gorse are scattered throughout. This habitat corresponds to the NVC type U2b *Deschampsia flexuosa* grassland, *Vaccinium myrtillus* sub-community. In places, it occurs in mosaic with Lowland Heathland. U2 is a vegetation type that is largely not natural, but encouraged by disturbance and is frequent in areas of felled plantation.

8.4.29 The heathland described above occasionally occurs in mosaic with species-poor purple moor-grass *Molinia caerulea* swards, of the NVC type M25 *Molinia caerulea-Potentilla erecta* mire (under UKHab classified as acid grassland, in this case g1d). This damp grassland is a minor component of the habitat mosaic and is greatly impacted hydrologically by the nearby coniferous plantation woodland (with ridge and furrow, and drainage ditches). Therefore, it is unlikely to be appreciably ground-water dependent. In addition, mosaics of these heathlands occasionally include a vegetation type dominated by male-fern, which is not covered by the published NVC volumes, but is well-known to exist and is similar to the NVC type U19.

8.4.30 Dronley Wood contains a heathy unimproved acid grassland (UKHab = g1a6, Lowland Dry Acid Grassland) in the wayleave of the existing OHL. Wavy hair-grass is locally dominant among thin, scattered patches of heather and bilberry. Other species include heath bedstraw, heath woodrush *Luzula multiflora*, chickweed winter-green *Trientalis europaea*, and the mosses *Pleurozium schreberi*, *Dicranum scoparium* and *R. squarrosus*. This habitat corresponds to the NVC type U2b. Patches of broom and bramble (NVC type W23 *Ulex europaeus-Rubus fruticosus* scrub) are scattered throughout in mosaic with the acid grassland.

Neutral Grassland – Semi-improved

8.4.31 Much of the survey area, including road verges and strips alongside ditches, as well as larger patches, is semi-improved neutral grassland (UKHab = g3c, Other neutral grassland). Generally, this comprises common and widespread species dominated by grasses such as Yorkshire-fog, cock's-foot *Dactylis glomerata* and red fescue *Festuca rubra*. There are variable amounts of spear thistle *Cirsium vulgare*, common nettle, broad-leaved dock *Rumex obtusifolius*, cleavers, common knapweed *Centaurea nigra*, common hogweed *Heracleum sphondylium*, cow parsley *Anthriscus sylvestris*, yarrow *Achillea millefolium* and creeping buttercup *Ranunculus repens*. Rarely, lesser celandine was also recorded in this grassland type. Damper areas support small amounts of angelica *Angelica sylvestris*, meadowsweet and reed canary-grass *Phalaris arundinacea*, but insufficient to warrant classification as a wetland type.

8.4.32 The following sub-types of g3c Other neutral grassland occur in the survey area:

- g3c5 (*Arrhenatherum* neutral grassland, NVC = MG1 *Arrhenatherum elatius* grassland) is here dominated by Yorkshire-fog with frequent red fescue and occasional common bent *Agrostis capillaris*, cock's-foot. Locally frequent creeping thistle *Cirsium arvense*, and occasionally red clover, white clover *Trifolium repens*, common sorrel *Rumex acetosa*, and the moss *R. squarrosus*;

- g3c6 (*Lolium-Cynosurus* neutral grassland, NVC = MG6 *Lolium perenne - Cynosurus cristatus* grassland or similar) is here dominated by a mix of red fescue, common bent, crested dog's-tail *Cynosurus cristatus*, sweet vernal-grass *Anthoxanthum odoratum*, cock's-foot, creeping thistle and Yorkshire-fog. There is occasional white clover, common mouse-ear *Cerastium fontanum,* and creeping buttercup over a moss carpet of *R. squarrosus*; it is insufficiently diverse to classify as a notable neutral grassland type, but supports a little more diversity than g4 modified grassland;
- g3c7 (*Deschampsia* neutral grassland, NVC = MG9 *Holcus lanatus - Deschampsia cespitosa* grasslands) here has dominant or abundant tufted hair-grass, with frequent to abundant creeping thistle and Yorkshire-fog, and occasional bramble, male-fern, common mouse-ear and foxglove; and
- g3c8 (*Holcus-Juncus* neutral grassland, NVC = MG10 *Holcus lanatus – Juncus effusus* rush-pasture) is a damp grassland, here dominated by Yorkshire-fog with frequent soft-rush. It is nutrient-enriched from agricultural runoff with frequent common nettle and creeping thistle.

8.4.33 None of these neutral grasslands are of special note and none are SBL Priority habitats or Annex I habitats, although locally the damp forms would constitute the Species Rich Verges or Wet Grassland Tayside LPH. Although MG9 and MG10 grasslands are potential GWDTE (discussed further below), they are of negligible note ecologically.

Poor Semi-improved Grassland / Improved Grassland

8.4.34 Species-poor semi-improved grasslands include heavily-grazed horse and sheep pastures. They are slightly more diverse than the most agriculturally-improved grassland but insufficiently diverse to be of any note, with common grasses and variable amounts of common herbs. These include ruderal species, such as creeping thistle, common nettle, broad-leaved dock, creeping buttercup, dandelion *Taraxacum* agg., white clover, common mouse-ear, and in places the moss *R. squarrosus*. This grassland is considered to best correspond in different parts of the survey area to arable field margin (c1a), modified grassland (g4) or other neutral grassland category (g3c; often g3c6 *Lolium-Cynosurus* neutral grassland, corresponding to forms of NVC type MG6).

8.4.35 Modified (significantly agriculturally-improved) grasslands (UKHab = g4) are grazed by sheep and cattle in this area, and are typical in being very species-poor, green, and well-drained. They contain significant amounts of perennial ryegrass *Lolium perenne* and white clover.

8.4.36 Both poor semi-improved and modified (improved) grasslands are common and widespread in agricultural areas of Scotland, and of no note, being species-poor with very limited biodiversity value.

Marsh / Marshy Grassland

8.4.37 Meadowsweet-dominated marsh is present within the Fallaws Burn Wetland, towards the north of the LOD. Such herb-dominated wetland falls within the definition of Lowland Fen SBL priority habitat (UKHab = f2a). This area is grazed by cattle, is very wet underfoot and grades to dry semi-neutral grassland. It fits NVC type M27 *Filipendula ulmaria-Angelica sylvestris* mire, and also contains abundant marsh horsetail *Equisetum palustre* and amphibious bistort *Persicaria amphibia*, and frequent curled-leaved dock *Rumex crispus* and angelica.

8.4.38 The Fallaws Burn Wetland also includes two small and isolated areas of fen dominated by yellow flag-iris *Iris pseudacorus* of the NVC type M28 *Iris pseudacorus-Filipendula ulmaria* mire (UKHab = f2a, Lowland Fen). The stands are generally very wet and also contain meadowsweet, broad-leaved dock, cleavers, couch *Elymus repens* and creeping thistle.

8.4.39 The remaining areas of marshy grassland are located south of the River Earn and do not qualify as any SBL Priority habitat, owing to the relative scarcity of wetland herbs. They are dominated either by tufted hair-grass

(UKHab = g3c7, *Deschampsia* neutral grassland, NVC type MG9) or by soft-rush (UKHab = g3c8, *Holcus-Juncus* neutral grassland, NVC MG10). Additional species include Yorkshire-fog, creeping buttercup, creeping thistle and, rarely, marsh thistle *Cirsium palustre*, hard rush *Juncus inflexus*, common chickweed *Stellaria media*, common sorrel, common mouse-ear and lesser spearwort *Ranunculus flammula*.

8.4.40 Areas of marsh / marshy grassland also correspond to Wetlands or Wet Grassland Tayside LPH. The wetlands above are potential GWDTE (discussed further below).

Reedbed

8.4.41 Tidal reedbeds (UKHab = f2e) are present only along the River Tay and River Earn. These are stands of common reed with occasional scattered white willow and alder, and piles of driftwood, corresponding to the NVC type S4 *Phragmites australis* swamp and reed-beds. This is Reedbed SBL Priority habitat and Intertidal Mudflats and Estuarine Reedbeds Tayside LPH. Since they are tidal and within the wider Tay estuary, albeit the upper part, they also constitute Annex I ***H1130 Estuaries***.

8.4.42 Additional small areas of Reedbed (also UKHab = f2e, NVC = S4, Reedbeds SBL priority habitat, Wetlands Tayside LPH) are not associated with the Tay Estuary. These are found in the north-east of the survey area, north-east of Gallowhill. They are associated with tthe Fallaws Burn Wetland, and consist of tall, dense stands of common reed, with little else other than meadowsweet and common nettle.

Swamp and Marginal Vegetation

8.4.43 Swamp habitat (UKHab = f2f; under UKHab, typical swamp in the lowlands is not included under Lowland Fen) is present on the north and south banks of the River Tay and the River Earn. This is in a mosaic with Intertidal Mudflats and Wet Woodland (for which see above). Reedbeds are considered separately under UKHab and are thus addressed in the previous section. On the north bank of the River Tay, the non-reed swamp comprises reed canary-grass with frequent marsh marigold *Caltha palustris*, and occasional hemlock water-dropwort and creeping-Jenny *Lysimachia nummularia*. This corresponds to the NVC type S28 *Phalaris arundinacea* tall-herb fen. In places this is in mosaic with water horsetail *Equisetum fluviatile* (NVC type S10) closer to the riverbank, on muddy substrate.

8.4.44 The south bank of the River Tay has a similar mosaic of habitats to that described in the previous paragraph, in addition to reedbed (as described in the previous section). The south bank of the River Earn also exhibits a sizable area of NVC type S5 *Glyceria maxima* swamp. This is dominated by reed sweet-grass *Glyceria maxima*, with abundant water dock *Rumex hydrolapathum*, and smaller amounts of the moss *Kindbergia praelonga*, ragged robin *Silene flos-cuculi*, the invasive plant monkeyflower *Mimulus guttatus*, hemlock water-dropwort, Yorkshire-fog, smooth meadow-grass *Poa pratensis*, water forget-me-not, meadowsweet, soft-rush and water mint *Mentha aquatica*. Note that water dock is rather scarce in Scotland. Although the term 'nationally scarce' applies to and is defined for Britain as a whole (16-100 hectads), there are less than 50 hectads in Scotland containing this species[75], and no recent records in this vicinity. It is therefore of appreciable note.

8.4.45 Swamp habitats on the banks of the River Tay and the River Earn within the habitat survey area also constitute the Annex I type ***H1130 Estuaries***, because they are part of the wider Tay estuary, albeit the upper part.

8.4.46 The Fallaws Burn Wetland includes a sizable area of swamp (UKHab = f2f) associated with Pond 2 dominated by water horsetail (see below under the Standing Water heading). This habitat corresponds to the NVC type S10

[75] Botanical Society of Britain & Ireland (2020). (online) Plant Atlas: *Rumex hydrolapathum*. Available at: https://plantatlas2020.org/atlas/2cd4p9h.vzz [Accessed: August 2024]

swamp. Bulrush *Typha latifolia* is present in the deepest areas of open water, branched bur-reed *Sparganium erectum* is locally abundant, yellow flag-iris and soft-rush are locally frequent. There is occasional marsh horsetail.

8.4.47 An area of marginal vegetation (UKHab = f2a) is present in the far south of the survey area within Pond 4 in the low-upland fringe of Pitcairlie Hill. It is dominated by bottle sedge *Carex rostrata* with locally frequent water horsetail and creeping soft-grass *Holcus mollis.* Occasional soft-rush and, rarely, common sedge *Carex nigra* are also present. This habitat corresponds to the NVC S9a *Carex rostrata* swamp, *Carex rostrata* sub-community.

8.4.48 Marginal vegetation is also present along a tributary of Bogmill Pow at Langlea. This habitat is dominated by common reed with occasional ruderal vegetation including common nettle, common hogweed, and creeping thistle. Scattered rose *Prunus* sp. Scrub is also present.

8.4.49 The swamp and marginal vegetation described above are Wetlands Tayside LPH.

Estuarine and Associated River Habitats

8.4.50 The OHL crosses both the River Tay and the River Earn within the tidal range of both rivers. Within the LOD, the River Tay and River Earn are wide and silty. The River Tay is approximately 370 m wide and the River Earn is approximately 110 m wide. The LOD partially overlaps the downstream end of the River Tay SAC, where it changes directly to the Firth of Tay and Eden Estuary SAC (at the confluence of the River Tay and River Earn).

8.4.51 According to SEPA on the Water Classification Hub[33], the WFD status of these watercourse is as follows:

- Upper Tay Estuary – overall Good condition, including Good overall ecology;
- River Tay (River Isla to River Earn Confluence) – overall Moderate condition, including Moderate overall ecology (limited by hydromorphology, but fish access classed as High); and
- River Earn – Good potential overall status, but Bad overall ecology due to hydromorphology (considered a heavily modified water body, although other criteria including fish access classed as Good or High).

8.4.52 Both the River Tay and River Earn are SBL Priority Rivers (UKHab = r2a6, Other priority habitat rivers) and in this case the extents within the surveyed area also constitute the Annex I habitat type ***H1130 Estuaries***, because they are tidal and within the wider Tay estuary, albeit the upper part. This Annex I type is a qualifying feature of the Firth of Tay and Eden Estuary SAC. However, the SAC itself (and thus the qualifying habitat) is located **1 km** downstream of the Proposed Development where the OHL crosses the River Tay, and **790 m** downstream of the Proposed Development where the OHL crosses the River Earn, and thus not close to the LOD. The River Tay and River Earn are also Rivers and Burns Tayside LPH.

8.4.53 Smaller watercourses within the survey area are discussed below under Linear Habitats - Running Water.

8.4.54 An area of SBL priority Intertidal Mudflats is present on the south bank of the River Earn, cut through by a small watercourse. It is mostly bare mud with occasional marsh marigold, reed canary-grass and red fescue. This is Annex I ***H1140 Mudflats and sandflats not covered by seawater at low tide*** (UKHab = t2d5). In this case, it also constitutes ***H1130 Estuaries*** because this area is tidal and within the wider Tay estuary, albeit the upper part. ***H1140*** is also a qualifying feature of the nearby Firth of Tay and Eden Estuary SAC, but as discussed above the qualifying habitats of the SAC are at closest **1 km** downstream of the Proposed Development where it crosses the River Tay, and **790 m** downstream of the Proposed Development where it crosses the River Earn, and thus not close to the LOD. The mudflats are also part of the Estuarine Reedbeds Tayside LPH.

8.4.55 Some wet woodland, reedbed, and swamp habitats within the LOD that lie within tidal areas and are part of the wider Tay estuary also constitute Annex I ***H1130 Estuaries***, however they are discussed under woodland, reedbed, and swamp headings.

Other non-notable terrestrial habitats

8.4.56 The following other terrestrial habitats of no note were recorded:

- tall ruderal (UKHab = g3c, but with a strong ruderal element) – a few patches of tall ruderal vegetation are scattered throughout the north of the survey area, mainly rosebay willowherb *Chamerion angustifolium*;
- bracken (UKHab = g1c) – dense bracken occurs very locally at Dronley Wood, Longforgan, and upland fringe areas in the south;
- arable (UKHab = c1, Arable and horticulture) – the majority of the survey area, except the far south, is arable farmland. Various sub-types are present including cereals, brassicas, beans, Christmas trees, berries and local fruit trees. Locally at the time of survey there was winter stubble;
- amenity grassland (UKHab = g4, Modified grassland) – grassland for amenity use, which are heavily managed and of no note, such as locally occurs in gardens, football fields, etc.;
- inland cliff (UKHab = s1d, Other inland rock and scree) – a small cliff of no note, presumably created for an OHL tower, is present in plantation in the south, with mosses and immature Sitka spruce;
- bare ground and spoil (UKHab = u1c, Artificial unvegetated, unsealed surface) – these include informal tracks and very local piles of bricks / dumped stone; and,
- built-up areas (UKHab = u1b5 / u1b6) – various sparsely scattered buildings and hardstanding.

Standing Water

8.4.57 Four areas of standing water are present in the survey area. These are all ponds (UKHab = r1g Other standing water, with secondary codes 40 and 41 for priority Ponds and non-priority ponds respectively). Their locations are indicated by the Pond Target Notes:

- Pond 1 is located within the Fallaws Burn Wetland and is surrounded by bulrush, yellow flag-iris and water horsetail;
- Pond 2 is also within the Fallaws Burn Wetland, adjacent to a patch of reedbed. This may be more of a backwater within the Fallaws Burn itself than a pond, but it could not be inspected in detail;
- Pond 3 is to the west of the Fallaws Burn Wetland, within a scrubby field boundary. This pond is very polluted and contained a large amount of litter including discarded tyres; and
- Pond 4 is in the south of the survey area. It is unclear whether this is a pond or an ephemeral pool that is only wet for part of the year, as some of the submerged plants appeared to be terrestrial species.

8.4.58 Further to the above, habitat assessment for great crested newt was carried out at a total of twelve ponds, many of which were outside the habitat survey area. They are described in Confidential Appendix 8.4 (Volume 4) and their locations are shown on Confidential Figure 8.4 (Volume 3).

8.4.59 The criteria for Ponds SBL Priority habitat are demanding and intended to highlight very well-established ponds of special importance. Apart from Pond 4, the ponds within the habitat survey area do not qualify as Ponds SBL Priority habitat as they do not meet the criteria. Pond 4 (referred to as TW07 in the section on great crested newt below) does qualify as Ponds SBL priority habitat by supporting great crested newt, a notable protected species (see Section on great crested newt below). All ponds constitute the Ponds and pools Tayside LPH.

Linear Habitats – Running Water

8.4.60 The River Tay and River Earn are described above under Estuarine and Associated Riparian Habitats.

8.4.61 According to SEPA[33], the WFD status of other smaller watercourses within the survey area are as follows:

- Fithie Burn – overall Poor, due to Poor access for fish migration and bad hydromorphology (designated as heavily modified), although Good for aquatic plants and invertebrates;
- Dronley Burn - overall Good; but overall ecology Bad due to Bad hydromorphology (designated as heavily modified); other criteria High or Good;
- Dighty Water (Dronley Burn) – overall Moderate; but overall ecology Bad due to Bad hydromorphology (designated as heavily modified); however other criteria High, Good or Moderate;
- Invergowrie Burn (Balruddery Burn) – overall status Moderate; but overall ecology Bad due to Bad hydromorphology (designated as heavily modified); fish access High, invertebrates Good;
- Knapp / Huntly Burn – overall status Good; but overall ecology Poor due to Poor hydromorphology (designated as heavily modified); fish access, invertebrates, and aquatic plants High;
- Grange Pow – overall status Moderate, with Moderate overall ecology; designated as heavily modified, but hydromorphology Moderate; fish access High, invertebrates/aquatic plants Moderate;
- Errol Pow – overall status Moderate, with Moderate overall ecology; designated as heavily modified, but hydromorphology Moderate; fish access High, invertebrates Moderate; and
- Cairnie Burn - overall status Moderate, with Moderate overall ecology; designated as heavily modified, but hydromorphology Moderate; fish access High, invertebrates/plants Good/Moderate.

8.4.62 The above watercourses would likely qualify as Rivers SBL priority habitat by meeting at least one of the criteria listed on the SBL habitat description. The criterion most likely to be met is supporting six or more of those species less dependent on water quality listed on Annex I of the UK BAP priority habitat description for rivers.[76] For example, European eel *Anguilla anguilla*, Atlantic salmon, brown / sea trout[77], brook lamprey, river lamprey, sea lamprey, otter, and soprano pipistrelle *Pipistrellus pygmaeus*, many of which are known to occur in the River Tay. Additionally, given that fish access (and by extension otter access) is good in all cases, and that soprano pipistrelle is common in Scotland, the criterion is likely met. Further aquatic information would be required for confirmation, but given these points and on a precautionary basis, all of these watercourses are taken to be priority Rivers habitat (UKHab = r2a).

8.4.63 The vast majority of other water features within the survey area are field drains, ditches or small burns (UKHab = r2b, Other rivers and streams). However, there are also moderately-sized watercourses such as the Fallaws Burn (within the Fallaws Burn Wetland) which vary in depth and substrate and contain macrophytes including marsh marigold, floating sweet-grass *Glyceria fluitans* and brooklime *Veronica beccabunga*. Though these other watercourses within the LOD are highly unlikely to qualify as priority habitat, there are occasionally burns with a more natural character (i.e. those which have not been artificially straightened for agricultural purposes etc.). Such burns are highlighted as part of the LPH Rivers and Burns and have some importance for local wildlife including the species listed in the paragraph above.

8.4.64 There numerous ditches were dry at the time of survey or contained only a small trickle and stagnant puddles.

Linear Habitats – Hedges

8.4.65 Most hedges within the survey area are intact, but all are species-poor. The hedges are most commonly dominated by native hawthorn with occasional elder, blackthorn, gorse, dog rose and bramble. Hedges with at least 80% native species are Priority hedge under UKHab (h2a), thus these hedges qualify as Hedgerows SBL

[76] BRIG (2011). UK Biodiversity Action Plan: Priority Habitat Descriptions. JNCC, Peterborough.
[77] Seat trout is the common name usually used for the sea-faring forms of brown trout but is the same species as freshwater dwelling brown trout.

priority habitat. Hedges dominated by non-native beech or Leyland cypress *Cupressus* × *leylandii* are Other hedge under UKHab (h2b), which is not priority habitat. Hedges are Hedgerows and treelines Tayside LPH.

Other Linear Habitats

8.4.66 Gappy dry-stone walls (UKHab = u1e) are common and are of potential importance as refugia for reptiles and amphibians. They constitute Stone Dykes Tayside LPH and Field Margins and Boundaries Fife LPH.

Groundwater Dependent Terrestrial Ecosystems

8.4.67 Potential GWDTE are shown on Figure 8.1f (Volume 3). No habitats of potential high groundwater dependency were recorded. The following recorded NVC types are potentially moderately groundwater dependent according to SEPA[78]:

- W1;
- M25;
- M27;
- M28;
- MG9; and
- MG10.

8.4.68 Basic hydrological assessment undertaken in the field indicates that while many of the potential GWDTE are in good to moderate condition, the majority are unlikely to be dependent on groundwater for their maintenance.

8.4.69 Recorded wet woodland of the NVC type W1 (on the banks of the River Tay and River Earn) is unlikely to depend on groundwater to maintain its condition. It appears likely that surface water flows and tidal flooding is the reason this woodland is wet. Another wet woodland in the Fallaws Burn Wetland is a poor fit to W1, and again it appears likely that surface water flows including flooding of the Fallaws Burn is the reason this woodland is wet.

8.4.70 Swamp (Lowland Fen) of the NVC types M27 and M28 are present in the Fallaws Burn Wetland in a topographical depression. The potential GWDTE in this area are clearly surface water-fed.

8.4.71 The damp grasslands of the NVC types MG9, MG10 and M25 are likely to be entirely maintained by soil moisture from surface water accumulations. Moreover, these grasslands are species-poor and of little biodiversity value.

8.4.72 The only habitats that are likely to be groundwater dependent are those associated with the springs west of Lochmill Loch (see Table 8-7). These springs are visible on OS Mapping (1:25,000). Ground water emanating from these springs irrigate GWDTE corresponding to NVC MG10.

Species

Bats

8.4.73 Full details of the bat survey results are provided in Confidential Appendix 8.2 (Volume 4). The desk study returned a single record of common pipistrelles commuting south of Fowlis settlement.

[78] SEPA (2017) Land Use Planning System, SEPA Guidance Note 31. Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems. (online) Available at: https://www.sepa.org.uk/media/144266/lups-gu31-guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions.pdf [Accessed: August 2024].

8.4.74 Habitats across the Site largely comprise agricultural farmland. There are small patches of woodland, marshy areas, and watercourses (which are likely to support greater invertebrate densities) dispersed throughout, and hedgerows along field edges are common but not well connected. Therefore, whilst there is 'Moderate' suitability for foraging and commuting bats in localised areas across the Site, the lack of connection between these habitats results in an overall 'Low' suitability.

8.4.75 Within **10 m** of the Proposed Development (as understood at the time of the survey), the GLTA identified 73 trees, of which 36 are classified as being 'PRF-M', 30 as 'PRF-I', and seven as 'FAR' due to inaccessibility at the time of survey. Additionally, there are three structures, of which one is categorised as having 'High', one as 'Moderate', one building is discerned as having 'Low' bat roost suitability and two are categorised as 'FAR' due to inaccessibility.

8.4.76 The buildings identified will not be directly impacted by the Proposed Development, as such no further survey was conducted.

8.4.77 The 73 trees identified within **10 m** of the Proposed Development have the potential to be felled or pruned, depending on the final design. A landscape-scale assessment approach was taken to determine the bat species assemblage and activity in the vicinity of these trees with the deployment of six static detectors at locations intended to target groups of PRF-Ms trees (static locations S01– S06 are shown in Confidential Figure 8.2 (Volume 3) and Confidential Appendix 8.2 (Volume 4)).

8.4.78 A minimum of four bat species were confirmed to be present within the Survey Area, following analysis of static detector data: common pipistrelle, soprano pipistrelle, brown long-eared bat *Plecotus auritus* and *Myotis* sp[79]. Comprising 44.18% soprano pipistrelles, 38.88% common pipistrelle and 0.39% unidentified pipistrelles (the latter consisting of social advertisement calls without echolocation call, or of calls between frequency parameters which could not be identified to species with certainty). The remaining registrations were of Myotis bats (0.19%) and brown long-eared bat (0.05%).

8.4.79 The greatest activity overall was at S05, located on a line of trees, adjacent to Fithie Burn, in between two arable fields, towards the north of the LOD, which also showed the highest average activity at 739 registrations per night for the full recording period. This was followed by S04, S03, S01, S06 and S02.

8.4.80 The timing of recordings of Myotis and brown-long eared bats at all but one of the static locations suggests that they are not roosting close to these locations but commuting through or foraging in small numbers. At S03, both Myotis and brown long-eared bat were heard not long past their mean emergence times, more suggestive of a roost in the vicinity. However, the treeline on which this static was deployed is close to an estate of mature trees and parkland, as well as buildings likely of high suitability for roosting bats.

8.4.81 Recordings of soprano and common pipistrelles at S01– S04 similarly indicated that highest activity occurred after the mean roost emergence times for the species, characteristic of bats travelling through/to the locations to forage. At S05, soprano pipistrelles were recorded closer to the mean emergence time for the species, with activity tailing off after 23:00. Similarly, soprano and common pipistrelles were recorded within their mean emergence times around S06 with activity dropping off past 21:00 for common pipistrelles and 23:00 for soprano pipistrelle. These patterns of activity suggest a roost(s) of these species is likely present within the vicinity of these detectors, though not necessarily within any of the PRF-M trees identified.

[79] The majority of *Myotis* calls could not be attributed to a particular species.

Otter

8.4.82 Full details of the otter survey results are provided in Confidential Appendix 8.3 (Volume 4). The desk study returned 18 records of otter at **1 km** resolution. Most of these were likely associated with the Pow of Errol and its tributaries with one record at the River Tay near the River Earn confluence.

8.4.83 The field survey found evidence of otter across the LOD along the Fithie burn, Fallaws Burn, Lundie Burn, Dronley Burn, Balruddery Burn, Huntly Burn, Erskine Pow, Grange Pow, Pow of Errol, Cairnie Pow, and Bow Burn (or tributaries thereof), as well as on the banks of Lochmill Loch. A well-used spraint site was also found within Pitmedden Wood, not associated with any watercourse or waterbody. Within the surveyed area, seven holts and 12 layups were recorded at Fithie Burn, Fallaws Burn, Lundie Burn, Grange Pow, Pow of Errol, Cairnie Pow, and Lochmill Loch. These and other field evidence of otter found during the survey are shown on Confidential Figure 8.3a (Volume 3).

8.4.84 None of the holts recorded during field survey are considered viable as natal holts due to the degree of exposure and situation in habitats not typically associated with natal holts. One layup (OL07) is at risk of being destroyed during construction of the Proposed Development and two holts (OH05 and OH07) and two other layups (OL06 and OL09) are within **30 m** of Proposed Development, hence are vulnerable to disturbance.

Beaver

8.4.85 Full details of the beaver survey results are provided in Confidential Appendix 8.3 (Volume 4). The desk study returned 86 records of beaver from the last 20 years within **1 km** of the OHL route. Where specified, the majority of these were feeding evidence along watercourses between the River Earn and Longforgan. However, there were also records of a burrow on the River Earn, a dam on the Pow of Glencarse, and a lodge on Huntly Burn, all beyond the LOD.

8.4.86 The field survey found evidence of beaver sparsely along watercourses throughout the LOD, however, refuges were only recorded along the Pow of Errol and Nethy Burn. Two dams were recorded during field surveys: a large dam across Fallaws Burn which has significantly changed the water level upstream, and a smaller dam on the Pow of Errol. All evidence of beaver found during field surveys is shown on Confidential Figure 8.3a (Volume 3).

8.4.87 All refuges and dams found during field survey are within the LOD or wayleave corridor.

Water Vole

8.4.88 No records of water vole were returned by the desk study within **1 km** of the Proposed Development. The nearest hectad with water vole records is west of Perth and well outside of the LOD.

8.4.89 No definitive signs of water vole were found within the LOD. However, rodent footprints were recorded in the muddy banks of Grange Pow, two burrows were recorded along a connected field ditch, and one further burrow was recorded on Bogmill Pow. These watercourses are theoretically suitable for water vole. However, considering the lack of definitive evidence (in particular, lack of any recorded droppings or latrines), the known presence of brown rat (which was seen during surveys and also creates waterside burrows), and the known occurrence of American mink which predates water vole (a likely partial footprint was recorded at the Grange Pow, and there is desk study evidence– see Non-native Species below), it is considered that these prints and burrows are of common rat and not water vole.

Pine marten

8.4.90 Full details of the pine marten survey results are provided in Confidential Appendix 8.3 (Volume 4). The desk study did not return any records of pine marten. The LOD is within their known range in Scotland[80], but habitats are highly suboptimal (see below) except at Pitmedden Wood.

8.4.91 Evidence of pine marten activity was recorded along forest tracks throughout Pitmedden Wood (as shown on Confidential Figure 8.3a (Volume 3)), including three likely subterranean den sites, two of which are within the LOD (PD02 and PD03). These dens are not suitable for breeding since pine marten generally do so above ground in arial nests, cavities amongst boulders or buildings, however, they are at risk of being disturbed by Proposed Development.

8.4.92 Though there are patches of woodland scattered across the rest of the LOD, they are poorly connected and generally surrounded by vast open areas (typically agricultural) which pine martens would likely avoid crossing[81,82]. Individuals might, for example, enter these parts of the LOD when dispersing from natal sites, but this is likely to be a rare occurrence and it is very unlikely that pine martens would permanently reside anywhere in the LOD beyond the Pitmedden Wood area. Therefore, pine marten is treated as effectively absent from those parts of the LOD beyond the Pitmedden Wood area.

Badger

8.4.93 Full details of the badger survey results are provided in Confidential Appendix 8.3 (Volume 4). The desk study returned a single record of an individual badger seen immediately south of the River Earn, near Abernethy. However, badgers are widespread in Scotland and suitable habitat is abundant within the LOD.

8.4.94 The field survey found badger evidence sparsely throughout the LOD with a concentration at Pitmedden Wood where several setts, including a large main sett, are located. In total, 20 setts were recorded during field survey, eight of which were disused at the time of survey. These and other field evidence of badger found during the survey are shown on Confidential Figure 8.3b (Volume 3). Habitats across the LOD are suitable for foraging (particularly broadleaved woodland and pasture), and also for sett establishment (particularly woodland, dense scrub and to a lesser extent field edges, especially where there are hedgerows).

8.4.95 Up to eight known setts are at risk of being damaged or destroyed by the Proposed Development, and a further three setts may need to be temporarily closed to allow works to proceed. Three more setts are within **30 m** of Proposed Development and are thus vulnerable to disturbance.

Other Notable Mammals

8.4.96 Full details of the other mammal survey results are provided in Confidential Appendix 8.3 (Volume 4)**,** and any incidental records are shown on Confidential Figure 8.3a (Volume 3).

8.4.97 The desk study indicates from plentiful records that red squirrel are present in woodland throughout the length of the LOD. Red squirrels were incidentally sighted during field survey within Dronley Wood and Pitmedden Wood where many squirreled cones and a single drey were found.

80 Mammal Society (2018). Britain's Mammals 2018: The Mammal Society's Guide to their Population and Conservation Status. The Mammal Society, London.

81 Caryl, F.M., Quine, C.P. and Park, K.J. (2012a) Martens in the matrix: the importance of nonforested habitats for forest carnivores in fragmented landscapes. Journal of mammalogy, 93, pp. 464-474.

82 Pereboom, V., Mergey, M., Villerette, N., Helder, R., Gerard, J.F. and Lode, T., 2008. Movement patterns, habitat selection, and corridor use of a typical woodland-dweller species, the European pine marten (Martes martes), in fragmented landscape. Canadian Journal of Zoology, 86(9), pp.983-991.

8.4.98 The desk study returned 34 recent records of brown hare, all between the River Earn and the far south of the LOD. Brown hare were incidentally recorded several times within agricultural fields across the LOD during field survey.

8.4.99 There was one desk study record of hedgehog, from Abernethy. However, hedgehog are widespread throughout Scotland and there is ample suitable habitat within the LOD to support hedgehogs. Therefore, hedgehogs are likely to occur along most hedgerows, woodland edges, within woodlands (at least where broadleaved) and within suburban areas across the LOD.

8.4.100 No records of any other important mammals were identified during the desk study. The LOD is on the edge of the known distribution of mountain hare[83,84], and there is no suitable moorland habitat within the LOD. Furthermore, there are no recent records of mountain hare anywhere in the Ochil Hills (the closest and most connected suitable habitat). Therefore, mountain hare is considered absent from the LOD.

Great Crested Newt

8.4.101 Full details of great crested newt survey results are provided in Confidential Appendix 8.4 (Volume 4).

8.4.102 The desk study returned 26 records of great crested newt from the vicinity of Turflundie Wood SAC from between 2000 and 2012. These are located, at closest, **930 m** west of the Proposed Development. In addition, two further records of great crested newt from 2020 were identified in Highfield Woods, between Scone and Perth Airport. This is approximately **8.1 km** from the Proposed Development and separated by the A90 and large expanses of farmland, including intensively managed arable land unsuitable for this species, which will act as barriers to great crested newt movement.

8.4.103 The HSI assessment of ponds within the LOD, south of the River Earn, found varying degrees of suitability for great crested newt. The surveyed ponds were classified as follows and their locations shown on Confidential Figure 8.4 (Volume 3):

- excellent – TW06;
- good – TW03, TW04, TW05, TW07, and TW10;
- average – TW11;
- below average – TW09; and
- poor – TW01, TW02, TW08, and TW12.

8.4.104 Ponds TW01 and TW02 are so obviously unsuitable for great crested newt, being heavily impacted by domestic geese and poorly connected to the wider landscape, that great crested newt can be taken as absent, and no further survey was carried out at these ponds.

8.4.105 Great crested newt presence was confirmed (primarily through eDNA testing) only at pond TW07 (12 out of 12 positive replicates).

Other Amphibians and Reptiles

8.4.106 The desk study identified several records of common amphibians and reptiles (common toad *Bufo bufo*, common frog *Rana temporaria* and common lizard *Zootoca vivipara*) across the length of the LOD.

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

[84] Wetherhill, A.S., Coomber, F.G., Darvill, B., Hesford, N., Le Marquand, C., Macleod, R., Mathews, F., Newey, S., Raynor, R., Willis, S., and Wilson, M.W. (2022) Development of the Mountain Hare National Monitoring Scheme - trialling a citizen science approach. NatureScot Research Report No. 1294.

8.4.107 Gappy dry-stone walls are common around many field edges throughout the LOD and have potential as refugia for reptiles and amphibians. Examples of this were incidentally recorded in the south of the LOD (as shown on Confidential Figure 8.3a (Volume 3)).

Fish

8.4.108 Watercourses throughout the LOD vary greatly, from artificial ditches between agricultural fields, to large rivers such as the River Tay. All relevant watercourses assessed by SEPA[33] (with one exception – Fithie Burn) have been assigned an overall condition of Good or Moderate, with suitability for fish in all cases being High. Note that Atlantic salmon, brook lamprey, river lamprey and sea lamprey are all qualifying features of the River Tay SAC.

8.4.109 Fithie Burn in the west is the only exception, with an overall condition of Poor, and suitability for fish rated Poor. This is due to an impassable artificial barrier preventing passage of fish.

Non-native Species

8.4.110 The desk study identified 21 records of four invasive non-native plant species (plant INNS): American skunk-cabbage *Lysichiton americanus*, giant hogweed *Heracleum mantegazzianum*, Himalayan balsam *Impatiens glandulifera* and Japanese knotweed. The American skunk-cabbage and giant hogweed records are from the banks of the River Tay and River Earn. Himalayan balsam was also recorded here but also on the Huntly Burn, Pow of Glencarse and the Cairnie Pow. The records of Japanese knotweed were from the Glassart Burn and on the River Earn.

8.4.111 Plant INNS were incidentally recorded during field surveys. Japanese knotweed, for example, was recorded along the banks of the River Tay and River Earn, together with Himalayan balsam. Locations of recorded plant INNS are shown on Confidential Figure 8.3a (Volume 3); however, these are incidentally recorded and may not represent a comprehensive depiction of their occurrence across the LOD. As noted in Section 8.6.3, detailed survey for INNS (which was not within the scope of surveys for this EIA) at pre-construction will therefore be required at confirmed works locations.

8.4.112 The desk study returned 12 records of American mink, an invasive non-native species which preys on water vole and has contributed to their decline, from the Pow Burn at Inchcoonans. Additionally, there are records of American mink in all hectads that overlap the LOD, except the far south, recorded during the National Water Vole Database and Mapping Project[35]. A likely American mink partial footprint was also recorded in the soft, muddy banks of Grange Pow during field survey.

8.4.113 The desk study returned 148 records of grey squirrel *Sciurus carolinensis* from woodland across the LOD. Saving Scotland's Red Squirrels also indicates that grey squirrel occurs along the length of the LOD. However, no incidental sightings of grey squirrel were made during field surveys, and there are many more records overall of native red squirrel.

8.4.114 Evidence of animal INNS recorded incidentally during field surveys is shown alongside plant INNS on Confidential Figure 8.3a (Volume 3).

Future Baseline

8.4.115 The Proposed Development is relatively imminent, and it is therefore unlikely that there would be any significant changes to the baseline described above at the time of construction. Under regular agricultural management, some of the arable fields might be converted to pasture or vice versa at the time of construction, and some commercial plantation might (as periodically occurs on an on-going basis) be felled and replanted, but these changes are of negligible ecological consequence and do not affect the outcomes of this assessment.

8.4.116 In further support of this conclusion, the Proposed Development does not cross any land zoned for development in either Angus LDP, PK LDP2, or FIFEplan.

8.4.117 It is normal to also consider the future baseline in the absence of the Proposed Development, typically at a point around 30 years in the future. In the absence of the Proposed Development, the existing OHL would remain in place (as established in the "do nothing" scenario referenced in Chapter 4: Alternatives Considered (Volume 2)). Furthermore, given the rural nature of the LOD it is similarly likely that the more distant future baseline in the absence of the Proposed Development would also be similar to the above-described baseline, and since the mitigated ecological impacts of the Proposed Development are very minor (see the assessment below) the future baseline would not be appreciably better ecologically without it.

8.5 Issues Scoped Out

8.5.1 As stated in Section 8.3.1, relevant ecological features are those that are 'important' and have the potential to be significantly affected by the Proposed Development[6]. In view of the baseline data obtained through desk study and field survey presented above, the features in Table 8-6 have been excluded from further assessment because: a) available data indicates that they are likely to be absent from the ZoI of the Proposed Development, b) it is clear that no impact from the Proposed Development is possible, and/or c) they are features that, although identified as being 'important' by the criteria adopted in this chapter, are common and widespread and their conservation status is clearly not threatened by the Proposed Development.

Table 8-6 Ecological Features Scoped Out of Further Assessment

Ecological Feature	Rationale for Exclusion from Further Assessment in this Chapter
Pitkeathly Mires SAC	Although there is a hydrological link between the LOD and this SAC, there is no pathway for a pollution impact given the distance (**8 km**) from the Proposed Development, that the SAC is upstream of the LOD, and the minor nature of the Proposed Development.
Turflundie Wood SAC and SSSI	These sites are designated for great crested newt but are considerably more than **500 m** from the Proposed Development (**900 m** at closest). Mostly, great crested newts range up to **500 m** from breeding ponds[85,86]. Therefore, on the assumption that any SAC designated for this species would encompass all breeding ponds used by a meta-population, a buffer of **500 m** surrounding the SAC / SSSI should be sufficient to account for functionally linked terrestrial habitat potentially used by great crested newts from the SAC / SSSI. Therefore, any great crested newts within the LOD are not considered part of the SAC metapopulation. Given the intervening distance, topography and habitats, and the minor nature of the Proposed Development, it is clearly not possible for this SAC / SSSI to be directly impacted by construction or operational pollution or other indirect effects.
Den of Fowlis SSSI	In view of the nature of the Proposed Development and the separation distance of **1.4 km** with no hydrological or other connectivity, potential effects on this SSSI resulting from the Proposed Development are impossible.
Backmuir Wood LNCS, Pitroddie Den LNCS, and Auchtermuchty Common Wildlife Site	The minimum separation distance of **800 m**, and lack of hydrological connectivity (or situation uphill of the LOD) or other connectivity, and the nature of the Proposed Development, precludes any possibility of impact on these local nature sites.
Common habitats (those that are not Annex I habitats, SBL	Proposed works around towers and along access tracks mainly affect habitats of poor ecological value (e.g. agricultural fields, semi-improved grasslands, and dense

[85] SNH (undated). Protected Species Advice for Developers: Great Crested Newt. (online) Available from: https://www.nature.scot/sites/default/files/2017-10/A2124123%20-%20Species%20Planning%20Advice%20Project%20-%20great%20crested%20newt%20-%20FINAL.pdf. [Accessed: August 2024]
[86] Froglife (2001). Great Crested Newt Conservation Handbook. (online) Available at: https://www.froglife.org/wp-content/uploads/2013/06/GCN-Conservation-Handbook_compressed.pdf [Accessed: August 2024]

Ecological Feature	Rationale for Exclusion from Further Assessment in this Chapter
priorities, GWDTE or broad-leaved or mixed woodland, including long-established plantation)	bracken). Habitats within the LOD that are not notable as Annex I habitats, SBL priorities or GWDTE are widespread in Scotland and NHZ 16, and given the nature of Proposed Development, the Proposed Development does not threaten their conservation status. Coniferous plantations of non-native Sitka spruce have negligible ecological value and are common, therefore are also excluded from further assessment. However, broad-leaved and mixed woodlands are considered further given the emphasis on retention of woodland in AC LDP Policy PV7 (as detailed in Appendix 8.1 (Volume 4)).
Water vole	Survey for water vole was limited as described in Limitations and Assumptions. However, in-channel works are limited (localised upgrades of existing culverts for access, and four new but temporary culverts) and affect small stretches of stream/ ditch. No other works would be in close enough proximity to streams / ditches to be a concern for water voles. In any case, for the reasons set out in the baseline above, water vole is considered likely absent from the LOD.
Wildcat	For reasons set out in Section 8.2.53 above, wildcat is considered absent from the ZoI of the Proposed Development.
Mountain hare	No desk study records of mountain hare were identified, and no evidence found incidentally during field surveys. There is very little suitable habitat in the LOD and that present is small and highly isolated. Therefore, mountain hare is considered absent.
Brown hare and hedgehog	Both species are relatively common and widespread. Brown hare is precocial and highly mobile with no permanent refuges and can thus easily avoid works. Impacts on hedgehog would be slight given the nature of the Proposed Development, and can be minimised through standard animal protection measures (described in Section 8.6.3 below). Therefore, brown hare and hedgehog are not considered further.
Amphibians and reptiles other than great crested newt	This encompasses common and widespread amphibians and reptiles that are known from desk study records to occur in the LOD (only in localised suitable habitat such as rough grassland, scrub and in some cases woodland). Presence of adder (not specially protected, but more localised) is unlikely given lack of records and suboptimal to unfavourable habitat. Standard mitigation measures (described in Section 8.6.3 below) can be implemented to reduce impacts.
Non-native animals (grey squirrel and American mink)	There is no mechanism by which the construction or operation of the Proposed Development could facilitate the spread of these non-native animal species, which are already known from desk- and field-based evidence to occur in the LOD.
Plant INNS	Whilst present within the LOD, the embedded mitigation of detailed pre-construction survey for plant INNS at known works locations and in advance of works commencing, and the subsequent production of a Biosecurity Management Plan (BMP) and associated mitigation if required, is considered sufficient to ensure the Proposed Development has no impact on plant INNS.

8.6 Assessment of Effects, Mitigation and Residual Effects

8.6.1 Embedded mitigation measures are incorporated into the design of a development and aim to avoid or reduce adverse effects, including those on ecological features. Embedded mitigation can be considered at the impact assessment stage, whereas specific mitigation measures which are not part of the design and are developed after the initial impact assessment, are assessed at a later stage when considering the residual effects.

Mitigation by Design

8.6.2 The Proposed Development has sought to avoid impacts on ecological features through design in the following ways:

- An existing OHL would be reinforced rather than a new route constructed;
- The existing wayleave of **40 m** would be used and extended a small amount to **45 m** to account for the upgraded infrastructure; however, as is currently the case for the existing wayleave, a risk-based approach to tree management will be adopted where trees within the operational corridor will be retained if the risk to network resilience from falling trees or tree branches during adverse weather is deemed low;
- Existing tower access routes utilised by the Applicant's operation and maintenance teams would be used whenever possible, to minimise the requirement for construction of new access tracks;
- New tracks, where required, would be temporary and affected habitats would be reinstated following completion of works;
- Insulators and fittings would be replaced along each pull section at the same time as the reconductoring works are undertaken, to minimise the number of visits required to each tower location, hence minimising disturbance;
- Access routes across streams would be limited and localised, and except in one case would use existing crossing points that would be upgraded, rather than construct new crossing points; the culvert upgrades would ensure that passage for protected and notable species (including fish and mammals) is equal to or better than baseline. One required new culvert would be temporary, to be removed when the relevant works are complete, and would also maintain fish/ mammal passage;
- The works area around Tower 72 has been brought in on the west side such that no vegetation clearance or other works will take place within **10 m** the spring/ stream located here, one of several in this vicinity that feed Lochmill Loch SSSI to the east; and,
- The works area round Tower 79, which is largely within an arable field, has been adjusted so that the strip of LMDW to the east will only be impacted where required for the wayleave.

Standard Good Practice Mitigation

8.6.3 In addition to the above-described design mitigation measures, a range of measures that are standard good practice for development of this type, and which are required to comply with environmental protection legislation, would also be implemented. These are well-developed and have been successfully implemented on infrastructure projects across the country and there is a high degree of confidence in their success. They can therefore be treated as embedded mitigation. These would include:

- All personnel involved in the construction, operation and decommissioning of the Proposed Development would be made aware of the ecological features within the ZoI and the mitigation measures and working procedures that must be adopted. This would be achieved as part of the induction process and through the delivery of Toolbox Talks, where required;
- An Environmental Clerk of Works (ECoW) would be employed for the duration of the construction of the Proposed Development. The remit of the EcoW would include, but may not be limited to the following (standard ECoW remit would also include other measures given in Chapter 9 (Volume 2)):
    - carrying out pre-works checks for protected species and other important ecological features;
    - monitoring of protected species, and liaising appropriately to resolve any issues that arise, if necessary including obtaining further derogation licence(s) and developing associated proportionate mitigation;
    - advising on exact infrastructure placement within micro-siting tolerances;
    - monitoring of, and advising on, storage of overburden to minimise habitat damage;
    - monitoring of any peat/ vegetated turves that may be stored for later reinstatement;

- advising on habitat reinstatement; and
- monitoring of pollution control measures and advising on placement of ditches, settlement ponds, etc. to minimise habitat damage.

- The ECoW or other suitably qualified and experienced ecologist would carry out pre-construction surveys for relevant protected species in suitable habitat, including bat, otter, pine marten, badger and red squirrel. In line with NatureScot guidance[7], these pre-construction surveys would take place no more than three months before commencing works (including facilitating works such as vegetation clearance). Ideally, they should take place no less than six weeks prior to construction to allow time for potential license applications and thus avoid possible project delays;
- The ECoW or other suitably qualified and experienced ecologist would carry out a survey for plant INNS prior to commencement of works and, if required, a BMP would be prepared and appropriate mitigation implemented to prevent the spread of INNS;
- A CEMP would be prepared and implemented by the Principal Contractor appointed by the Applicant. This document would detail how the Principal Contractor would manage the site in accordance with all commitments and mitigation detailed in this EIA Report, statutory consents and authorizations, and industry best practice and guidance. Implementation of the CEMP would be managed on site by a suitably qualified and experienced ECoW, with support from other environmental professionals as required;
- During all phases of the Proposed Development, pollution prevention measures would be adopted, following SEPA Pollution Prevention Guidelines (PPG) and Guidance on Pollution Prevention (GPP), including the following:
  - controls and contingency measures would be provided to manage run-off and sediment;
  - all oils, lubricants or other chemicals would be stored in an appropriate secure container in a suitable storage area, with spill kits provided at the storage location and at places across the Proposed Development; and
  - to avoid pollution of soils, vegetation or water during construction, all refuelling and servicing of vehicles and plant would be carried out in a designated area which is bunded and has an impermeable base, situated at least **50 m** away from any watercourse or standing water;
- Works near or at any retained native trees or semi-natural woodland would follow guidance in British Standard 5837 (2012) “Trees in Relation to Design, Demolition and Construction – Recommendations” (British Standards Institution, 2012)[87];
- Any artificial lighting required for construction works would be directional to avoid or minimise light spill beyond immediate works areas;
- Measures to prevent the injury or mortality of animals would be adopted, including:
  - excavations would be provided with a means of escape for animals that may fall in overnight, such as a ramp or battered slope;
  - except where required to remain open for passage of water, pipes that animals could enter would be capped overnight;
  - plant and machinery would be inspected before use each day to check for the presence of animals which may have taken shelter within or beneath;
  - vegetation clearance would as far as possible be carried out outside of sensitive periods for wildlife. This would include (following ECoW checks for dreys) clearing woodland outside the red squirrel breeding

[87] British Standards Institution (2012). Trees in relation to design, demolition and construction – Recommendations. BSI

season (February to September, inclusive; note that in implementing preferred breeding bird mitigation a large part of this season would be already be avoided – see Chapter 9 (Volume 2));

-
- where possible, pre-stressing wildlife where they are encouraged to leave the area prior to works commencing (e.g. by having people walk over the area making noise); and,
- if and where necessary, phased vegetation clearance following a pattern to encourage wildlife to move out of the working area to alternative undisturbed habitats.

Importance of Ecological Features

8.6.4 The assessed importance of those ecological features identified in the baseline conditions, and which have not been scoped out in Section 8.5, is set out in Table 8-7, together with a rationale. Importance has been assessed considering geographic scale, in accordance with CIEEM[6] guidelines.

8.6.5 For the purposes of this assessment, when considering geographic scale, the level of 'Regional' is defined as the area encompassed by NHZ 16, and 'Local' as the area within **10 km** of the Proposed Development.

Table 8-7 Importance of Ecological Features

Ecological Feature	Importance	Rationale
Designated Sites		
River Tay SAC and Firth of Tay and Eden Estuary SAC	European	These are nature conservation sites designated at a European level.
Inner Tay Estuary SSSI	National	This is a nature conservation site designated at a National level.
Tay Reedbeds RSPB Reserve	National	This nature reserve overlaps parts of the Firth of Tay and Eden Estuary SAC and Inner Tay Estuary SSSI, and thus includes a large part of the largest continuous reedbed in the UK. Therefore, it is important at a National level.
Inner Tay Estuary LNR	Regional	This is a nature conservation site designated by the local planning authority, so is considered important at a Regional level.
Lochmill Loch SSSI	National	This is a nature conservation site designated at a National level.
Habitats		
River Tay	European	The River Tay is a significant watercourse which, along with many of its tributaries, forms the River Tay SAC. As such it is assessed within the River Tay SAC impact assessment and is important at European level.
Waterbodies and other watercourses outside of the River Tay SAC	Local	Waterbodies within the LOD comprise four ponds, only one of which (TW07) is considered good enough to constitute the Ponds SBL priority habitat. The others are non-priority ponds within or between agricultural fields that do not appear to support a diverse range of aquatic flora. Apart from the River Earn, watercourses within the LOD outside the River Tay SAC are generally small and typical of lowland Scotland. The River Earn would likely meet criteria for Rivers SBL priority habitat and is a component of the ***H1130*** Annex I estuaries habitat, but only a 2**50 m** length of this major and very long river is within the LOD. On balance, therefore, waterbodies and other watercourses outside of the River Tay SAC are considered to be of Local importance.

Ecological Feature	Importance	Rationale
LEP woodland	Regional	These woodlands (of which there are 12 in the LOD) are listed in the AWI as LEP, indicating some degree of woodland continuity but that they are not of the quality of ancient semi-natural woodland. Field survey found that these woodlands have been subject to disturbance and are not in good condition and confirmed that they are not semi-natural. Therefore, Regional importance is considered most appropriate.
Woodland (Excluding Other Coniferous Woodland and LEP Woodland) and Scattered Trees	Local	Woodlands within NHZ 16 are fragmented in what is predominantly an agricultural landscape. Mature trees are commonly found between agricultural fields and along farm tracks. The two areas of LMDW are SBL priority habitat. Each locally contains a few ground flora species that might indicate antiquity, but they also contain a high proportion of non-native (as well as native) trees and some non-native ground flora and shrub species (including limited rhododendron in one case). Wet woodlands are uncommon within the LOD and are highly localised within the Fallaws Burn Wetland and around the River Tay and River Earn. The parcels of wet woodland on the south bank of the River Earn constitute Annex I habitat type ***H91E0***. None are considered likely to be GWDTE but all are Wet Woodlands SBL priority habitat. They are not good examples, being small, isolated and with non-notable flora (sometimes dominated by non-native species). The single area of Upland Mixed Ashwood SBL priority habitat and Annex I habitat ***H9180***, located near Wester Greenside Farm, has local species-rich patches of ground flora but is over-dominated by ivy (not typically a natural phenomenon). Remaining woodlands and trees have some biodiversity and connectivity value, and include lower quality semi-natural and plantation, none of which are ancient. They do however often correspond to Tayside LPHs (Lowland Mixed Broadleaf (Deciduous) Woodlands and Planted Coniferous Woodlands). Considering the above, these woodlands are considered to be of Local importance.

Ecological Feature	Importance	Rationale
Other SBL Priority Habitats, Annex I Habitats and GWDTE	Local	Other important habitats comprise Intertidal mudflats, Reedbeds, Estuaries, Lowland Fen, Lowland heath, Lowland dry acid grassland and GWDTE. Intertidal mudflats, reedbeds, and other estuarine habitats occur on the edges of the channels of the River Tay and River Earn. Here, they constitute Annex I ***H1140*** and ***H1130*** mudflats/estuaries, as well as Intertidal Mudflats SBL priority habitat, Reedbed SBL priority habitat and Estuarine Reedbeds Tayside LPH. The reedbeds are part of a continuous reedbed joining with that within the SAC/SSSI. Nonetheless these habitats are floristically not notable and their extent in the LOD vicinity is limited, with enormous expanses of reedbed and other estuarine habitats downstream. A small parcel of Reedbeds SBL priority habitat also occurs within the Fallaws Burn wetland. Recorded Lowland Fen SBL habitat is very localised. At Fallows Burn wetland it is NVC type M28 (iris-dominated and here quite 'weedy') and M27 (meadowsweet-dominated with limited floristic diversity and grazed by cattle). Localised fen west of Lochmill Loch is also rather species-poor. Heathlands and acid grasslands are present within the LOD within the wayleaves through Pitmedden Wood and Dronley Wood, sometimes in a mosaic. All dry heath (including therein mosaic with acid grassland) is ***H4030*** Annex I habitat, as well as Lowland Heathland SBL priority habitat. Acid grassland within LOD is Lowland Dry Acid Grassland SBL priority habitat Heath is overall widespread and common in Scotland, but mostly upland, and localised in NHZ 16. Acid grassland is uncommon in what is a predominantly lowland agricultural landscape. However, such habitat is frequent in wayleaves and rides in plantations, and the recorded vegetation is closest to NVC type U2 which is largely not a natural vegetation type but one caused by disturbance (such as in areas of felling and wayleaves), and thus not of special note. The only potential GWDTE considered to actually be ground-water dependent (rather than wettened by surface water flows or river / tidal influences) is damp grassland irrigated by springs west of Lochmill Loch. Notwithstanding connectivity to that loch and associated SSSI (considered separately below), the damp grassland is not notable (NVC type MG10). Considering the above other important habitats are considered, on balance, to be of Local importance.
Species		
Bats	Local	Bats are an EPS and remain strictly protected under the Habitats Regulations[63]. However, habitat suitability for bats in the LOD overall is Low (primarily owing to dominance of arable land). Bats would generally be sparsely distributed in the LOD, although concentrations will occur along key invertebrate foraging habitats (such as rivers and streams, local marshy areas and woodland edges). Habitats within the LOD are also typical of those within NHZ 16. There is little potential for significant bat roosts in the LOD, however as a precaution. roosts of soprano pipistrelle and/or common pipistrelle may be considered present in the LOD. Therefore, Local, rather than Regional, importance is considered appropriate.

Ecological Feature	Importance	Rationale
Otter	Regional	The national otter population is estimated to be around 8,000 individuals[88], and they are widespread across Scotland, including the Eastern Lowlands[80]. However, freshwater otter home ranges are very large (typically around **15 km** for females and considerably more for males), thus otters associated with the LOD will be ranging much more widely, and the numbers passing through the LOD might, on a precautionary basis, be of more than local importance (especially given the otter evidence found, which suggests multiple otters). It is also relevant that the Tay Reedbeds are potentially suitable for breeding, thus breeding otters and family groups could occur in the LOD, and there are important fish prey resources passing through the LOD. Therefore, on balance, Regional importance is considered appropriate for otters in the LOD vicinity.
Beaver	Site	Though only recently reintroduced to the UK, beaver are widespread across the Tay catchment and their range continues to expand in the Forth catchment. Their population continues to increase despite lethal control[89], hence any impact on individuals within the LOD would not affect the wider population, especially considering the limited number of watercourses which support beaver. Therefore, beaver are considered important at Site level.
Badger	Site	Badger receives legal protection as this species are susceptible to human persecution. However, they are common and widespread across lowland Scotland, including the Eastern Lowlands NHZ 16[90]. The population of badger which may use the LOD is therefore assessed as being of no more than Site importance.
Pine marten	Local	Pine marten are fully protected under the WCA but are only likely to be present in localised parts of the LOD near extensive woodland. Furthermore, pine marten are relatively common nationally[80] and in this part of Scotland[91], and no den sites suitable for breeding were identified by field survey. Consequently, the population in the LOD vicinity would not be of Regional importance and is classified as Local importance.
Red squirrel	Local	Red squirrel are fully protected under the WCA. They are widespread and relatively common in woodland across Scotland, and although more localised in the central belt they are still evidently common in the LOD vicinity where there is suitable woodland (such as at Pitmedden Wood). The numbers passing through the LOD itself would also be insignificant. Therefore Local importance is appropriate.
Great crested newt	Regional	Great crested newt is an EPS, found at one pond within the ZoI of the Proposed Development. The species has been in decline for decades and the population in Scotland continues to be scattered and predominantly confined to the lowlands of the central belt[92]. In view of this, great crested newt is considered of Regional importance.

88 NatureScot (2024). Otter. (online) Available at: https://www.nature.scot/plants-animals-and-fungi/mammals/land-mammals/otter [Accessed: July 2024]

89 Campbell-Palmer, R., Puttock, A., Needham, R.N., Wilson, K., Graham, H. & Brazier, R.E. 2021. Survey of the Tayside Area Beaver Population 2020-2021. NatureScot Research Report 1274.

90 Rainey, E., Butler, A., Bierman, S. and Roberts, A.M.I., 2009. Scottish Badger Distribution Survey 2006–2009: estimating the distribution and density of badger main setts in Scotland. *Report Prepared by Scottish Badgers and Biomathematics and Statistics Scotland*.

91 Croose, E., Birks, J.D.S. & Schofield, H.W. (2013). Expansion zone survey of pine marten (*Martes martes*) distribution in Scotland. Scottish Natural Heritage Commissioned Report No. 520.

92 McNeill, D.C., (2010). Translocation of a population of great crested newts (*Triturus cristatus*): a Scottish case study (Doctoral dissertation, University of Glasgow).

Ecological Feature	Importance	Rationale
Atlantic salmon	Regional	Atlantic salmon is listed in Annex II of the Habitats Directive, is a qualifying feature of the River Tay SAC, is listed on the International Union for Conservation of Nature (IUCN) Red List[93] (though Scotland is considered a stronghold of the species within the UK), and is listed on the SBL. Although similar habitat is scattered across the Tay and Forth catchments in NHZ 16, salmon populations are well-known to be suffering various threats, and the numbers passing through the LOD would be very large and critical to the River Tay SAC, even if limited numbers (if any) would actually breed in the LOD. Therefore, Regional importance is considered appropriate.
Other fish species	Regional	The three lamprey species found in Scotland are all qualifying features of the River Tay SAC and are listed on the SBL. Of these, river lamprey and brook lamprey are widespread in Scotland[94,95], whilst sea lamprey are more patchily distributed[96]. Watercourses upstream of the River Tay offer extensive habitat with no blockages to fish passage for more than **10 km**. The River Forth catchment also provides ample suitable habitat for these and other fish species. However, the numbers of lampreys passing through the LOD will be very large, and the muddy tributaries in the LOD vicinity near the River Tay could be significant for lamprey breeding. As such, other fish species are considered to be of Regional importance.

Potential Impacts of the Proposed Development

8.6.6 The following broad categories of impact could arise during the construction, operation and/or decommissioning of the Proposed Development and are considered, where potentially relevant, in relation to each of the ecological features scoped in to detailed assessment in Table 8-7:

- Temporary or permanent habitat loss;
- Temporary or permanent changes to hydrological conditions which may affect vegetation and habitats;
- Temporary or permanent loss of habitat which supports protected and/or important species;
- Creation of barriers to animal movements;
- Temporary disturbance and/or displacement of species during construction;
- Disturbance and/or displacement of species during operation; and,
- Potential for direct mortality of species during construction and operation.

8.6.7 Pollution of surface water, groundwater, soils and vegetation would be avoided through adoption of industry-standard good practice mitigation measures at all stages of the Proposed Development in order to meet legal and regulatory requirements, as described in Section 8.6.3. These measures are normal practice for development of this type and are considered as embedded.

[93] Darwall, W.R.T. 2023. Salmo salar. The IUCN Red List of Threatened Species 2023: e.T19855A67373433. https://dx.doi.org/10.2305/IUCN.UK.2023-1.RLTS.T19855A67373433.en. [Accessed: September 2024]
[94] IUCN (2010). European River Lamprey Lampetra fluviatilis. (online) Available at: https://www.iucnredlist.org/species/11206/97805807 [Accessed: July 2024]
[95] IUCN (2010). European Brook Lamprey Lampetra planeri. (online) Available at: https://www.iucnredlist.org/species/11213/97806694 [Accessed: July 2024]
[96] Boulêtreau, S., Carry, L., Meyer, E., Filloux, D., Menchi, O., Mataix, V. and Santoul, F., 2020. High predation of native sea lamprey during spawning migration. *Scientific Reports*, 10(1), pp.1-9.

8.6.8 According to guidance published by the Institute of Air Quality Management (IAQM)[97], dust generated by plant and machinery on construction sites can impact habitats located at distances up to **50 m** from works areas, and up to **500 m** from site entrances. Due to the nature of the Proposed Development, site entrances will not attract highly concentrated vehicular movement as may be expected in other construction sites, therefore, only habitats within **50 m** are considered to be at risk of impacts from dust. However, as stated in the paragraph above, standard pollution prevention techniques would be implemented during the construction of the Proposed Development, and this would include dust suppression (for example through wetting of access tracks during periods of dry weather), where necessary. Hence, pollution through dust generation would be avoided.

8.6.9 The Design Manual for Roads and Bridges advises that air quality impacts only need to be assessed where a project would increase annual average daily traffic of light vehicles (e.g., cars) by more than 1,000 movements and/or heavy-duty vehicles by more than 200 movements[98]. No traffic volume increase is anticipated during operational phase of the Proposed Development and traffic volumes relating to construction are a fraction of these thresholds.

8.6.10 It is yet to be decided if the Proposed Development would be decommissioned at the end of its operational life or be replaced / upgraded. Nevertheless, the impacts on ecological features which would arise during the potential decommissioning phase are expected to be broadly similar to those which would arise during the construction phase. For this reason, the potential impacts and effects of the construction phase discussed below are considered equivalent to those of any decommissioning phase, though not specifically assessed.

Construction Phase

River Tay SAC and Firth of Tay and Eden Estuary SAC

8.6.11 A detailed assessment of the potential impacts and effects of the Proposed Development on the River Tay SAC and Firth of Tay and Eden Estuary SAC is provided in the Statement to Inform Habitats Regulations Appraisal in Appendix 8.5 (Volume 4), where it was concluded that construction and operation of the Proposed Development would not result in adverse effects of the integrity of any SACs within the ZoI. This included consideration of the embedded design and pollution control mitigation described in Section 8.6.3. The Statement to Inform Habitats Regulations Appraisal considered all possible types of effect upon the SAC, and apart from disturbance of qualifying species (subsequently found at the appropriate assessment stage to not result in adverse effects on SAC integrity), all effects were eliminated at the initial screening stage because there would clearly be no likely significant effect. This does not mean there would be no effect at all – in particular, it is still possible, but very unlikely, that waterborne pollution of these SACs could occur as a result of the Proposed Development, but to a degree that would be so slight as to be nugatory. Since there is also no clear way in which the Proposed Development could cause beneficial effects on these SACs, it is therefore concluded that there will be **Negligible effect** on the River Tay SAC or the Firth of Tay and Eden Estuary SAC during construction, but in this case it is stressed that 'negligible' means so slight that effects on these SACs would be imperceptible, which is **Not Significant**.

Inner Tay Estuary SSSI, Inner Tay Estuary LNR and Tay Reedbeds RSPB Reserve

8.6.12 The Inner Tay Estuary SSSI, Inner Tay Estuary LNR and Tay Reedbeds RSPB Reserve are designated for the estuarine habitats they contain (including mudflats, saltmarsh and reedbeds), which are all contained within the Firth of Tay and Eden Estuary SAC. Given the arguments in the previous paragraph regarding the SACs that

[97] Holman, C., Barrowcliffe, R. Birkenshaw, D., Dalton, H., Gray, G., Harker, G., Laxen, D., Marner, B., Marsh, D., Prismall, F., Pullen, J., Stoaling, M., Storey, C. and Vining, L.(2014). IAQM Guidance on the assessment of dust from demolition and construction, Institute of Air Quality Management, London. (online) Available at: www.iaqm.co.uk/text/guidance/construction-dust-2014.pdf [Accessed: July 2024]

[98] Highways England, Traffic Scotland, Welsh Government, and Department for Infrastructure (2019). LA 105 Air Quality. Design Manual for Roads and Bridges, London.

these designated sites overlap, and the conclusion that there would be such a negligible effect as to be of no consequence to the overlapping SACs, and there being no clear way in which beneficial effects could arise, it is concluded that there will similarly be **Negligible effect** during construction on the Inner Tay Estuary SSSI, Inner Tay Estuary LNR and Tay Reedbeds RSPB Reserve, where again 'negligible' means so slight that effects on these designated sites would be imperceptible, which is **Not Significant**.

Lochmill Loch SSSI

8.6.13 The notified features of Lochmill Loch SSSI are mesotrophic loch with associated aquatic plants, and lowland dry heath, now rare in the region according to the SSSI management plan. Both notified features were most recently assessed by NatureScot to be in unfavourable-declining condition. For the loch, this is due to a loss of species diversity and replacement of some species with Canadian pondweed *Elodea canadensis*, a plant INNS. The lowland dry heath is mostly threatened by encroaching scrub and trees[99].

8.6.14 A temporary stone road is proposed along the southern boundary of Lochmill Loch SSSI for approximately **800 m**, following the route of a forestry track formerly used by vehicles. It is evident the track has only been used by people on foot for some time, and it has become overgrown. By reference to aerial photography combined with the SSSI site boundary as supplied by NatureScot, the southern boundary of the SSSI is approximately **7 m** north of the existing track. Where possible, widening beyond the existing width will be southwards away from the SSSI, but given the gap of **7 m** between the existing track and the SSSI boundary, there is unlikely to be an impact on vegetation within the SSSI itself. Moreover, habitats at the immediate edge of the SSSI closest to the track comprise broadleaved woodland, scrub and unmanaged coarse neutral grassland. Consequently, there is not expected to be any direct loss of notified lowland dry heath, and certainly no direct impact on the mesotrophic loch which is distant from the track. Therefore, the integrity of the SSSI is not expected to be compromised. Consequently, habitat loss during construction will have **Negligible effect** on Lochmill Loch SSSI, which is **Not significant**. Nonetheless, track construction or any other works found to be necessary even within the very edge of the SSSI, and even in non-notified habitat, would still constitute an Operation Requiring Consent for the SSSI (specifically, ORC 21 Construction, removal or destruction of roads, tracks, walls, fences, hardstands, banks or other earthworks), and it would therefore be an offence to carry out any such work within the boundary of the SSSI without prior authorisation from NatureScot.

8.6.15 It is an embedded design measure that the working area around Tower 72 has been adjusted such that no vegetation clearance or other work will take place within **10 m** of the small spring / stream in this location, one of several in this vicinity that feed this SSSI. The works are minor, and together with embedded pollution prevention mitigation (as required by statutory authorities for all construction), there will be sufficient control to avoid significant pollution or other adverse effects on the springs / streams and associated wet vegetation feeding Lochmill Loch SSSI. There would thus be **Negligible effect** on Lochmill Loch SSSI from construction pollution, which is **Not significant.**

Waterbodies and other watercourses outside of the River Tay SAC

8.6.16 Proposed works including existing track upgrades and vegetation clearance would occur in close proximity to watercourses in several places (full details of works in proximity to watercourses are provided in Chapter 13, Table 13-23 (Volume 2)), and there would be upgrades to six existing culverts and installation of one temporary culvert. These works have potential to cause pollution of the watercourses. However, as described in Section 8.6.7, pollution would be controlled by embedded mitigation measures, as required by statutory authorities for all construction. Culvert works would also necessarily adhere to CAR[100]. Additionally, and with regard to the River Earn, habitats on the banks (including reedbeds) would naturally intercept sediment run-off, and there would be

[99] Scottish Natural Heritage (2010). Lochmill Loch Site of Special Scientific Interest Site Management Plan (online). Available at: https://sitelink.nature.scot/site/1078 [Accessed: August 2024]

[100] Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended).

significant dilution given the size of the river and tidal influence at this point, further reducing any possible impact on the largest and most notable watercourse within the LOD (outside of the River Tay SAC, to which this point is also applicable). The River Earn here is also muddy and silty, thus minor siltation even if unmitigated is very unlikely to be of any consequence. Given also the minor nature of the Proposed Development, pollution during construction is likely to have at most, **Negligible effect** on waterbodies and watercourses outside the River Tay SAC, which is **Not significant** (for the River Tay SAC, see the separate assessment at 8.6.11 above).

8.6.17 With regard to loss or damage of watercourses habitat, the six upgrades to existing culverts at water crossings, and construction of one new temporary culvert at Dronley Wood, will incur minor impacts to riparian bank habitat and channel substrate. For the upgrades, as the culverts already exist, the replacements would largely be situated where riparian habitat and channel substrate are already absent at baseline. Any additional loss where culverts are widened would be slight compared to the whole lengths of the affected (small) watercourses. Riparian habitat loss for the one temporary culvert would also be small compared to the baseline resource, and habitat in this case would be reinstated following removal of this culvert after works completion and is therefore not permanent. Although, as explained in Chapter 13 (Volume 2), culverts have potential to impede channel sediment movement or induce erosion, this would also affect small stretches of watercourse in the immediate culvert vicinities. Therefore, loss or damage to riparian habitat and channel substrate during construction is anticipated to have **Negligible effect** which is **Not significant**.

LEP Woodland

8.6.18 The Proposed Development would result in minor permanent loss of LEP woodland since some trees must be felled to facilitate access or to prevent them being a danger to the OHL. Note that mature tree loss is treated as permanent loss since replacement can only occur over long timescales. Where possible, crown reduction would be implemented as opposed to felling to retain as much woodland as possible, in line with AC LDP Policy LV7, PKC LDP Policy 40, and FC LDP Policy 13 (described in Appendix 8.1 (Volume 4)). The affected LEP woodlands are subject to various adverse factors including infestation with INNS, modification by forestry operations, areas of non-notable ground flora, and significant proportions of non-native trees.

8.6.19 The extent of anticipated tree loss within LEP woodland required as part of the Proposed Development is as follows (the location of LEP woodland is displayed on Figure 8.1c (Volume 3)):

- Four scattered oaks and beeches within Wynton Wood with additional crown reduction of other trees within the wayleave (within the LOD, this LEP woodland comprises mainly improved pasture with scattered trees);
- No trees at Lundiemuir Plantation within the LEP woodland;
- Oak and sycamore would be selectively felled at the LEP north of Longforgan, and west of Huntly Wood, but the main impact would be from crown reduction of roadside trees;
- At most, 0.9 ha of mixed conifers and birches within the wayleave at Murie Wood;
- Possible removal of trees along the edge of a farm track north of Pitmedden Wood; the corner of the LEP may be affected but the proposed access is at the very edge of the LEP woodland; and,
- Possible removal of trees along the edge of forestry tracks in Pitmedden Wood, three small blocks of which are LEP.

8.6.20 Given that tree loss within LEP woodland is very minimal and is largely confined to woodland edges, permanent loss of LEP woodland is considered to have a **permanent adverse effect of Local significance** (it is not considered of Regional significance, the scale at which LEP was assigned importance, because the degree of impact is too small, almost all the LEP remaining unaffected), which in the context of this EIA is **Not significant**.

8.6.21 The Proposed Development has the potential to cause damage to ground flora and / or tree roots from vehicles, however, this impact would only affect LEP woodland at the edge of Lundiemuir Plantation and within Pitmedden Wood. Relevant proposed access tracks within or along the edge of these woodlands are already frequently used by forestry and farming operations and, consequently, construction vehicles are unlikely to cause impacts beyond those that already exist at baseline. Therefore, construction impacts on LEP ground flora / tree roots is considered a **Negligible effect**, which is **Not significant**.

8.6.22 Standard mitigation measures (as described in Section 8.6.3) would prevent any notable pollution event. Hence construction pollution on LEP woodland would have **Negligible effect**, which is **Not significant**.

Woodland (Excluding Other Coniferous Woodland and LEP Woodland) and Scattered Trees

8.6.23 The Proposed Development would result in localised permanent loss of trees elsewhere, to ensure safety of the OHL and to provide construction access and working areas. Where possible, crown reduction would be implemented as opposed to felling, to retain as much woodland as possible, in line with AC LDP Policy LV7, PKC LDP Policy 40, and FC LDP Policy 13 (described in Appendix 8.1: (Volume 4)). Note that mature tree loss is treated as permanent loss since replacement can only occur over long timescales.

8.6.24 Tree felling will affect relatively few trees at any given location, except within Dronley Wood and Pitmedden Wood which are crossed by the existing OHL route. In total 97 trees would be felled to enable safe access to towers and construction of Working Areas, and 23 of these are within Dronley Wood. This is excluding Pitmedden Wood where tree felling mainly affects non-native Sitka spruce, and is therefore of negligible impact. In addition, to meet resilience standards required for the Proposed Development, further mixed conifers and birches would be felled to cater for the slightly enlarged wayleave (**45 m** either side instead of **40 m**).

8.6.25 Dronley Wood is of higher quality than other coniferous plantations within the LOD, however it is dominated by Scots pine, which is not native to this part of Scotland, reducing its ecological value, and much of the woodland has already been affected by severe windthrow. On balance, considering the large size of Dronley Wood, that Scots pine is not native here, and that this is a commercial plantation, the loss during construction at Dronley Wood of 23 trees and a relatively small number of further trees for the slightly enlarged wayleave is considered a **permanent adverse effect of Site significance**, which in the context of this EIA is **Not significant**.

8.6.26 Where the OHL route passes Megginch Castle at Tower 115 and St Madoes at Tower 97, mixed conifers at the woodland edge would be felled whilst broadleaves within these LMDW would be retained by implementing crown reduction. As a result, permanent habitat loss during construction would have **Negligible effect** on LMDW, which is **Not significant**.

8.6.27 The Wet woodland between the River Tay and River Earn comprising willows and alders would be permanently lost resulting from the Proposed Development since it is located directly under the OHL route. Similarly, broadleaved trees within the Upland mixed ashwood at Greenside Farm would be selectively felled within a restricted wayleave. Both constitute SBL priority habitat. However, the wet woodland is not a good example of this habitat, being isolated, less than 0.4 ha is size, and dominated beneath by a non-native species. At most 0.1 ha of the upland mixed ashwood would be lost. Given this small degree of impact, permanent loss to these woods is considered a **permanent adverse effect of Site significance**, which is **Not significant**.

8.6.28 Beyond the above, tree loss generally affects few individuals within small blocks of scrub, small stands of trees, or treelines along existing tracks, field edges, and watercourses. Many of the affected trees are not native to the area (e.g. sycamore and beech) and given the small extent of this impact and frequency of scattered and small stands of trees, there would be a **Negligible effect** on other woodlands and scattered trees, which is **Not significant**.

8.6.29 The Proposed Development has potential to cause damage to ground flora and / or tree roots from vehicles and the installation of new temporary access tracks and works areas. Proposed works around towers and along access tracks mainly affect habitats of poor ecological value (e.g. agricultural fields, semi-improved grasslands, and Sitka spruce plantation). However, where works are conducted in proximity to woodlands, damage would be very localised to the edge of proposed tracks and working areas, and ground flora would be reinstated following completion of construction on all temporary tracks and Working Areas. Therefore, damage to ground flora / tree roots would have a **temporary adverse effect of Site significance**, which is **Not significant**.

Other SBL Priority Habitats, Annex I Habitats and GWDTE: Intertidal mudflats, Reedbeds, Estuaries, Lowland Fen, Lowland heath, Lowland dry acid grassland and GWDTE

8.6.30 Habitats of greater ecological value within the LOD are located around the River Tay and River Earn, within the wayleaves through Pitmedden Wood and Dronley Wood, and at Fallaws Burn Wetland (though no works are proposed within the Fallaws Burn Wetland). Any loss of important habitats to enable the construction of access tracks and Working Areas would be temporary, with no permanent loss of important habitats anticipated as a result of the Proposed Development. Owing to the nature of Proposed Development, the extent of habitat loss would be minor, a fraction of a hectare at each location, and less than 250m^2 in the case of reedbeds under Tower 90, which can be expected to regrow naturally following completion of the works. Consequently, temporary habitat loss through vegetation clearance to enable construction of access tracks and Working Areas would have **Negligible effect** on other important habitats which is **Not significant**.

8.6.31 Standard mitigation measures (as described in Section 8.6.3) would prevent any notable pollution event. Hence pollution would have **Negligible effect** on important habitats which is **Not significant**.

Bats

8.6.32 Vegetation clearance will be highly localised around towers, along proposed access track routes, and along the OHL route. Around towers and where new access tracks would be constructed, habitats will be reinstated to baseline conditions following works. Overall, the habitat across the Site has 'Low' suitability for foraging and commuting bats. As such, **Negligible effect** on commuting / foraging bats is expected due to habitat loss from construction activities which is **Not significant**.

8.6.33 While vegetation clearance would be highly localised, there is the potential that some of the 36 trees categorised as PRF-M, the 30 categorised as PRF-I, and the seven trees categorised as FAR could be directly impacted as a result of the proposed works. There is little potential for significant bat roosts in the LOD, however, on a precautionary basis, and based on the activity recorded with static detectors, roosts of the more widespread species, such as soprano pipistrelle and/or common pipistrelle, may be present within the LOD, particularly close to Fithie Burn to the north of the OHL route, and close to Fowlis to the south. However, the embedded standard mitigation of pre-construction survey and appointment of ECoW to conduct the PRF surveys of any trees which may be directly impacted means that impacts on any found roosts will be avoided or suitably mitigated. As such, **Negligible effect** on roosting bats is expected due to habitat loss from construction activities which is **Not significant**.

8.6.34 Construction works would predominantly take place during daylight hours, when bats are less active. Disturbance of commuting / foraging bats would therefore largely be avoided. However, while there is little potential for significant bat roosts within the LOD, on a precautionary basis, and based on the activity recorded with static detectors, roosts of the more widespread species such as soprano pipistrelle and/or common pipistrelle may be present within the LOD. However, the embedded standard mitigation of pre-construction survey and appointment of ECoW to conduct the PRF surveys of any trees within the LOD means that impacts on any found roosts will be avoided or suitably mitigated. As such, **Negligible effect** on roosting and commuting / foraging bats is expected due to disturbance from construction activities which is **Not significant**.

Otter

8.6.35 Evidence of otter was recorded throughout the surveyed area including two holts (OH05 and OH07) and three layups (OL06, OL07 and OL09) within the LOD. One layup (OL07) is at risk of being destroyed during construction of the Proposed Development due to its location within the EPZ assessment area associated with Tower 136 and wayleave corridor. Loss of one lay-up within the very large territory of an otter would not affect its ability to survive and reproduce, hence destruction of this refuge would have **No effect** on otter which is **Not significant**. Regardless, a licence from NatureScot would be required to permit destruction of the refuge.

8.6.36 NatureScot advise that disturbance of otters occupying a non-breeding holt or shelter can occur up to **30 m** from typical construction works, this being extended up to **200 m** where otter are breeding[101]. No recorded holts are viable as natal dens due to their location on fast flowing rivers, their openness and accessibility to predators, and/ or a lack of surrounding habitat suitable for young cubs.

8.6.37 If Proposed Development avoid destroying OL07, it would be within disturbance distance. All known refuges within the LOD are likely to be disturbed during construction of the Proposed Development due to their proximity to works. Otters using these refuges may be disturbed and / or displaced during construction of the Proposed Development. However, habitats where works are in proximity to otter refuges comprise arable fields which are subject to a moderate level of baseline disturbance through agricultural activities such as ploughing and harvesting. Works associated with the Proposed Development would not be unlike typical farming activities in terms of noise and vibration. Hence otter populations will be habituated to temporary displacement from the impacted refuges. In the case of OL09, a tall stone wall stands between the layup and the indicative route of Trackway panels, further reducing any disturbance impact. Any displacement from otter refuges resulting from the Proposed Development would be temporary, with work on each set of towers anticipated to last no longer than three weeks. Otter often make use of multiple holts within their territories, so temporary displacement of adult otter (with or without older mobile cubs) from resting sites along localised areas of watercourses within their larger home range, is unlikely to have a significant effect on their ability to survive. As such, there is expected to be a **Negligible effect** on resting otter due to disturbance from construction activities which is **Not Significant**.

8.6.38 Otter layup OL01 is a large overflow culvert under a road bridge which may be used by traffic associated with this EIA. No upgrades are required, nor are any works proposed in this area. Though traffic volumes may be slightly increased, the level of disturbance would not differ from baseline hence there is considered to be **No effect** of disturbance on this resting site which is **Not significant**.

8.6.39 Regardless of the above, a license will be required from NatureScot to permit works liable to cause disturbance within **30 m** of otter refuges (the distance can be larger for particularly disturbing works, but this is not considered applicable in this case).

8.6.40 Construction works would predominantly take place during daylight hours, when otter are less active. Disturbance of commuting / foraging otter would therefore largely be avoided. Even if otter commuting and/or foraging through the LOD were to be disturbed by on-going works, this would be very unlikely to have a significant effect given the area which could possibly be impacted would be very small (especially relative to the large size of otter territories). As such, **Negligible effect** on commuting/ foraging otter is expected due to disturbance from construction activities which is **Not significant**.

8.6.41 Where proposed access tracks cross watercourses, existing tracks and water crossings would be utilised except for access within Dronley Wood where a new culvert would be temporarily installed. Within Dronley Wood, the watercourse which would be crossed is a forestry drainage ditch which would likely only be used by otter for

[101] NatureScot (2024). Standing advice for planning consultations – Otters. (online) Available at: https://www.nature.scot/doc/standing-advice-planning-consultations-otters [Accessed: July 2024]

commuting, if at all. Six culverts across the LOD would require upgrading, all of which cross suitable otter foraging and commuting habitat. However, mitigation by design would ensure that passage is not affected, hence the impact would only apply to during the upgrade works. Considering their motility, the temporary nature of Proposed Development, and the localised area which would be affected, loss of commuting/ foraging habitat would have a **Negligible effect** which is **Not significant**.

8.6.42 As discussed under Watercourses above, standard pollution prevention controls would avoid any significant pollution incident. During works to protect watercourse crossings, it is possible that damage to the bed and banks of watercourses could occur. Fish, especially Atlantic salmon, are a major prey type for otter. As discussed under Atlantic salmon below, it is anticipated that, at most, the Proposed Development would have a **Negligible effect** on the presence of fish in watercourses throughout the LOD which is **Not significant**.

8.6.43 Works would typically take place in daylight (outside periods when otters are most active) and vehicular traffic volume is expected to be low and would be bound by standard construction site safety protocol to travel at low speeds. The probability of otter casualties as a result of vehicle collision during construction is therefore low. Standard measures to protect all animals from harm during construction would be implemented, including providing a means of escape from excavations, etc. (see Section 8.6.3). Furthermore, should OL07 be destroyed, this would be conducted under licence and with the supervision of an ECoW to ensure no otter are harmed during the process. Consequently, there is expected to be a **No effect** from injury or mortality of otter during the construction phase which is **Not significant**.

Beaver

8.6.44 Habitat loss as a result of the Proposed Development would be highly localised around towers, along proposed access track routes, and along the OHL route. Loss of riparian vegetation, beyond that which is already affected by arable farming operations, would be minor and highly localised. In the wider environment this is a negligible loss of foraging habitat for beaver during construction and would have **No effect** on the local population which is **Not significant**.

8.6.45 Beavers are tolerant of human activity, and as such are unlikely to be disturbed by works which do not directly or indirectly affect their use of breeding or resting sites (for example, removal of a dam can lower the water level such that burrow entrances become unusable). All burrows identified during field survey are within the LOD, however, only BB01 and BB02 along the Pow of Errol and within the grounds of Megginch Castle are considered to be at risk of damage and / or disruption during the construction phase. Proposed works which may affect these refuges comprise tree felling operations related to widening the wayleave corridor. It is assumed that trees would be manually felled in this area due to access constraints, so ground damage and disturbance would be limited. NatureScot advise that works within **20 m** of beaver lodges or burrows have the potential to damage such features[102], therefore a license may be required if trees being felled are in proximity to the burrows, particularly if they are on the same bank. The two dams recorded during field survey are also at risk of being damaged during the construction phase which could indirectly disrupt beaver using a refuge upstream. Trees may be felled as part of widening the wayleave corridor in proximity to BD01, and BD02 is within the working area around Tower 115. In channel works are not anticipated at either location, so the likelihood of damage is low. Considering the nature of works near burrows and dams, the availability of multiple burrows in the area, and that impacts would occur across two very localised areas within the LOD, there would be **temporary adverse effect of Site significance** from loss of two of burrows and two dams during construction which is **Not significant**. Nonetheless, a licence would be required from NatureScot where a **20 m** buffer zone around burrows and dams cannot be maintained.

[102] NatureScot (2020). Standing advice for planning consultations – Beavers. (online) Available at: https://www.nature.scot/doc/standing-advice-planning-consultations-beavers [Accessed: August 2024]

8.6.46 Beaver territories may extend up to **20 km** but are, on average around **3 km** so they may occur along sections of watercourse where field signs were not recorded. Beaver activity, including dispersal, is typically restricted to within watercourses and generally occurs between dusk and dawn. Therefore, only in-channel works associated with culverts have the potential to block movement. The very short-term and temporary nature of these culvert upgrade/ installation works limits any impact this would have on commuting/ foraging beaver. Furthermore, (as per embedded mitigation) water crossings for access would be left such that they remain passable for wildlife including beaver. It is therefore considered that restriction of movement due to works within watercourses would have a **Negligible effect** on beaver which is **Not significant**.

8.6.47 The likelihood of beaver injury or mortality is negligible given the timing of works, embedded mitigation, and that beaver are mainly active within watercourses between dusk and dawn, whilst works require no in-channel works except at the few culvert upgrades/ installations which will be carried out in daylight. Given also the continued spread of beavers even where there has been culling, even the unlikely mortality of a beaver would not be likely to have an appreciable impact on the local beaver population. Thus there is considered to be **No effect** on the local beaver population through mortality during construction which is **Not significant**.

Badger

8.6.48 Vegetation clearance would be highly localised around towers, along proposed access track routes, and along the OHL route and at a small scale in the surrounding landscape. Working Areas around the base of towers are predominantly contained within agricultural fields. For the most part, existing access routes would be utilised with new temporary stone roads and trackway panels also largely confined to within agricultural fields, which are widespread in the surrounding landscape. However, within Pitmedden Wood, between Tower 77 and Tower 67 where badgers are known to be active (Confidential Figure 8.3b (Volume 3)), proposed access tracks run through habitats such as conifer plantation and dense scrub used by badgers. Less than **800 m** of new stone roads are to be temporarily constructed in these habitats. Additionally, **10 km** of existing forestry tracks through dense conifer plantation woodlands and **450 m** of an existing footpath through the wayleave between Towers 72 and 70 (Confidential Figure 8.3b (Volume 3)) would be permanently upgraded. Loss of scrub or woodland in other areas of the LOD is minimal. Considering the vast area of surrounding habitat that would remain available for sett establishment, foraging and commuting, the impact of temporary or permanent habitat loss during construction would have a **Negligible effect** on badger which is **Not Significant**.

8.6.49 Badgers are more than capable of crossing tracks so there would be **No effect** on badger movement as a result of construction which is **Not significant**, particularly given that badgers are largely nocturnal whilst the works will be primarily undertaken during daylight.

8.6.50 Tree felling associated with widening of the wayleave corridor could result in damage to up to eight badger setts and the temporary closure of three further badger setts (BS02, BS07 and BS13-BS18 which were active or partially active, and BS08, BS19 and BS20 which were disused at the time of survey). Although BS13, BS14 and BS15 would not be directly impacted during construction, it is possible that these setts are connected underground to setts BS16 and BS17, therefore, if one sett was damaged or destroyed, all connected setts would need to be closed to enable works to proceed. In a worst-case scenario, the Proposed Development would result in the closure of, and possible damage to, two main setts within the LOD. Where setts are at risk of damage but not of being fully destroyed, sett closure would be temporary. However, where sett destruction is required, this would be a permanent impact. Notwithstanding legal obligations, ecological assessment must take into account that badgers are a common species in the region, that worst-case licensing of main sett loss would require proportional compensatory artificial sett provision, and that badgers are resilient, relatively tolerant of disturbance and can quickly establish new setts. Therefore, any worse-case resultant reduction in the badger population would likely be short-term as would establishment of new setts. For these reasons, the ecological consequent of sett loss is overall considered to amount to a **temporary adverse effect of Site significance**, which in the context of this EIA is **Not significant**.

8.6.51 NatureScot advise that disturbance of badgers occupying a sett can occur up to **30 m** from typical construction works, this being extended up to **100 m** for more disruptive activities such as piling and blasting[103]. If works would avoid damage to any of the above setts, badgers would likely still be disturbed. An additional three setts recorded during the field survey are also situated within **30 m** of Proposed Development and are at risk of being disturbed. Of the other setts liable to disturbance, BS09 was disused at the time of survey and is in proximity to the working area around a tower; BS06 was partially-active at the time of survey and is in proximity to proposed trackway panel access; and BS03 was partially-active at the time of survey and is in proximity to tree felling works to expand the wayleave corridor and the working area around a tower. However, the nature of the Proposed Development means disruption would be minimal, especially considering the baseline level of disruption from typical farming activities in the lowlands, and forestry operations and recreational use in the upland fringe, and the short-term and minor nature of the Proposed Development. The embedded standard mitigation of pre-construction survey and appointment of ECoW, involves checking and confirming the status of badger setts and start-up setts prior to works commencing, as well as applying for derogation licensing (where necessary) with any required proportionate mitigation put in place. Considering these points, this standard mitigation measure, the baseline level of disturbance, there would be a **Negligible effect** on the species from the impact of construction disturbance which is **Not Significant**. Nonetheless, all fourteen of these setts would require a license to allow the commencement of works where a **30 m** exclusion zone cannot be applied. Note that badger sett BS01 is in proximity to an existing road that may be used by works traffic; however, no upgrades are required, nor are any works proposed in this area, and traffic volumes would be similar to baseline, therefore it is considered that this sett would not be disturbed.

8.6.52 With regard to badger mortality, there would be an increase in the volumes of vehicular traffic during the construction phase of the Proposed Development. However, works would take place during daylight hours, when badgers are least active, and vehicles would be restricted to low speeds. Other standard good practice mitigation measures would be implemented that minimise the risk of badger injury or mortality, as described in Section 8.6.3. In the unlikely event that a badger was killed, this would not be consequential to the local badger population given the ubiquity of badgers in the region. There is consequently likely to be **No effect** on the local badger population from injury or mortality during construction which is **Not significant**.

Pine marten

8.6.53 Vegetation clearance would be highly localised around towers, along proposed access track routes, and along the OHL route. Around towers and where new access tracks would be constructed, habitats would be reinstated to baseline conditions following works. Most vegetation clearance would affect agricultural fields which are generally avoided by pine marten[104]. Some woodland would be lost at Dronley Wood (up to 7 ha) and Pitmedden Wood (at most 17 ha), however much of this is already felled within existing wayleaves and along existing tracks. It is relevant to consider the large territory size of pine marten, the small scale of woodland loss (compared to extensive retained woodland), the availability of alternative woodland in the surrounding landscape (particularly around Pitmedden Wood where pine marten is active), and the negligible impact on other habitat that pine martens can forage in (such as rough grassland near woodland). Consequently, loss of pine marten habitat through construction would have **Negligible effect**, which is **Not Significant**.

8.6.54 Given that loss of habitat is confined to locations comprising already fragmented habitats within the landscape following previous wayleave clearance, pine marten are expected to be able to continue to commute as normal unimpeded. Pine marten do not actively avoid roads[81] and frequently use forestry tracks for marking their territory, and would likely make use of temporary and permanent new tracks. Furthermore, movement of pine marten is typically influenced by proximity to cover and prey abundance, neither of which would be significantly affected by

[103] NatureScot (2024). Badgers: licences for development. (online) Available at: https://www.nature.scot/professional-advice/protected-areas-and-species/licensing/species-licensing-z-guide/badgers/badgers-licences-development [Accessed: July 2024]

104 Pereboom, V., Mergey, M., Villerette, N., Helder, R., Gerard, J.F. and Lode, T., 2008. Movement patterns, habitat selection, and corridor use of a typical woodland-dweller species, the European pine marten (Martes martes), in fragmented landscape. Canadian Journal of Zoology, 86(9), pp.983-991.

track upgrades or other works. There is therefore considered to be **No effect** on pine marten from habitat fragmentation during construction which is **Not significant**.

8.6.55 Three den sites were identified during field survey within Pitmedden Wood, none of which are considered suitable for breeding. Two of these (PD02 and PD03) are within the LOD adjacent to existing tracks hence are at risk of being destroyed, and PD01 is approximately **33 m** from the LOD. Pine marten typically use multiple dens within their large territories[105], so loss of two moderately disturbed trackside terrestrial dens is unlikely to have a significant effect on the individual(s) which use them, nor the local population as a whole. Therefore, loss of refuges during construction would have a **Negligible effect** on pine marten, which is **Not significant**. If it is confirmed that loss of pine marten dens will occur, then this would require a licence from NatureScot, which will require proportionate mitigation.

8.6.56 NatureScot advise that disturbance of pine marten occupying a den can occur up to **30 m** from typical construction works, this being extended up to **100 m** where the den is known or suspected to be used for breeding[106] (however, none of the known dens are considered suitable for breeding as noted above). If works can avoid PD02 and/ or PD03, they would still be disturbed so a licence would be required either to allow the commencement of works in proximity to these dens or to approve their destruction. PD01 is just outside of the generally accepted disturbance distance of pine marten, however, care would be required to ensure a **30 m** buffer from works is maintained throughout the construction phase. Furthermore, pine marten may use old bird nests or squirrel dreys, use of which by pine marten is difficult to determine. New dens of these or other types could be established prior to the commencement of works. However, the embedded standard mitigation of pre-construction survey and appointment of an ECoW would address this, and for the same reasons given above for den destruction, den disturbance would not significantly affect the local pine marten population. Consequently, pine marten den disturbance during construction is considered a **Negligible effect**, which is **Not significant**. Nevertheless, if it is determined that works will be close enough to cause disturbance of PD01, PD02 or PD03, or any other pine marten den found during pre-construction survey, then it will be necessary to obtain a license from NatureScot, which will require proportionate mitigation.

8.6.57 Construction works would take place during daylight hours, when pine marten are less active and are avoiding areas with potential for disturbance from Proposed Development. Suitable pine marten habitat within the LOD is subject to moderate baseline levels of disturbance from public access, forestry operations and adjacent farming activities. Disturbance of commuting/ foraging pine marten beyond baseline levels would therefore largely be avoided. However, even if pine marten commuting and/ or foraging through the LOD were to be disturbed by on-going works, this would not have a significant effect, given the very small area that could possibly be impacted at the edge of already fragmented woodland, with allowance for displacement into plentiful adjacent suitable habitat. Furthermore, vehicular traffic during construction would be bound by standard construction site safety protocol to travel at low speeds, and standard measures to protect all animals from harm during construction would be implemented, including checking equipment prior to use for sheltering animals, etc. (see Section 8.6.3). If the very unlikely event of pine mortality as a result of the works, breeding recruitment can be expected to quickly compensate. Therefore, there is considered to be **No effect** on the local pine marten population through mortality during construction which is **Not significant**.

Red squirrel

8.6.58 Any requirement to fell trees would be highly localised around towers, along proposed access track routes, and along the OHL route. The most significant tree loss is associated with Dronley Wood (up to 7 ha) and Pitmedden Wood (at most 17 ha), where red squirrel were incidentally sighted during field surveys. However, the scale of

[105] Birks, J.D., Messenger, J.E. and Halliwell, E.C., (2005). Diversity of den sites used by pine martens Martes martes: a response to the scarcity of arboreal cavities? Mammal Review, 35.

[106] NatureScot (2022). Standing advice for planning consultations - Pine Martens. (online) Available at: https://www.nature.scot/doc/standing-advice-planning-consultations-pine-martens [Accessed: July 2024]

required tree felling is very small compared to the extents of retained woodland, and a substantial amount of the affected 24 ha across these woodlands is already felled within existing wayleaves and along existing tracks, thus the loss in reality is actually considerably smaller. Therefore, loss of red squirrel habitat during construction is considered a **Negligible effect**, which is **Not significant**.

8.6.59 The small scale of tree loss compared to retained woodland means the proportion of dreys that might be lost to tree felling (if any) would be very small. Red squirrels are less likely to establish dreys at the very edge of large plantations, where felling would predominantly occur, further reducing the risk to dreys. Red squirrels also commonly have multiple active dreys within their home range, and thus typically have existing alternatives to take refuge in[107]. The local red squirrel populations will necessarily have survived through much more extensive periodic felling of the commercial plantations. Moreover, the embedded mitigation includes pre-construction survey and checks for active squirrel dreys prior to tree clearance. Consequently, there would be **Negligible effect** on red squirrel populations loss of dreys (if any) during construction, which is **Not Significant**. Nevertheless, if it is confirmed that any red squirrel dreys will be impacted, then a license will be required from NatureScot, which will require proportionate mitigation.

8.6.60 Movement of construction vehicles along tracks would be infrequent and slow-moving, posing negligible risk of injury or mortality to red squirrels. Moreover, whilst disturbance of red squirrel dreys in woodland could theoretically occur as a result of construction activity, the area prone to such disturbance would be small given a maximum disturbance distance for breeding dreys of **50 m**[108]. **Negligible effect** from disturbance of red squirrel during construction is therefore predicted, which is **Not Significant**.

8.6.61 There will be **No effect** on red squirrel commuting as a result of construction which is **Not significant**. There is ample alternative habitat available for foraging and commuting in the wider area, and they are well-capable of crossing any narrow temporary or permanent access tracks.

Great crested newt

8.6.62 Great crested newt are present within only one pond within the ZoI of the Proposed Development (TW07), located between Towers 72 and 73. Proposed works would have no direct impact on the pond, however, surrounding habitats that could be used by great crested newt would potentially be affected. At most sites, the majority of adult great crested newt stay within around **250 m** of the breeding pond, with the density of individuals gradually decreasing away from the pond[109]. Works within **250 m** of TW07 include temporary vegetation clearance around Towers 72 and 73, tree felling to widen the wayleave corridor, and upgrades to existing forestry tracks. At most 3.6 ha (based on the full LOD) of neutral grassland, gorse scrub, and conifer plantation would be temporarily cleared around the towers, of which approximately 2.7 ha is within **250 m** of the pond, representing around 14% of great crested newt terrestrial habitat within that distance. Since at least 86% of viable habitat would remain unaffected, particularly to the north and east of the pond, and loss during vegetation clearance would very largely be temporary and would be reinstated or naturally recover to viable habitat in the short-term, habitat loss during construction is expected to have a **Negligible effect** on the local population, which is **Not significant**. Nevertheless, clearance of terrestrial great crested newt habitat within **250 m** of confirmed breeding pond TW07 will need to be carried out under licence from NatureScot.

8.6.63 As noted in the previous paragraph, great crested newts could be present within habitats surrounding pond TW07 during construction of the Proposed Development, in particular within **250 m** of the pond. There is potential for individuals (if present within the works footprint) to be injured or killed by Proposed Development. Considering

[107] FCS (2006). Forest operations and red squirrels in Scottish forests - the law and good practice. FCS Guidance Note 33
[108] NaturScot (2024). Standing advice for planning consultations - Red Squirrels. (online) Available at: https://www.nature.scot/doc/standing-advice-planning-consultations-red-squirrels. [Accessed: July 2024]
[109] Froglife (2001). Great Crested Newt Conservation Handbook (online). Available at: https://www.froglife.org/wp-content/uploads/2013/06/GCN-Conservation-Handbook_compressed.pdf [Accessed: July 2024]

the extent of viable terrestrial habitat within **250 m** that would be unaffected (minimum 86%), unmitigated injury or mortality during construction could have a **permanent adverse effect of Local significance** on the great crested newt population, which is **Not significant** in the context of this EIA but would nevertheless require to be addressed through appropriate mitigation and licensing from NatureScot.

8.6.64 There would be **No effect** from habitat fragmentation which is **Not significant** since existing tracks are being used within Pitmedden Wood and other Proposed Development would not create barriers of movement within the landscape.

8.6.65 Pond TW07 could theoretically be indirectly impacted via pollution, however, as described under Lochmill Loch SSSI above, embedded design and standard pollution prevention protocols would prevent any significant incidents occurring, hence there is anticipated to be **No effect** on great crested newt from pollution which is **Not significant**.

Atlantic salmon

8.6.66 Atlantic salmon is a qualifying species of the River Tay SAC, and confirmed to be present within the River Tay and River Earn according to data available from Marine Scotland Maps NMPi[23]. Salmon could occur in connected watercourses, given that where data is available they are rated High for access to fish migration (as detailed under Running Water within Section 8.4).

8.6.67 Proposed works include the upgrade of six culverts and the construction of one new temporary culvert at Dronley Wood. As described in Section 8.6.7, pollution would be controlled by embedded mitigation measures, as required by statutory authorities for all construction. Culvert works would also necessarily adhere to CAR[100]. The new temporary culvert will be installed at a forestry drainage ditch, where presence of Atlantic salmon can be ruled out. The culverts to be upgraded are at watercourses where Atlantic salmon may occur. Two of these (Broadlie Burn and a short branch of the Huntly Burn near Invertromie) are in flat agricultural land that is very unlikely to contain spawning habitat, and do not lead upstream to other forms of watercourse more favourable for salmon. The two northern-most culvert upgrades are also very small and ditch-like, and for the same reasons not likely to support salmon. This leaves the two culvert upgrades at the Cairnie Pow and an unnamed watercourse descending from Pitmedden Wood, which are small and fairly short watercourses but could be viable for salmon in their upper reaches if not the points of the proposed crossings (which are in flat heavily agricultural areas, and close to the River Tay or River Earn and thus likely very silty). However, embedded design mitigation would ensure that fish passage remains unaffected once the culverts are in place, hence there would be no permanent physical barrier to fish movement at the culvert upgrades. Fish movement during culvert upgrades would only be physically impeded on a temporary basis at the relevant culverts, not likely to exceed one day for each culvert. None of the works are of a type that could cause fish movement to be indirectly impeded by severe vibrations in the water column, and even if this were the case it would again be short-term. Considering this very temporary impact, the few locations at which it would occur, and the likelihood that several of the relevant watercourses are unlikely to support salmon, barriers to salmon migration as a result of construction is considered a **Negligible impact**, which is **Not significant**.

8.6.68 As stated in the previous paragraph, the temporary culvert is not in a location that could support salmon, and the culvert upgrades are at locations which are likely to be silty and not suitable for salmon spawning. However, even if salmon spawning habitat was present at the culvert upgrades, the extent of habitat that could be lost would be minor and thus very unlikely to affect the local conservation status of Atlantic salmon. Therefore, there would be, at most, **Negligible effect** on Atlantic salmon from loss of spawning habitat during construction, which is **Not significant**.

8.6.69 Vegetation clearance close to watercourses and culvert works could theoretically lead to pollution incidents at watercourses. As noted above, the culvert works are very localised and minor. Vegetation clearance near

watercourses may include clearance for Towers 84, 85, 90, and 91 on the banks of the River Tay and River Earn. However, for the reasons given for Watercourses above, in particular required embedded pollution controls and the very small and localised scale of culvert works and vegetation clearance near watercourses, it is expected that aquatic pollution during construction would have **No effect** on Atlantic salmon which is **Not significant**.

8.6.70 Construction works can in some cases cause direct mortality of fish. This will not be the case in this instance because no waters require to be drained, no works are severe enough to cause mortality of fish through severe vibrations in the water column, and it is improbable, given their mobility, that fish would be directly injured during the few culvert works (and it would only be possible for very few fish to be affected in this way). Therefore, direct mortality of fish during construction is considered a **Negligible effect**, which is **Not significant**.

Other fish species

8.6.71 Of the other fish species, the most notable are lampreys, because they are qualifying species of the River Tay SAC. Watercourses in lowland agricultural areas near to and connected to the River Tay (which are likely to be silty) could be used by spawning lamprey. The few watercourses affected by culvert works are all small and not part of the River Tay SAC itself, and numbers of lamprey using these streams (if any) is likely to be small and insignificant compared to the SAC populations. Nevertheless, if any lampreys did use the streams in the vicinity of the Proposed Development, they could be argued to support, in a minor way, the SAC population. However, for the same reasons set out in detail above for Atlantic salmon, there is not likely to be any significant impact on any watercourses as a result of construction, either from the very limited culvert works, very localised vegetation clearance near watercourses, or any other works. There is consequently considered to be **Negligible effect** on lampreys (or any other fish species) from barriers to fish movement, habitat loss, or direct mortality during construction and **No effect** from pollution, which is **Not significant** in all cases.

Operational Phase

8.6.72 Impacts from the operational phase of the Proposed Development would be no different to the ecological baseline since the Proposed Development would upgrade an existing OHL route. The maintenance of the Proposed Development would be identical to those of the requirements of the existing OHL and towers.

8.6.73 It is therefore concluded that there would be **No effect** on any important ecological features from the Proposed Development during its operational phase.

Mitigation and monitoring

8.6.74 Specific mitigation measures would be implemented to minimise the adverse effects on ecological features identified in this chapter. These are additional to the embedded mitigation set out in **Mitigation by Design**. Where effects are considered to be Not Significant in the context of this EIA (i.e., the ecological effect has been assessed above as being of Negligible, Site or Local significance), mitigation is in some cases still given because either a) it is required for compliance with wildlife legislation, or b) it is considered appropriate to satisfy national and local biodiversity policies and can be readily achieved. Specific mitigation is set out in Table 8-8 below

Table 8-8 Summary of Ecology Mitigation Measures

Mitigation Item	Location	Timing of Measure	Description	Mitigation Purpose/ Objective	Specific Consultation or Approval Required	Potential Monitoring Requirements
E-1	Towers 72-73	In advance of works and during construction	A licence would be required from NatureScot for works within **250 m** of great crested newt breeding pond TW07, for which mitigation would be required. Mitigation would be detailed in a SPP for the licence application, but would likely include: • timing works within **250 m** of pond TW07 to be within the hibernation period (October to February inclusive) and conducting a prior pre-construction check outside of this period to check for potential hibernacula (e.g., boulder piles or gappy dry stone walls) that would be damaged or destroyed and to dismantle them under ECoW supervision; and, • if vegetation clearance is carried out in the active season, hand searching for newts within the working area(s) for all works within **250 m** of pond TW07, with vegetation clearance to be phased and under ECoW supervision (i.e. cut to high level then progressively lower, to encourage movement of newts away from area). (Note: excluding newts from Working Areas is very onerous and a last-resort option).	To avoid injuring or killing great crested newts during construction and to ensure compliance with legislation.	NatureScot licence required.	ECoW to check compliance as necessary. Monitoring may be required as part of licence mitigation, if licencing is found necessary.
E-2	Access to Pitmedden Wood from the east	During detailed design and construction	Access upgrades preferably directed southwards rather than northwards towards the Lochmill SSSI boundary, and microsited so as to avoid passing Lochmill Loch SSSI boundary (which is about **7 m** north of the existing track). In the event that passing places or any other track would be required within the SSSI boundary, the extent of habitat loss would be minimised as far as possible and tree loss should be avoided, and authorisation will be sought from NatureScot.	To avoid any work within the Lochmill Loch SSSI boundary where possible, minimise habitat loss in the SSSI and ensure NatureScot authorisation where required.	NatureScot to be consulted on works along this track, whether or not it actually crosses the SSSI boundary, and their authorisation would be required to proceed with works within the SSSI boundary.	ECoW to check works stay outside SSSI boundary unless NatureScot have given authorisation to go beyond it. Further monitoring may be requested by NatureScot.

Mitigation Item	Location	Timing of Measure	Description	Mitigation Purpose/ Objective	Specific Consultation or Approval Required	Potential Monitoring Requirements
E-3	Tower 72	Detailed design and construction	Embedded mitigation already stipulates adjustment of the working area around Tower 72 to ensure no vegetation clearance or other works within **10 m** of the nearby springs / streams feeding Lochmill Loch SSSI.	To reduce risks from pollution or other indirect effects on the connected Lochmill Loch SSSI.	NatureScot to be advised on specific plans and mitigation measures at this location.	ECoW to check compliance as necessary. Further monitoring may be requested by NatureScot.
E-4	Tower 136	Detailed design	The EPZ would avoid affecting riparian habitat around the adjacent tributary of Huntly Burn as far as possible, confining works to within the arable field. The mature oak tree containing an otter layup would not be felled or damaged unless there is no possible alternative. If required as part of wayleave corridor widening, crown reduction to retain the feature will be implemented by preference. If this tree has to be felled, licensing from NatureScot will be obtained beforehand.	To prevent the destruction of an otter layup and to ensure compliance with legislation.	NatureScot licence to be obtained if it is necessary to fell the oak tree, and for any works within **30 m** liable to cause disturbance.	ECoW to check compliance as necessary. Monitoring would be required as part of licence mitigation, if licence found necessary.
E-5	In the vicinity of Towers 92, 114, and 160	Detailed design/ construction	A SPP would be produced to inform works in proximity to otter refuges in these locations. If a **30 m** buffer zone cannot be implemented from refuges via detailed design, a NatureScot licence would be necessary.	To reduce the impact of disturbance on otter and comply with legislation.	Where **30 m** buffer cannot be achieved, NatureScot licence to be obtained.	ECoW to check compliance as necessary. Monitoring likely to be required as part of licence mitigation, if licence found necessary.
E-6	Megginch Castle Grounds	Construction	Any tree felling required within the grounds of Megginch Castle would be carried out manually and with consideration of beaver burrows in the area. Works would be planned such that damage to the soil within **20 m** of the burrows (on the same bank) would be avoided. A SPP would be produced if finalised works indicate that impacts on beaver are possible, and a NatureScot licence obtained.	To prevent beaver burrows being damaged and to comply with legislation.	Where works are within **20 m** of a beaver burrow, NatureScot licence to be obtained. Embedded pre-construction surveys would inform the application and development of mitigation.	ECoW to check compliance as necessary. Monitoring will be required as part of licence mitigation, if licence found necessary.

Mitigation Item	Location	Timing of Measure	Description	Mitigation Purpose/ Objective	Specific Consultation or Approval Required	Potential Monitoring Requirements
E-7	In the vicinity of Towers 115 and 174	Detailed design/ construction	Works in proximity to beaver dams would avoid damage to the dams where possible. A SPP would be produced if finalised works indicate that impacts on beaver are possible, and a NatureScot licence obtained.	To prevent beaver dams being damaged potentially impacting burrows upstream and to comply with legislation.	Where works are within **20 m** of a beaver dam, NatureScot licence to be obtained.	ECoW to check compliance as necessary. Monitoring will be required as part of licence mitigation, if licence found necessary.
E–8	Where works are in close proximity to badger setts (as per Confidential Figure 8.3b (Volume 3)) including in Pitmedden Wood	Detailed design/ construction	A Species Protection Plan would be produced to inform works in proximity to badger setts in this area. If a **30 m** buffer zone cannot be implemented from setts via detailed design, a NatureScot licence will be necessary, and works would be planned such that actual damage to setts is minimised or avoided. For example, where trees in proximity to sett entrances need felled, manual felling would be carried out to prevent damage from heavy machinery, and heavy machinery would maintain as much distance as possible from sett entrances.	To reduce the number of sett closures/ destructions required, minimise disturbance to badgers, and comply with legislation.	Where works are within **30 m** of a badger sett, obtain a NatureScot licence. Embedded pre-construction surveys will inform the application and development of mitigation.	ECoW to check compliance as necessary. Monitoring will be required as part of licence mitigation, if licence found necessary.
E—9	Pitmedden Wood	Detailed design/ construction	A SPP will be produced to inform works in proximity to pine marten dens in this area. If a **30 m** buffer zone cannot be implemented from dens via detailed design, a NatureScot licence would be necessary, and works would be planned such that actual damage to dens is minimised or avoided. For example, where trees in proximity to dens need felled, manual felling would be carried out to prevent damage from heavy machinery, and heavy machinery would maintain as much distance as possible from dens.	To reduce the number of den closures/ destructions required and comply with legislation.	Where works are within **30 m** of a pine marten den, obtain a NatureScot licence. Embedded pre-construction surveys will inform the application and development of mitigation.	ECoW to check compliance as necessary. Monitoring will be required as part of licence mitigation, if licence found necessary.

Mitigation Item	Location	Timing of Measure	Description	Mitigation Purpose/ Objective	Specific Consultation or Approval Required	Potential Monitoring Requirements
E--10	All affected semi-mature or mature woodland	Detailed design/ construction	Embedded mitigation includes for pre-construction surveys, which will include checks for dreys by the ECoW in affected woodland/ trees. If dreys are found during pre-construction survey and are liable to be destroyed during tree removal (or disturbed, disturbance distance being **50 m** from active breeding dreys and **5 m**/ adjacent tree for other dreys), then NatureScot licence to be obtained.	To ensure compliance with legislation.	Obtain NatureScot licence if confirmed that red squirrel dreys would be destroyed or disturbed.	ECoW to check compliance as necessary. Monitoring may be required as part of licence mitigation, if licence found necessary.
E-11	Watercourses across the LOD	Detailed design/ construction	Works in proximity to watercourses would avoid the loss of riparian vegetation and be confined to agricultural fields as much as possible. Where riparian vegetation would be affected, a buffer strip at least **2 m** wide will be retained between clearance areas and the banks of watercourses (excepting a **10 m** buffer from the springs / streams feeding Lochmill Loch SSSI in the vicinity of Tower 72, as stated above). Embedded mitigation already includes for adherence to pollution controls for all works.	To reduce the impact of pollution on watercourses in the unlikely even there is an incident.	All works near watercourses (and locally in them for the few culvert works) would adhere to pollution control measures and CAR.	ECoW to check compliance as necessary. Unless requested by SEPA, no other monitoring is anticipated.
E-12	Off-site location yet to be determined.	Timing of habitat creation measure not known.	Biodiversity Net Gain (BNG) enhancement measures to ensure net gain are detailed in a BNG report (Appendix 8.7 (Volume 4)) and would be implemented as prescribed.	To comply with national and local biodiversity policies and SSEN requirements for net gain from all projects.	None.	As prescribed in the BNG Report.
E-13	All trees categorised as PRF-M and FAR	Prior to works commencing	Targeted survey to confirm the status of PRF-Ms and FARs which would be subject to felling or lopping such that the feature(s) are lost. PRF inspection survey (or a suitable alternative) would be carried out, and consequent proportionate mitigation implemented. Mitigation relevant to PRF-I trees which would be felled or lopped would also be implemented.	To ensure compliance with relevant wildlife legislation and minimise impacts on roosting bats.	Surveys must be carried out by competent surveyors with an appropriate bat survey licence.	ECoW to check compliance as necessary. Monitoring likely to be required as part of licence mitigation, if licence found necessary.

Biodiversity enhancements

8.6.75 Planning policy 3a of National Planning Framework 4 (NPF) requires that all "*development proposals contribute to the enhancement of biodiversity, including where relevant, restoring degraded habitats and building and strengthening nature networks and the connections between them*".

8.6.76 Furthermore, policy 3b applies to EIA projects and states that these developments will "*only be supported where it can be demonstrated that the proposal will conserve, restore and enhance biodiversity, including nature networks so that they are in a demonstrably better state than without intervention*".

8.6.77 NPF4 does not specify or require a particular assessment approach or methodology to be used in order to demonstrate that biodiversity will be in a better state post-development. However, the following criteria must all be met:

1. The proposal must be based on an understanding of the existing characteristics of the site and its local, regional and national context prior to development, including the presence of any irreplaceable habitats;
2. Wherever feasible, nature-based solutions should be integrated and made best use of;
3. An assessment of potential negative effects must be provided, and these should be fully mitigated in line with the mitigation hierarchy, prior to identifying enhancements;
4. Significant biodiversity enhancements must be 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; and
5. Local community benefits of the biodiversity and/or nature networks have been considered.

8.6.78 As part of the Applicant's Sustainability Strategy, a commitment was made to deliver BNG on all eligible future projects since 2023[110]. To support assessments of BNG, the Applicant developed their own metric, known as the 'SSEN Biodiversity Toolkit'. An assessment of BNG has therefore been carried out for the Proposed Development using the SSEN Biodiversity Toolkit. This is reported in the BNG Report (Appendix 8.7 (Volume 4)).

Residual effects

8.6.79 With mitigation in place as described above, residual effects are all **Negligible**, apart from effects on LEP woodland, Wet woodland and Upland mixed ashwood which are considered of **Local or Site significance** only with compensatory habitat measures in accordance with the BNG Report. Therefore, all effects of the Proposed Development on important ecological features are **Not Significant** in the context of this EIA.

Cumulative Effects

8.6.80 Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location[6]. For this chapter, the inter-cumulative assessment has been considered in the context of NHZ 16 (Eastern Lowlands). It considers the schemes identified in Table 8-9 and Table 8-10 and shown, indicatively, on Figure 5.1 (Volume 3) that are reasonably foreseeable but not yet under construction or constructed at the time of assessment and are relevant to terrestrial ecology.

[110] SSE (2024). SSE plc Sustainability Report 2024. (online) Available at: https://www.sse.com/media/al1dt4qn/sse-plc-sustainability-report-2024.pdf [Accessed: August 2024].

Table 8-9 Interactive (intra) cumulative assessment for Associated SSEN Developments

Development	Ref. on Figure 5.1	Location	Description	Status	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
Alyth – Tealing 275 kV OHL upgrade	A	Alyth-Tealing	Upgrade of approximately 14 km of an existing 275 kV OHL between Alyth Substation and Tower 685 north-west of Tealing Substation to enable operation at 400 kV.	EIA Report in preparation (alongside the EIA Report for the Proposed Development.	No significant effects.	The insignificant nature of effects of this scheme, which is also an OHL upgrade with only slight impacts on habitats and associated fauna, similar to the slight effects of the Proposed Development, suggests that cumulative effects would remain slight and insignificant. Therefore, no likely significant cumulative effects.	None.
Emmock (Tealing) substation	B	Near Emmock Road, Tealing	Construction of a new 400 kV substation in Tealing.	Scoping Report submitted 2nd July 2024.	Not available.	Footprint of development entirely within agricultural fields of low ecological value. The small loss of agricultural fields to this substation, and negligible permanent loss to the Proposed Development, is of no consequence given the great abundance of such fields throughout the region. Therefore, no likely significant cumulative effects.	None.

Development	Ref. on Figure 5.1	Location	Description	Status	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
Kintore - Tealing 400 kV Connection	C	Kintore - Tealing	Construction of a new 400 kV OHL between Kintore and Tealing.	In Preparation – no screening or scoping submitted.	Not available	Like the Proposed Development, this scheme appears to largely affect agricultural fields with limited impact on plantation. Habitat loss would be similarly slight compared to the surrounding resource, with similarly slight impacts on fauna, with no impacts likely to be significant. Therefore, no likely significant cumulative effects.	None.
Alyth -Tealing and Tealing-Westfield OHL Tealing (Emmock) substation tie-ins and associated tower dismantling	D	Tealing	Construction of a new OHL originating at some point on the existing OHLfrom the Alyth-Tealing OHL between Tower 680 and Tower 682, as well as the Proposed Development between Tower 180 and Tower 182 (likely Tower 181), connecting to the new proposed Tealing (Emmock) substation. This will enable the removal of approximately 1.5 km of redundant OHL between Towers 680/682 and the existing Tealing Substation.	In Preparation – no screening or scoping submitted.	Not available.	Towers are located within agricultural fields of poor ecological value. Any impacts would be at a small scale and highly localised so are unlikely to be significant. The affected habitat is agricultural fields with very limited loss compared to the surrounding resource, with similarly slight impacts on fauna. Therefore, no likely significant cumulative effects.	None.

Table 8-10 In-combination (inter) cumulative assessment for Other SSEN and 3rd Party Developments

Development	Ref. on Figure 5.1	Location	Description	Status	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
Muir of Pert Energy Storage Facility	E	Muir of Pert Farm, Tealing, Dundee DD4 0QL	Energy storage facility up to 50 MW, compound of equipment, access, fencing, security cameras, landscaping, tree planting, demolition of derelict buildings and other associated works.	Proposal of Application (PAN) Approved Subject to Conditions 12th July 2023 and EIA Screening Request submitted and determined EIA Not Required 11th July 2023.	Not available.	No significant effects identified through Screening Request, no likely signfiicant cumulative effects.	None.
Moatmill Bridge Tealing Energy Storage Facility	F	Land at Moatmill Bridge, Tealing	Energy storage facility up to 50 MW, compound of equipment, meter building, fencing, security cameras, new belt of native trees and landscaping.	PAN Approved Subject to Conditions 3rd May 2023.	Not available.	Given its small size and the agricultural nature of the affected land, it is indicated there will be no likely significant cumulative effects.	None.
Tealing Solar Energy Park	G	Near Duntrune, DD4 0PR	Application for Installation of a solar energy park of approximately 100 MW and all associated infrastructure.	Application submitted 17th November 2023. EIA not required.	According to the Preliminary Ecological Appraisal, the habitats within the boundary of this development are agricultural and of low ecological value. Other ecological features of greater value were found but beyond the boundary of the project.	No likely significant cumulative effects.	None.
Tealing Battery Energy Storage Farm	H	Land to the north-east of Gagie Home Farm, Duntrune, DD4 OPR	Application for Installation of an 80 MW Battery Energy Storage Facility (BESS) and associated infrastructure.	Application Consented 13th December 2023 EIA not required.	According to the Preliminary Ecological Appraisal for this project, it is sited on an arable field of low ecological value. No evidence of protected species was recorded.	No likely significant cumulative effects	None.

Development	Ref. on Figure 5.1	Location	Description	Status	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
Solar Farm at land 500 m east of Stoneygroves Liff	I	Land 500m east of Stoneygroves Liff	Solar farm installation with an export capacity of 20 MW (AC) (with peak generation capacity of 24-28MW) comprising ground-mounted solar photovoltaic arrays together with associated infrastructure and landscaping.	Application Approved Subject to Conditions 13th March 2024.	Preliminary Ecological Appraisal and BNG reviewed. Unlikely to have any significant effects. Effects are most likely to be beneficial; BNG assessment suggests biodiversity value of the site will almost double as a result of the proposed development. Impacts on bats could not be ruled out, however, due to the nature and scale of works, any effect is unlikely to be significant.	No likely significant cumulative effects.	None.
Battery Energy Storage at Cordon Farm, Abernethy	J	Land 600 m north-east of Cordon Farm, Abernethy	Formation of 30 MW BESS Facility with associated access and infrastructure.	Proposal of Application submitted 6th December 2022.	Not available.	Affected habitats are primarily of low ecological value. Only minor effects on protected species are likely given relatively small scale of the development. Therefore, no likely significant cumulative effects.	None.

Development	Ref. on Figure 5.1	Location	Description	Status	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
Jamesfield Energy Storage Facility	K	Land 140 m north-east of Jamesfield Organic Centre Newburgh	Formation of a 49 MW Battery Energy Storage facility comprising battery storage units, ancillary buildings, vehicular access, landscaping and associated works.	Application Consented 28th September 2022. EIA not required.	Preliminary Ecological Appraisal Reviewed. No significant effects are anticipated on affected habitats Only minor effects on protected species are likely given relatively small scale.	Affected habitats are primarily of low ecological value. Only minor effects on protected species are likely given relatively small scale of the development. Therefore, no likely significant cumulative effects.	None.
Balnuith Farm BESS (Tealing)	L	Balnuith Farm, Tealing, DD4 0RE	The construction and operation of a BESS for the storage of up to a 249 MW of electricity together with associated infrastructure, substation, security fencing, CCTV, security lighting and landscaping.	Screening Opinion issued 6th September 2023.	Not available.	Affected habitats are primarily of low ecological value. Only minor effects on protected species are likely given relatively small scale of the development. Therefore, no likely significant cumulative effects.	None.

Development	Ref. on Figure 5.1	Location	Description	Status	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
Fithie Energy Park BESS	M	Land to the north-west of Tealing Substation	Construction and operation of up to 1400 MW BESS and associated infrastructure.	Screening Report submitted 23rd February 2024.	Not available.	Affected habitats are primarily of low ecological value. Only minor effects on protected species are likely given relatively small scale of the development. Therefore, no likely significant cumulative effects.	None.
Myreton BESS	N	Land to the south of Tealing Substation	A proposed BESS with an installed capacity of around 750 MW.	Screening Report submitted 22nd February 2024.	Not available.	Affected habitats are primarily of low ecological value. Only minor effects on protected species are likely given relatively small scale of the development. Therefore, no likely significant cumulative effects.	None.

Development	Ref. on Figure 5.1	Location	Description	Status	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
SPEN TKUP Lines (Uprate to 400 kV operation)	O	Tower YS065 (SHET/SPT Border) near Pitmedden Forest to YS001 (Westfield) and YJ084 (Westfield) to YJ001 (Longannet)111	Increase voltage of approximately 30 km of OHL from 275 kV to 400 kV	No EIA screening or scoping available. Only high-level plan of route available.	Not available.	The insignificant nature of effects of this scheme, also an OHL upgrade with only slight impacts on habitats and associated fauna, similar to the slight effects of the Proposed Development, suggests that cumulative effects would remain slight and insignificant. Therefore, no likely significant cumulative effects.	None.

111 https://www.spenergynetworks.co.uk/pages/tkup_project.aspx#tablist1-tab2

8.6.81 Owing to the low ecological value of agricultural land, particularly arable fields, which the considered cumulative schemes largely affect, with very limited impact on other habitats and fauna, there are very unlikely to be any cumulative effects that would be of greater significance than the (insignificant) effects of the Proposed Development alone.

8.7 Summary

8.7.1 Table 8-11 below summarises the impact assessment outcome for construction, showing the pre-mitigation effect, residual effect and final significance (significant or not significant). **No Likely Significant Effects** on any important ecological features during the construction phase were identified during the impact assessment.

8.7.2 It is considered that there would be **No likely significant effects** on any important ecological features from the Proposed Development during its operational phase due to no change from baseline conditions.

Table 8-11 Summary of ecological impact assessment

Receptor	Ecological Importance	Description of effect	Effect	Additional mitigation	Residual effect	Significance
Designated Sites						
River Tay SAC and Firth of Tay and Eden Estuary SAC	European	Mainly, negligible pollution risk.	Negligible.	None required, embedded pollution controls sufficient.	Negligible.	Not significant.
Inner Tay Estuary SSSI/Inner Tay Estuary LNR/Tay Reedbeds RSPB Reserve	National	Mainly, negligible pollution risk	Negligible.	None required, embedded pollution controls sufficient.	Negligible.	Not significant.
Lochmill Loch SSSI	National	Temporary habitat loss associated with construction of a new temporary stone road.	Negligible.	Track constructed southwards where possible, not within SSSI boundary without NatureScot authorisation.	Negligible.	Not significant.
		Pollution of tributaries which feed into Lochmill Loch.	Negligible.	Embedded design mitigation sufficient – clearance or works avoided within **10 m** of springs/ streams feeding the SSSI.	Negligible.	Not significant.
Habitats						
LEP woodland on AWI	Regional	Permanent habitat loss.	Permanent adverse effect of Local significance.	BNG enhancement measures as prescribed in the BNG Report.	Minor adverse effect of Local significance.	Not significant.
		Damage to ground flora/ tree roots	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Pollution	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.

Receptor	Ecological Importance	Description of effect	Effect	Additional mitigation	Residual effect	Significance
Woodland (Excluding Other Coniferous Woodland and LEP Woodland) and Scattered Trees	Local	Permanent loss of Scots pine dominated coniferous plantation.	Permanent adverse effect of Site significance.	BNG enhancement measures as prescribed in the BNG Report.	Permanent adverse effect of Site significance.	Not significant.
		Permanent loss of LMDW.	Negligible.	BNG enhancement measures as prescribed in the BNG Report.	Negligible.	Not significant.
		Permanent loss of Wet woodland.	Permanent adverse effect of Site significance.	BNG enhancement measures as prescribed in the BNG Report.	Permanent adverse effect of Site significance.	Not significant.
		Permanent loss of other woodland and scattered trees.	Negligible.	BNG enhancement measures as prescribed in the BNG Report.	Negligible.	Not significant.
		Damage to ground flora/ tree roots.	Temporary adverse effect of Site significance.	None required, embedded mitigation sufficient.	Temporary adverse effect of Site significance.	Not significant.
Other SBL Priority Habitats, Annex I Habitats and GWDTE	Local	Temporary habitat loss.	Negligible.	BNG enhancement measures as prescribed in the BNG Report.	Negligible.	Not significant.
		Pollution risk.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
Species						
Bats	Local	Loss of foraging / commuting habitat.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Loss of roosting habitat.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Disturbance of roosting/ foraging/ commuting bats.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.

Receptor	Ecological Importance	Description of effect	Effect	Additional mitigation	Residual effect	Significance
Otter	Regional	Destruction of one otter layup.	No effect.	Oak tree retained unless unavoidable.	No effect.	Not significant.
		Disturbance of resting otter (excluding OL01).	Negligible.	Maintain a **30 m** buffer around otter refuges where possible and obtain a derogation licence where not possible.	Negligible.	Not significant.
		Disturbance of resting otter using OL01.	No effect.	Obtain a derogation licence to permit works liable to cause disturbance within **30 m** of OL01.	No effect.	Not significant.
		Disturbance of commuting/ foraging otter.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Loss of commuting/ foraging habitat.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Alteration of prey availability through pollution.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Injury/mortality to otter.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
Beaver	Site	Loss of foraging habitat.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
		Damage to burrows and dams.	Temporary adverse effect of Site significance.	Plan works to avoid damage to dams and burrows. If this is not possible, obtain a derogation licence.	Negligible.	Not significant.

Receptor	Ecological Importance	Description of effect	Effect	Additional mitigation	Residual effect	Significance
		Barrier to movement.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Injury/mortality of beaver.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
Badger	Site	Habitat loss (temporary or permanent).	Negligible.	BNG enhancement measures as prescribed in the BNG Report (Appendix 8.7 (Volume 4)).	Negligible.	Not significant.
		Barriers to movement/ habitat fragmentation.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
		Temporary closure and permanent loss of badger setts.	Temporary adverse effect of Site significance.	Plan works to avoid damage to badger setts as much as possible. Where this is not possible, obtain a derogation licence.	Negligible.	Not significant.
		Disturbance of resting badger.	Negligible.	Maintain a **30 m** buffer from badger setts where possible, obtain a derogation licence where not possible.	Negligible.	Not significant.
		Injury/mortality of badger.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
Pine marten	Local	Permanent habitat loss.	Negligible.	BNG enhancement measures as prescribed in the BNG Report (Appendix 8.7 (Volume 4)).	Negligible.	Not significant.
		Habitat fragmentation.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.

Receptor	Ecological Importance	Description of effect	Effect	Additional mitigation	Residual effect	Significance
		Permanent loss of two den sites.	Negligible.	Avoid pine marten dens where possible and obtain derogation licence where not possible.	Negligible.	Not significant.
		Disturbance of resting pine marten.	Negligible.	Maintain a **30 m** buffer from dens where possible and obtain derogation licence if not possible.	Negligible.	Not significant.
		Injury/mortality of pine marten.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
Red squirrel	Local	Permanent habitat loss.	Negligible.	BNG enhancement measures as prescribed in the BNG Report (Appendix 8.7 (Volume 4)).	Negligible.	Not significant.
		Loss of dreys.	Negligible.	Avoid red squirrel dreys if identified during pre-construction surveys where possible and obtain derogation licence where not possible.	Negligible.	Not significant.
		Disturbance of red squirrel.	Negligible.	Maintain an appropriate buffer around red squirrel dreys where possible and obtain a derogation licence where not possible.	Negligible.	Not significant.
		Barrier to movement.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.

Receptor	Ecological Importance	Description of effect	Effect	Additional mitigation	Residual effect	Significance
Great crested newt	Regional	Temporary habitat loss.	Negligible.	Reduce the extent of habitat loss near TW07 where great crested newt are present.	Negligible.	Not significant.
		Injury or mortality of great crested newt.	Permanent adverse effect of Local significance.	Obtain a derogation licence and implement associated mitigation (including timing of works and pre-works checks).	No effect.	Not significant.
		Habitat fragmentation.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
		Pollution.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
Atlantic salmon	Regional	Barriers to migration.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Loss of spawning habitat.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Aquatic pollution.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
		Injury or mortality of Atlantic salmon.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
Other fish species	Regional	Barriers to migration.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Loss of spawning habitat.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Aquatic pollution.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.

Receptor	Ecological Importance	Description of effect	Effect	Additional mitigation	Residual effect	Significance
		Injury or mortality of Atlantic salmon.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.