Scottish & Southern Electricity Networks

TRANSMISSION

Environmental Impact Assessment (EIA) Report

LT383 Alyth to Tealing Overhead Line (OHL) 400kV Upgrade

November 2024

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7. ECOLOGY

7.1 Introduction

7.1.1 This chapter addresses the potential impacts and effects of the construction and operation (including maintenance) 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.

7.1.2 This chapter concerns non-avian ecological features only. An assessment of impacts and effects on ornithological features is considered separately in Chapter 8: Ornithology (Volume 2).

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

- Appendix 7.1: Legislation and Policy;
- **Confidential** Appendix 7.2: Bat Survey Results;
- **Confidential** Appendix 7.3: Mammal Survey Results;
- Appendix 7.4 Statement to Inform Habitats Regulations Appraisal (HRA);
- Appendix 7.5: MD-SEDD Checklist; and,
- Appendix 7.6: Biodiversity Net Gain (BNG) Report.

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

- Figure 7.1a: Natural Heritage Future Zone 16
- Figure 7.1b: Statutory Designated Sites for Nature Conservation;
- Figure 7.1c: Non-statutory Designated Sites for Nature Conservation and Important Habitats;
- Figure 7.1d: Habitat Survey Results;
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- **Confidential** Figure 7.2: Bat Survey Results;
- **Confidential** Figure 7.3a: Otter Survey Results;
- **Confidential** Figure 7.3b: Beaver Survey Results; and,
- **Confidential** Figure 7.3c: Badger Survey Results.

7.1.5 Appendix 7.4 (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 8: Ornithology (Volume 2)). Where appropriate, reference is made in this chapter to analysis presented in the Statement to Inform HRA (Appendix 7.4 (Volume 4)).

7.1.6 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

[1] Stace, C. (2019). New Flora of the British Isles (4th edition). C&M Floristics, Middlewood Green.

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

7.1.7 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 overhead line (OHL) route.

7.2 Assessment Methodology and Significance Criteria

Scope of the Assessment

7.2.1 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 (Volume 2)), and on the results of detailed study once underway.

7.2.2 NatureScot has developed 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 7.1a (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.

7.2.3 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.

7.2.4 This assessment has been carried out in the context of relevant nature conservation legislation and planning policy. The Proposed Development lies within two local planning authority areas: Perth and Kinross in the far north-west and Angus in the east and south. Details of relevant legislation and policies are provided in Appendix 7.1 (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[6,7];
- standing advice notes for protected species published by by NatureScot[8];
- Tayside Local Biodiversity Action Plan (Tayside LBAP)[9]; and
- The River Tay SAC Guidance[10].

[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] CIEEM publish an updated version (Version 1.3) of the EcIA Guidelines in September 2024. The data publication was after the assessment in this chapter had been prepared, however, the amendments in the updated version of the guidelines were largely related to the way in which peatland and soils should be considered, as well as other minor updates. Therefore, whilst a previous version of this guidelines was used, the assessment in this chapter is still compliant with the guidance in version 1.3 (September 2024).
[8] 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]
[9] 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].
[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.

7.2.5 In addition, other industry-standard good practice guidelines for surveying protected / important ecological features (as described in Section 7.3 below) were followed and are referenced throughout this chapter.

7.2.6 The scope of the Section 37 application is limited to the upgrade and operation of the overhead line (OHL) between Alyth substation and Tower 685, north-west of Tealing Substation. The Proposed Development will not have a fixed operational life; however, it is assumed that it would be operational for 50 years or more. Once the design life of the OHL has been reached, a decision would 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.

7.2.7 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. The sag of new proposed phase conductor will be matched with the sag of existing Optical Ground Wire (OPGW) and, subject to further engineering and design checks, some modifications to the existing towers may be required such as the inverting of cross arms to improve clearances and changes to the insulator set configurations. 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: Project Description (Volume 2) of this EIA Report.

Extent of the Study Area

7.2.8 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.

7.2.9 The ZoI will vary for different ecological features depending on their sensitivity to 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)**Error! Bookmark not defined.**, 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 highlights 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.

7.2.10 The study areas used for desk study and field survey, and which are reported in the Method of Baseline Data Collection section below and in Appendices 7.2 and 7.3 (Volume 4), were designed to allow sufficient data to be collected to establish the baseline condition of ecological features.

7.2.11 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

[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]

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[Error! Bookmark not defined.]. 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

7.2.12 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.

7.2.13 NatureScot was consulted by letter on the proposed scope of ecological survey on 8th March 2024. On 27th March 2024, NatureScot confirmed agreement with the proposed ecological survey scope and provided the following pre-application advice in relation to the River Tay SAC. The Proposed Development crosses the SAC at two locations: the Dean Water and the River Isla near Meigle. There are no towers within the SAC, but several are adjacent to the SAC boundary.

7.2.14 NatureScot advised that to protect the SAC interests, good working practices are essential. Construction Environmental Management Plans (CEMPs), General Environmental Management Plans (GEMPs), pollution plans etc. would all need to include details of working in proximity and above the River Tay SAC. They also recommend 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.

7.2.15 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 Collection section below). On the same day, NatureScot confirmed agreement with the proposed approach.

7.2.16 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 7-1.

Table 7-1 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.
NatureScot	NatureScot's scoping response reflects prior consultation as described above.
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.

[13] By way of a theoretical example to illustrate this concept: 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.

Method of Baseline Data Collation

Desk Study

7.2.17 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 LOD (or further where a hydrological or other ecological connection may exist). Note that SPAs and Ramsar sites designated for ornithological features are identified in Chapter 8: Ornithology (Volume 2);
- any SSSIs within 2 km of the LOD (or further where a hydrological or other ecological connection may exist);
- any other locally designated nature conservation sites within 2 km of the LOD; and,
- records of protected and / or important habitats and species within 1 km of the OHL route[14], made in the last 20 years.

7.2.18 A range of data sources were used for the desk study, as set out in Table 7-2.

Table 7-2 Desk Study Data Sources

Data Source	Date Accessed	Data Obtained
Angus Local Development Plan (LDP)[15]	1st July 2024	LDP policies relevant to nature conservation.
Angus Local Nature Conservation Sites[16,17]	1st July 2024	Location and details of Local Nature Conservation Sites (LNCS) in Angus local authority area.
Lowland Raised Bog Inventory[18]	3rd June 2023	Location of lowland raised bog habitat.
Mammal Society Species Hub[19]	3rd July 2024	Information on protected and important mammals including distribution in the UK.
Marine Scotland Maps NMPI[20]	3rd July 2024	Atlantic salmon *Salmo salar* and sea trout *Salmo trutta* distribution in Scotland.
NatureScot SiteLink[21]	1st July 2024	SACs and Ramsar sites; and, SSSIs.
NBN Atlas Scotland[22]	3rd June 2023	Commercially available records of protected and / or important species.

[14] A record search was carried out in advance of initial surveys in 2023 when the extent of proposed works was not fully understood.
[15] Angus Council (2016). Angus Local Development Plan. (online) Available at: https://www.angus.gov.uk/directories/document_category/development_plan [Accessed: July 2024]
[16] 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]
7. [17] 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]
[18] Lindsay, R and Immirzi, P. (1996). An inventory of lowland raised bogs in Great Britain. Scottish Natural Heritage.
[19] Mammal Society (2024). British mammal species. (online) Available at: https://mammal.org.uk/british-mammals [Accessed: July 2024]
[20] Scottish Government (2024). National Marine Plan Interactive. (online) Available at: https://marinescotland.atkinsgeospatial.com/nmpi/ [Accessed: July 2024]
[21] NatureScot (2024). SiteLink. (online) Available at: https://sitelink.nature.scot/home [Accessed: July 2024]
[22] NBN Atlas Partnership (2023). NBN Atlas Scotland. (online) Available at: https://scotland.nbnatlas.org/ [Accessed: June 2023]

Data Source	Date Accessed	Data Obtained
Ordnance Survey (OS) 1:25,000 maps and aerial photography[23]	1st July 2024	Habitats and connectivity relevant to interpretation of planning policy and potential protected / notable species constraints.
Perth and Kinross Council (PKC) website[24]	1st July 2024	Location of proposed LNCS in Perth and Kinross local authority area.
Perth and Kinross LDP2[25]	1st July 2024	LDP policies relevant to nature conservation.
Perth and Kinross LDP2 Supplementary Guidance[26]	3rd June 2023	Additional guidance relating to development and biodiversity.
Saving Scotland's Red Squirrels[27]	3rd July 2024	Red squirrel *Sciurus vulgaris* records.
Scotland's environment map[28]	3rd June 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[29]	3rd July 2024	Water Framework Directive (WFD)[30] condition assessment for relevant watercourses.
Tayside LBAP[9]	1st July 2024	Information on locally important ecosystems, habitats and species.
The National Water Vole Database and Mapping Project[31]	3rd July 2024	Hectad (10x10 km square) records of water vole *Arvicola amphibius* and American mink *Neovison vison*.

7.2.19 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 in Appendices 7.2 and 7.3 (Volume 4). Field surveys were conducted by trained and experienced AECOM ecologists. All are members of the Chartered Institute of Ecology and Environmental Management (CIEEM) at the appropriate grade and adhered to their strict Code of Professional Conduct.

[23] Ordnance Survey Data © CrownCopyright and database right [2024] OS0100031673.
[24] Perth and Kinross Council (2024). Planning & Biodiversity - Local Nature Conservation Sites. (online) Available at: https://www.pkc.gov.uk/ldp2naturesites [Accessed: July 2024]
[25] 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]
[26] Perth and Kinross Council (2020). Local Development Plan - Supplementary Guidance. (online) Available at: https://www.pkc.gov.uk/ldp2guidance [Accessed: June 2023]
[27] 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]
[28] Scottish Government (2023). Scotland's environment web. (online) Available at: https://www.environment.gov.scot/ [Accessed: June 2023]
[29] SEPA (2024). Water Classification Hub. (online) Available at: https://www.sepa.org.uk/data-visualisation/water-classification-hub [Accessed: July 2024]
[30] 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'.
[31] 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]

Habitat Survey

7.2.20 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[32] and drew upon the formatting styles used in the Joint Nature Conservation Committee (JNCC) Phase 1 habitat survey guidance[33], 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 7.1d (Volume 3).

National Vegetation Classification Survey

7.2.21 In all areas of important habitat identified by the UKHab survey (those shown on Figures 7.1e and 7.1f (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[34,35,36,37].Reference was also made to the NVC review and other guidance[38,39,40] 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, dense 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').

7.2.22 The survey was carried out on 22nd and 23rd May 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

7.2.23 In accordance with industry-standard guidelines published by the Bat Conservation Trust (BCT)[41], an initial Daytime Bat Walkover (DBW) was carried out between 15th March and 20th March 2023 to assess the suitability of habitats within and in the surrounding area of the Proposed Development for roosting, commuting, and foraging bats. Further to this, a ground level tree assessment (GLTA) was carried out between 11th March and 28th March 2024 to search for trees with potential roost features (PRFs) which could be used by bats within 10 m of proposed works 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.

[32] UKHab (2023) UK Habitat Classification. (online) Available at: https://ukhab.org/. [Accessed: November 2023].
[33] JNCC (2010). Handbook for Phase 1 habitat survey – a technique for environmental audit. Joint Nature Conservation Committee, Peterborough.
[34] Rodwell, J.S. (ed.). (1991a). British Plant Communities Volume 1 Woodlands and Scrub. Cambridge University Press, Cambridge.
[35] Rodwell, J.S. (ed.) (1991b). British Plant Communities Volume 2 Mires and Heaths. Cambridge University Press, Cambridge.
[36] Rodwell, J.S. (ed.) (1992). British Plant Communities Volume 3 Grassland and Montane Communities. Cambridge University Press, Cambridge.
[37] Rodwell, J.S. (ed.) (1995). British Plant Communities Volume 4 Aquatic Communities, Swamps and Tall-herb Fens. Cambridge University Press, Cambridge.
[38] 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.
[39] 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.
[40] Hall, J.E., Kirby, K.J. and Whitbread, A.M. (2004). National Vegetation Classification: Field guide to woodland. Joint Nature Conservation Committee, Peterborough.
[41] Collins, J. (ed.). (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition). Bat Conservation Trust, London.

7.2.24 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

7.2.25 In line with the approach taken for a very similar neighbouring development (LT455 Kintore to Tealing 400 kV OHL[42]), six ultrasonic recorder devices were deployed between 3rd and 13th September 2024 at locations intended to target groups of PRF-Ms (locations are displayed in **Confidential** Figure 7.2 (Volume 3)). To best align with BCT guidelines[41] for a site of 'Low' suitability for bats (as defined in Table 4-2, **Confidential** Appendix 7.2 (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.

7.2.26 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

7.2.27 An initial survey for otter *Lutra lutra*, beaver *Castor fiber* and water vole was conducted between 11th and 28th March 2024. This survey covered all watercourses within a buffer (200 m for otter and beaver and 50 m buffer for water vole) of proposed works as understood at the time of survey, as far as access was feasible and safe.

7.2.28 Since the initial survey was outside the optimal survey period, and in accordance with best practice guidance provided in Dean *et al.* (2016)[43], a second survey visit specifically to search for evidence of water vole (although evidence of otter and beaver identified incidentally was also recorded) was carried out between 15th and 18th July 2024. This survey was carried out along watercourses within 50 m of proposed works as understood at the time of survey.

7.2.29 Survey for otter, beaver and water vole followed guidance in published literature[43,44,45,46,47,48].

Badger and Pine Marten Survey

7.2.30 Survey for badger *Meles meles* and pine marten *Martes martes* was carried out in areas of suitable habitat within a 50 m buffer of proposed works 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 11th March and 28th March 2024 and followed standard good practice guidance[49,50,51].

[42] Dennis, A. (2024). Kintore to Tealing 400kV Overhead Line (OHL) – Bat Survey Methods. File note produced by LUC for SSEN Transmission.
[43] Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). The Water Vole Mitigation Handbook. The Mammal Society, London.
[44] Chanin, P. (2003). Monitoring the Otter Lutra lutra, Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough.
[45] Liles, G. (2003). Otter Breeding Sites. Conservation and Management, Conserving Natura 2000 Rivers Conservation Techniques Series No. 5. English Nature, Peterborough.
[46] Strachan, R. (2007). National survey of otter Lutra lutra distribution in Scotland 2003-04. Scottish Natural Heritage Commissioned Report No. 211 (ROAME No. F03AC309).
[47] Strachan, R., Moorhouse, T. and Gelling, M. (2011). Water Vole Conservation Handbook (3rd Edition). Wildlife Conservation Research Unit, University of Oxford.
[48] 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
[49] Harris, S. and Yalden, D.W. (2008). Mammals of the British Isles (4th Edition). The Mammal Society, London.
[50] Birks, J. (2002). The Pine Marten. The Mammal Society, London.
[51] Scottish Badgers (2018). Surveying for Badgers: Good Practice Guidelines. Version 1, 2018.

Other Notable Mammals, Reptiles and Amphibians

7.2.31 No dedicated 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.

7.2.32 Specific wildcat and great crested newt *Triturus cristatus* surveys were also not carried out for the reasons given in the Limitations and Assumptions section of this chapter (see Paragraph 7.2.50). Observations of reptiles and amphibians were incidentally recorded as encountered during all fieldwork, but no targeted survey was carried out for these taxa.

Fish

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

Assessment Modelling

7.2.34 The assessment of impacts and effects on ecological features described in this chapter was conducted in accordance with the guidelines published by CIEEM[Error! Bookmark not defined.]. The principal steps involved in the CIEEM approach can be summarised as:

- 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;
- 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.

7.2.35 In line with CIEEM guidelines[Error! Bookmark not defined.], 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, felling of a tree 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).

7.2.36 Impacts are assessed in view of the conservation status of the habitats and species under consideration. CIEEM[Error! Bookmark not defined.] 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[52] 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.

7.2.37 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[52]. However, as highlighted in Section 7.2.3 above, 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 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.

7.2.38 In this assessment, the geographical level of 'Regional' is defined as the area encompassed by NHZ 16, and 'Local' as the area within 10 km of the Proposed Development.

7.2.39 The assessment of impacts on ecological features follows the industry-standard guidelines for Ecological Impact Assessment (EcIA) published by CIEEM**Error! Bookmark not defined.** 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

7.2.40 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 a 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.

7.2.41 Similarly, records of invasive non-native species identified through the desk study (particularly of non-native fauna) 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.

7.2.42 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.

7.2.43 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).

[52] 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]

However, given the nature of the vast majority of surveyed habitats (primarily arable and agriculturally improved fields of limited interest), and the additional NVC survey of important habitats being carried out within the growing season (an optimal time to survey), it is very unlikely that habitats have been undervalued.

7.2.44 Due to its size, it was not feasible to closely inspect every small part of the survey area. This is not a constraint and not necessary for intensively managed agricultural fields, non-native conifer plantation and built-up areas. Most areas mapped as 'Buildings, hardstanding and other built-up areas' were not surveyed in detail and were mapped from a distance. Given that most areas could be at least partially seen from adjacent accessible land, the small areas concerned, and that few of the habitat features in these cases were likely to be of any particular note, it is very unlikely that this would have significantly affected the impact assessment, hence this is not considered a significant limitation.

7.2.45 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.

7.2.46 The GLTA was carried out to within 10 m of the proposed works, as known at the time of survey and 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.

7.2.47 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 (LT455 Kintore to Tealing 400 kV OHL Uprating[53]. Pre-construction surveys will be carried out to inspect all PRFs liable to impacts as a result of the proposed works

7.2.48 No dedicated red squirrel survey was carried out since it was assumed impacts to woodland and linear features such as tree lines and hedgerows would be minimal. Survey for red squirrel would instead be carried out prior to works commencing.

7.2.49 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. The LOD is at the edge of the range of mountain hare which is typically widespread in suitable hilly terrain and often reasonably common. There are habitats within the LOD that could support mountain hare, particularly the open moorland areas amongst the Sidlaw Hills; however, these are isolated in the wider environment by surrounding intensive agriculture. Brown hare and hedgehog are likely to occur in suitable habitat across the LOD.

7.2.50 No targeted survey was carried out for wildcat or great crested newt as the Proposed Development lies outside the generally accepted range of these species[54, 55] and any suitable habitat within the LOD is highly isolated in the wider environment. Furthermore, no records of great crested newt or wildcat were identified within 1 km of the LOD during the desk study.

53 Dennis, A. (2024). Kintore to Tealing 400 kV Overhead Line (OHL) – Bat Survey Methods. File note produced by LUC for SSEN Transmission.

54 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]

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

7.2.51 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.

7.2.52 Field surveys were carried out within a suitable buffer of proposed works as understood at the time. Subsequent updates to the Proposed Development resulted in surveys of some areas within the ZoI of the Proposed Development not being carried out. 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.

7.2.53 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 7.2 and 7.3 (Volume 4) which accompany this chapter, none of which are considered significant.

7.3 Sensitive Receptors

7.3.1 The guidelines for Ecological Impact Assessment (EcIA) published by CIEEM recommend that only those features that are 'important' and that could be significantly affected by the 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".*

7.3.2 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;
- 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[56];
- species listed on Annex II of the Habitats Directive[56];
- species listed on Schedules 2 and 4 of the Habitats Regulations[57];
- species listed on Schedules 5 and 8 of the WCA[58];
- badger, which is afforded protection under the Protection of Badgers Act[59];
- habitats and species listed on the SBL[60], 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[30]; and,
- invasive non-native species listed on Schedule 9 of the WCA[58] (although this no longer legally applies in Scotland) and those considered to be of EU concern under the Invasive Alien Species Regulation[61].

[56] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive')
[57] Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) (the 'Habitats Regulations')
[58] Wildlife and Countryside Act 1981 (as amended) (the 'WCA')
[59] Protection of Badgers Act 1992 (as amended)
[60] NatureScot (2020). Scottish Biodiversity List. (online) Available at: https://www.nature.scot/doc/scottish-biodiversity-list. [Accessed: July 2024]
[61] 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

7.3.3 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.

7.4 Baseline Conditions

Statutory Designated Sites

7.4.1 There are four designated sites within the ZoI of the Proposed Development. Of those, there are two European sites (SACs), one Ramsar site designated for habitats, and one other statutory designation (SSSI). Details of these designated sites are given in Table 7-3 below (listed in order of increasing distance from the Proposed Development) and their locations shown on Figure 7.1b (Volume 3)

Table 7-3 Summary of Statutory Designated Sites for Nature Conservation

Designated Site	Reason for Designation	Location of Designated Site[62]
European Sites / Ramsar		
River Tay SAC	Fauna: Atlantic salmon, 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 north end of the Proposed Development where the OHL crosses Dean Water. North of the Sidlaw Hills, the Proposed Development lies within the River Tay catchment area.
Firth of Tay and Eden Estuary SAC	Estuaries; Intertidal mudflats and sandflats; Subtidal sandbanks; and Harbour seal *Phoca vitulina*.	Located 8.79 km south of the Proposed Development. There is a direct hydrological link between the SAC and the Proposed Development. Intervening land comprises agricultural fields and the city of Dundee.
Loch of Kinnordy Ramsar site	Eutrophic loch; and open water transition fen.	Located 9 km northeast of the Proposed Development. The Ramsar site and Proposed Development are hydrologically linked, however the designated site is upstream of the Proposed Development. Intervening land comprises predominantly agricultural fields with areas of woodland and the River Tay SAC.
Other statutory designations		
Auchterhouse Hill SSSI	Subalpine dry heath.	Situated centrally, this SSSI partly overlaps the LOD. Intervening land comprises heathland.

Non-statutory Designated Sites

7.4.2 PKC are currently conducting the Local Nature Conservation Sites Project whereby local biodiversity sites (and local geodiversity sites) will be selected. A selection of sites is proposed, but formal adoption of these is not anticipated to be concluded until mid-2025[24]. Therefore, sites are subject to change and additional sites may be

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

designated which are within or near the LOD. At the time of writing, no LNCS's have been proposed within the ZoI of the Proposed Development by PKC.

7.4.3 The Communities Committee for Angus Council (AC) formally designated 28 sites as LNCS in November 2023[63] which will be included in the forthcoming LDP2 due to be finalised in 2029[64]. Three LNCS within AC local authority area are situated within the ZoI of the Proposed Development; Pitnappie Moss, Oak Wood, and Redmire Wood. The locations of these LNCS in relation to the LOD are shown on Figure 7.1c (Volume 3).

7.4.4 Pitnappie Moss LNCS covers approximately 20 ha and comprises marshy grassland, basin mire and woodland. It is located approximately 650 m south-west of the LOD. The LNCS is hydrologically connected to the LOD by tributaries of Auchterhouse Burn and separated from the LOD by a single arable field.

7.4.5 Oak Wood LNCS comprises approximately 17 ha of semi-natural broadleaved woodland and unimproved grassland. It is situated approximately 1.9 km north of the LOD. This LNCS is hydrologically connected to the LOD via the River Isla, however, the LOD lies downstream of the LNCS. Intervening land comprises Alyth Substation, mixed woodland and farmland (mainly intensively farmed arable fields).

7.4.6 Redmire Wood LNCS contains approximately 20 ha of wet birch *Betula* sp. woodland and lowland basin mire. It is approximately 1.8 km north-east of the LOD. Intervening land is intersected by the River Isla and largely comprises arable fields. Though not hydrologically connected, there is an almost contiguous canopy cover between the LNCS and the LOD where the River Isla is fringed by a line of trees, continuing along Dean Water to Crow Wood.

Habitats

7.4.7 The survey area is characterised largely by arable and agriculturally improved fields, with patches of broadleaved woodland in low lying areas in the River Isla valley, near Alyth in the north-west and at the foot of the Craigowl Hill, near Tealing to the south-west. The route of the existing OHL ascends to a height of 290 m above sea level (ASL), east of Newtyle and north-east of Auchterhouse. This upland fringe area is dominated by rough grazing pastures with continuous bracken, dense scrub, acid grassland and heathland, coniferous plantation woodland, marshy grassland, scree, and valley mire.

7.4.8 Habitat descriptions below are provided under headings broadly corresponding to Phase 1 habitat types; UKHab types are described in the text beneath; and NVC classifications are provided in the text for notable habitats only. Habitats listed on ***Annex I of the Habitats Directive*** are shown in bold italic; SBL priority habitats are underlined; and habitats which align with those mentioned in the Tayside LBAP[9] are referred to as Tayside local priority habitats (LPH)[65].

7.4.9 The recorded habitats are shown on Figure 7.1d (Volume 3), as are target notes which are summarised in the relevant sections below. Priority habitats on the SBL and Annex 1 habitats are shown on Figure 7.1e (Volume 3), along with their corresponding NVC code, and GWDTE are shown on Figure 7.1f (Volume 3) along with their corresponding NVC code.

Ancient Woodland Inventory

[63] 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]

[64] 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]

[65] The 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.

7.4.10 There are 15 parcels of woodland listed on the AWI within the ZoI (see Figure 7.1d (Volume 3)), all of which are long-established of plantation origin ('LEP'). Four parcels are within the LOD, comprising Crow Wood, the edge of a woodland strip northwest of Kirkinch, Kirkinch Wood, and woodland north of Autherhouse. Woodlands listed on the AWI within the habitats survey area are described in further detail below.

Carbon and Peatland 2016 Map

7.4.11 There is one area of Class 1 peat (nationally important carbon-rich soils, deep peat and priority peatland habitat) within the ZoI (see Figure 7.1d (Volume 3)). This is located within Auchterhouse Hill SSSI, approximately 23 m north of the LOD.

Blanket Bog

7.4.12 The only recorded bog is a small and lower quality patch in the Sidlaw Hills near Tower 671. This is an isolated patch of degraded blanket bog (UKHab = f1a6, Degraded blanket bog) immediately north of a pine plantation block. This represents Annex I habitat type ***H7130 Blanket bogs*** (non-priority), Blanket bog SBL priority habitat and Blanket bog Tayside LPH. A fragment of peatland was recorded by Scotland's Soils near this location and this, in combination with the dominance of hare's-tail cottongrass *Eriophorum vaginatum*, has led to the classification of this habitat as bog. The closest NVC type is M20 *Eriophorum vaginatum* blanket mire, however some heather *Calluna vulgaris* is also present, and *Sphagnum capillifolium*. It grades into the adjacent upland fen, which is wetter with bog pondweed *Potamogeton polygonifolius*, *sphagnum* sp., small sedges, soft-rush *Juncus effusus*, grasses and heather.

Broadleaved Woodland - Semi-natural

7.4.13 Damp/ wet semi-natural broadleaved woodland within Kirkinch Wood that corresponds to the NVC W1 *Salix cinerea-Galium palustre* woodland has a relatively low canopy (compared to other woodland in the area, see below) dominated by eared willow *Salix aurita* (UKHab = w1d, Wet woodland). The wet woodland canopy is maintained by the periodic removal of larger tree species in the wayleave to the existing OHL. This wet woodland supports abundant soft-rush, with frequent marsh bedstraw *Galium palustre*, common sedge *Carex nigra*, common dog-violet *Viola riviniana*, broad-leaved willowherb *Epilobium montanum*, field horsetail *Equisetum arvense*, the mosses *Brachythecium rutabulum* and *Atrichum undulatum*, downy birch *Betula pubescens* seedlings, common nettle *Urtica dioica*, narrow buckler-fern *Dryopteris carthusiana* and tufted hair-grass *Deschampsia cespitosa*. This habitat is likely to be a GWDTE and has importance for being Wet Woodland SBL priority Habitat (and Wet Woodlands Tayside LPH). However, it is a relatively poor example of the SBL priority type, given the paucity of wetland herbs.

7.4.14 A single area of semi-natural woodland qualifies as Lowland Mixed Deciduous Woodland (LMDW) SBL priority Habitat (UKHab = w1f7, Other Lowland mixed deciduous woodland). This comprises woodland along the sandy and stony bank of the River Isla in the far north which is dominated by mature willow *Salix* sp. and semi-mature alder *Alnus glutinosa*, and, rarely, semi-mature ash *Fraxinus excelsior* and sycamore *Acer pseudoplatanus*. The sparse ground flora contains ramsons *Allium ursinum* which tends to indicate particularly established or higher-quality woodland, hence the classification as LMDW. However, the other ground flora species (ground-elder *Aegopodium podagraria* (a naturalised species), tufted hair-grass, broad-leaved dock *Rumex obtusifolia*, lesser celandine *Ficaria verna*, common nettle, wood-rush *Luzula* sp. and patches of reed canary-grass *Phalaris arundinacea*) are all commonly found in species-poor, locally damp woodland. In addition, Himalayan balsam[66] *Impatiens glandulifera* and snowdrop *Galanthus nivalis*, both non-native species, are scattered throughout, further indicating that this is a poor example of LMDW. This woodland likely also qualifies as Lowland Mixed Broadleaf (Deciduous) Woodlands Tayside LPH.

[66] Himalayan balsam is invasive in the UK and is listed on Schedule 9 of the WCA.

7.4.15 The remaining broadleaved semi-natural woodland is Other broadleaved woodland (w1g) in UKHab. Although these woodlands do not receive any special SBL or Annex I classification, many are likely to be Lowland Mixed Broadleaf (Deciduous) Woodlands Tayside LPH. Other broadleaved woodland also encompasses the majority of the broadleaved plantation (described below).

7.4.16 Slightly south of the River Isla there is woodland dominated by mature oak *Quercus* sp. with frequent immature sycamore. The ground flora resembles that of the adjacent grassland, with the addition of lesser celandine and wood avens *Geum urbanum*. Although not obviously planted, this woodland may have plantation origins.

7.4.17 The woodland associated with Crow Wood, north of the Dean Water, is dominated by mature and pre-mature birch. The woodland in the west of the survey area also has rarely occurring alder, pine *Pinus* sp. and spruce *Picea* sp. on its periphery. The ground flora is sparse, with lots of leaf litter and abundant grasses including Yorkshire-fog *Holcus lanatus*, occasional raspberry *Rubus idaeus*, foxglove *Digitalis purpurea*, bramble *Rubus fruticosus* agg., broad buckler-fern *Dryopteris dilatata* and rarely occurring soft rush. The woodland in the east of the survey area here has a sparse ground flora including wood avens and lesser celandine. This woodland is infested with invasive rhododendron *Rhododendron ponticum* (mostly on the periphery of the woodland), along with other non-native species including daffodils *Narcissus* sp. These woodlands are listed on the AWI, but the woodland does not display the characteristics of true ancient woodland.

7.4.18 The woodlands of Balkello Woodland, north of Tealing Road, are a mix of semi-natural broadleaved woodland and broadleaved plantation (described below). Semi-natural types have frequent sessile oak *Quercus petraea*, silver birch *Betula pendula* and locally frequent alder, with rarely occurring shrubs including hawthorn *Crataegus monogyna* and broom *Cytisus scoparius*. Bracken, creeping soft-grass *Holcus mollis* and tufted hair-grass are locally frequent, with occasional wild strawberry *Fragaria vesca*, wavy hair-grass *Deschampsia flexuosa*, raspberry, common nettle, often with a carpet of pluerocarpus mosses including species such as *Pseudoscleropodium purum* and *Thuidium tamariscinum*.

Broadleaved, Mixed and Coniferous Woodland - Plantation

7.4.19 The majority of woodlands within the survey area are plantation. Some of these are Tayside LPHs such as Native conifers: Scottish Pinewoods, Lowland Mixed Broadleaf (Deciduous) Woodlands or Planted Coniferous Woodlands.

7.4.20 The dry broadleaved woodland (UKHab = w1g) associated with Kirkinch Wood is listed on the AWI but has largely been felled and replanted[67]. This is evidenced by large swathes of the woodland that have the remnants of tree stumps and many tree tubes with immature birch trees. Ground flora species include bramble, broad buckler-fern, tufted hair-grass and mosses including *P. purum* and *Eurhynchium striatum*, with broom on the periphery of the woodland. Mixed plantation woodland (UKHab = w1h5, Other woodland; mixed; mainly broadleaved) of mature birch and Scots pine *Pinus sylvestris* dominate the parcel of woodland in the south of this area, with locally frequent gorse *Ulex europaeus* and a ground flora dominated by Yorkshire-fog, with frequent soft rush and broad-buckler fern.

7.4.21 The woodland near Drumkilbo House is dominated by oak, lime *Tilia* sp. and beech *Fagus sylvatica* with exotic conifer species including Douglas fir *Pseudotsuga menziesii* (UKHab = w1g). The ground flora is dominated by grasses including Yorkshire-fog over a carpet of mosses, with a wood-rush species and occasional snowdrops.

7.4.22 East of Henderston, on an unnamed tributary of the Neuk Burn within the Linn Den Plantation, is a second rotation young mixed plantation woodland (UKHab = w1h6, Other woodland; mixed; mainly conifer) with a grassy

[67] Scottish Government (2024). Land Information Search Agri-environment and Forestry map application. (online) Available at: https://map.environment.gov.scot/lis/LIS/Agri [Accessed: July 2024]

understory and bracken-dominated banks with Sitka spruce *Picea sitchensis*, silver birch, alder and larch *Larix decidua*.

7.4.23 North and east of Scotston Farm Cottages, coniferous plantation woodland (UKHab = w2c, Other coniferous woodland) lies on sloping ground and is dominated by black pine *Pinus nigra*. The edges of the woods are in places bordered by broadleaved species such as ash, hawthorn, alder and rowan *Sorbus aucuparia*. The edge of one woodland has been recently felled and is predicted to become grassland similar to that in the local area (UKHab = g3c, Other neutral grassland). The ground flora is grassy with locally frequent gorse or dominated by bracken. The coniferous plantation woodland that has a tributary of the Den Burn is dominated by a mix of species including Scots pine, larch, western hemlock *Tsuga heterophylla* and spruce *Picea* sp. This woodland is of mature trees with a fairly open canopy that permits the maintenance of locally frequent bilberry *Vaccinium Myrtillus* and mossy hummocks of *P. commune*.

7.4.24 The woodlands north and east of Kirkton of Auchterhouse contain abundant Scots pine with a heathy understorey on gently sloping ground surrounded by dry heath. Although the woodland resembles a Caledonian pine forest, it is outside the natural range of semi-natural pine woods and is considered to be plantation woodland (UKHab = w2b, Other Scots pine woodland, NVC = W18 *Pinus sylvestris-Hylocomium splendens* woodland). The ground flora includes abundant bilberry, locally frequent heather, locally abundant creeping soft grass, frequently occurring wavy hair-grass and common bent *Agrostis capillaris*, occasional tufted hair-grass, *P. purum*, heath bedstraw *Galium saxatile*, cross-leaved heath *Erica tetralix* and foxglove. The northern patch of this woodland is listed on the AWI; however, it does not resemble true ancient woodland as it would occur in this location (which would be dominated by broadleaved trees). However, this woodland likely qualifies as Native conifers: Scottish Pinewoods Tayside LPH.

7.4.25 The woodlands of Balkello Woodland are a mix of semi-natural woodland (described above) and broadleaved plantation (UKHab = w1g). Plantation types are dominated by sycamore, with frequent hazel *Corylus avellana*, cherry *Prunus* sp. and rarely occurring Scots pine. The trees are planted equidistantly in uniformly straight lines. The understory comprises mostly bare ground with thick leaf litter, frequent pleurocarpous mosses, such as *E. striatum*, with frequent common nettle and occasional rough meadow grass *Poa trivialis*. Locally there are patches of non-native daffodil and giant hogweed *Heracleum mantegazzianum*.

7.4.26 North-west of Prieston is a small patch of broadleaved plantation woodland (UKHab = w1g) with tree tubes of saplings and immature trees. Tree species include sycamore, oak, hazel, birch and cherry with a sparse ground flora comprising much leaf litter and bare earth with frequent grasses including Yorkshire-fog, tufted hair-grass, occasionally occurring cow parsley *Anthriscus sylvestris* and ground-elder, and non-native species including a locally abundant garden and rarely occurring daffodils.

7.4.27 The woodlands north of Tealing substation include a broadleaved plantation woodland (UKHab = w1g) dominated by semi-mature oak, with occasional spruce and locally abundant hawthorn and blackthorn *Prunus spinosa*. The ground flora is sparse with occasional common nettle. Immediately north of the substation are two woodland parcels of coniferous plantation (UKHab = w1h6) and a mixed plantation (UKHab = w1h5) with alder, sycamore, birch, pine *Pinus* sp., larch and spruce (in various proportions), with occasional red fescue *Festuca rubra*, common nettle and cleavers *Galium aparine*. Between these patches are grassy areas with very recently planted broadleaved saplings.

Scattered Trees

7.4.28 Scattered trees found throughout the survey area are most commonly ash, sycamore and birch with occasional oak, alder, Scots pine, Sitka spruce and beech and, rarely, rowan and coastal redwood *Sequoia sempervirens*.

7.4.29 In the far east of the survey area, north of Tealing Substation, is a row of mature poplar *Populus* sp. trees.

Scrub

7.4.30 Scrub is most prevalent in upland fringe areas where gorse dominates these habitats (UKHab = h3e, Gorse scrub) forming tall, dense stands. Near Kirkinch, north of Tealing Road and north of Tealing Substation, there are Mixed scrub (UKHab = h3h) and Hawthorn scrub (UKHab = h3f) formed from hawthorn, blackthorn, broom, grey willow *Salix cinerea*, raspberry and birch.

7.4.31 Scattered scrub comprises the above species with additional dog rose *Rosa canina* and hazel.

Standing Water

7.4.32 Standing water within the survey area comprises seven ponds, as indicated by the Pond Target Notes. Two of these were not mapped as area habitats due to being too small and having indistinct edges. Ponds are not specifically accounted for by UKHab, despite having a dedicated SBL priority habitat category. Thus, the ponds have been categorised under UKHab type Rivers and lakes (UKHab = r1 41, Pond (non-priority)).

7.4.33 Four of these ponds are within Kirkinch Wood. These are shallow, filled with leaf litter and potentially eutrophic (if confirmed this would make them Other eutrophic standing waters, UKHab = r1a6 41). It is possible that these ponds are relatively dry at some times of year given the presence of more terrestrial species (soft rush and Yorkshire-fog) within, though there are also patches of floating sweet-grass *Glyceria fluitans* indicating an (at least) near-constant level of inundation.

7.4.34 The remaining ponds are similar to the above; however, one, east of Kirkton of Auchterhouse, is likely to be present all year round.

7.4.35 The criteria for Ponds SBL habitat are demanding and intended to highlight very well-established ponds of special importance. The ponds do not qualify as Ponds SBL priority habitat as they do not meet the criteria (e.g. for supporting fully protected species). However, all are Ponds and Pools or Lochs and Standing Water Tayside LPHs.

Fen, Spring Flush and Swamp

7.4.36 Two spring flushes on the north-eastern slopes of Kinpurney Hill, north-east of Newtyle (see 'Spring / Flush Target Notes' on Figure 7.1d; Volume 3) are largely dominated by floating sweet-grass species *Glyceria fluitans* with frequently occurring blinks *Montia fontana* and marsh violet *Viola palustris* with the mosses *Calliergon cuspidatum* and *Brachythecium rivulare*. Soft-rush is locally frequent with creeping buttercup *Ranunculus repens* and occasional common sorrel *Rumex acetosa*. They are considered transitional between floating sweet-grass dominated wet depressions of the NVC type S22 *Glyceria fluitans* water-margin vegetation, and NVC type M32 *Philonotis fontana-Saxifraga stellaris* spring. For simplicity, they have been classified as M32. These flushes are GWDTE, Lowland Fen SBL priority habitats (UKHab = f2a, Lowland fen) and Wetlands Tayside LPH, however they are not good examples of this type of habitat, given the dominance of floating sweet-grass (a very common species, often found in depressions in pasture) and limited species diversity lacking (other than blinks, which is also ubiquitous) other key species of springs.

7.4.37 Shortly north of the Dean Burn there is swamp in an ox-bow lake between an arable field and isolated woodland block. It is overwhelmingly dominated by reed sweet-grass *Glyceria maxima* (non-native) and thus corresponds to the NVC type S5 *Glyceria maxima* swamp. Other species are few and sparse, including Yorkshire-fog, common nettle, bracken, creeping thistle *Cirsium arvense*, raspberry and common hogweed *Heracleum sphondylium*. This corresponds in UKHab to f2f Other wetland (such swamps are not included in UKHab in lowland fen), and Wetlands Tayside LPH.

7.4.38 In the Sidlaw Hills above Greenford Farm, there are two patches of Upland flushes, fen and swamp SBL priority habitat. These patches are acidic and correspond best to a mix of the NVC types M6 acid flush and vegetation transitional between M6 and U4 acid grassland, and the vegetation grades in places into unmanaged and overgrown U4 acid grassland. This vegetation is quite variable, with small sedges such as star sedge *Carex*

echinata and common sedge *Carex nigra*, soft rush, sphagnum (such as *Sphagnum fallax*) and the moss *Polytrichum commune* (both typical of acid flush), red fescue and a little heather. Locally, particularly wet soakways contain abundant bog pondweed.

Heath

7.4.39 Dry heath (UKHab = h1b5, Dry heaths; upland (H4030)) and dry heath/ acid grassland mosaics (with UKHab g1b6, Other upland dry acid grassland - described below) includes upland fringe areas on thin peaty soils. These habitats range from being moderately to lightly grazed (i.e. by sheep and deer). To the east of Newtyle, on the lower slopes of Kinpurney Hill, heathland is dominated by heather, with abundant *Hylocomnium splendens*, occasional *P. purum*, frequent *Rhytidiadelphus squarrosus*, heath bedstraw and occasional bilberry. This corresponds to the NVC H12a *Calluna vulgaris-Vaccinium myrtillus* heath, *Calluna vulgaris* sub-community.

7.4.40 On the steep and dry south-facing slopes north of the Den Burn, north-east of Kirkton of Auchterhouse, the habitat is dominated by bell heather *Erica cinerea*, with frequent bracken, common bent and wavy hair-grass, and a carpet of pleurocarpous mosses including *Pleurozium schreberi* and *H. splendens.* This corresponds to the NVC H10a *Calluna vulgaris-Erica cinerea* heath, typical sub-community. Some areas within a mosaic of acid grassland are the grassy form of this heath, the transitional H10c *Calluna vulgaris-Erica cinerea* heath, *Festuca ovina-Anthoxanthum odoratum* sub-community. Other more shaded heaths adjacent to woodlands, in north-facing areas and / or on less steeply sloping ground are dominated by heather (instead of bell heather) and have frequent bilberry. These correspond to the NVC H12a *Calluna vulgaris-Vaccinium myrtillus* heath, *Calluna vulgaris* sub-community. Gently sloping and dry north facing slopes north-east of Kirkton of Auchterhouse, which surrounds a plantation of Scots pine, is dominated by heather, with occasional bilberry and bell heather rarely occurring. Pluerocarpus mosses are abundant with *Hypnum jutlandicum* most prevalent with *H. splendens* and *Plagiothecium undulatum* occasional (NVC = H12a).

7.4.41 All dry heath is ***H4030 European dry heaths*** Annex I habitat. In addition, the dry heath (and dry dwarf shrub heath in mosaic with acid grassland) is Upland Heathland SBL priority. These habitats are also Upland Heath Tayside LPH.

Acid Grassland - Unimproved

7.4.42 Unimproved acid grassland (UKHab = g1b6, Other upland acid grassland) is on heavily sheep-grazed and closely cropped slopes of Kinpurney Hill, east of Newtyle. The mosses *R. squarrosus* and *H. splendens* are abundant and heath bedstraw occurs occasionally. Grasses include a thin scattering of common bent, mat grass *Nardus stricta*, wavy hair-grass and red fescue with rarely occurring tufted hair-grass. This corresponds to the NVC U4a *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland, typical sub-community.

7.4.43 North of the Den Burn, among dry heath on south facing and steep slopes is a swathe of acid grassland that is dominated by grasses including common bent, wavy hair-grass and sheep's-fescue *Festuca ovina* with frequent *P. schreberi* and *H. splendens* and scattered bracken (NVC = U4a).

Neutral Grassland - Unimproved

7.4.44 The grasslands (UKHab = g3c, Neutral grassland) on the ridge-side north-east of Scotston Farm are within a complex of scree and gorse. This mosaic of habitats has developed on the spoil from former quarry workings. The scree is mostly bare, though gorse has developed where soils are thickest. At intermediate depths a neutral grassland has formed. Vegetation has established on thin soils on top of well-drained, circum-neutral crushed stone and has an unusual mix of weedy species and neutral grasses including frequent common bent, cock's-foot *Dactylis glomerata*, smooth meadow-grass *Poa pratensis*, foxglove, common mouse-ear *Cerastium fontanum* and *R. squarrosus*, locally frequent parsley-piert *Aphanes arvensis*, hoary whitlowgrass *Draba cana* and spear thistle *Cirsium vulgare*, occasional ragwort *Senecio jacobaea* and hairy bitter-cress *Cardamine hirsuta*.

7.4.45 A similar habitat occurs among scree of an old mine working north-east of Kirkton of Auchterhouse. The grassland has a varied sward developed on loose rock, with occasional patches of heather and gorse. Yorkshire-fog is abundant, with locally frequent sheep's-fescue and tufted hair-grass over a carpet of abundant *R. squarrosus*, *H. splendens*, *Polytrichum formosum*. Wavy hair-grass is occasional with heath woodrush *Luzula multiflora* and rarely occurring herb-robert *Geranium robertianum*.

Scree - Acid/ Neutral

7.4.46 Neutral scree (UKHab = s1d, Other inland rock) occurs in a mosaic with the unimproved neutral grassland described above and gorse. These scree habitats have little to no soil with virtually no vegetative cover, except at the extreme margins. Here there is a sparse moss cover with species including *Hypnum cupressiforme, Dicranum scoparium* and *Racomitrium lanuginosum*, with frequent scaly male-fern *Dryopteris affinis* and a thin cover of wavy hair-grass and sweet vernal-grass *Anthoxanthum odoratum*. The vegetation is loosely associated with NVC type U16b *Luzula sylvatica-Vaccinium myrtillus* tall-herb community, *Anthoxanthum odoratum-Festuca ovina* sub-community.

7.4.47 The scree habitat is not species-rich or of particular conservation importance and is therefore not considered to be an SBL priority habitat (or Annex I habitat).

Marsh/ Marshy Grassland

7.4.48 The marshy grassland (UKHab = f2b, Purple moor grass and rush pastures) within Kirkinch Wood lies in the wayleave to the existing OHL, among patches of dense scrub of willow, downy birch, broom and gorse. The community corresponds to the NVC M23b *Juncus effusus* / *acutiflorus-Galium palustre* rush-pasture, *Juncus effusus* sub-community. The sward is dominated by soft rush, with abundant common sorrel, frequent marsh violet, with tormentil *Potentilla erecta* and carnation sedge *Carex panicea* and the mosses *B. rutabulum* and *Kindbergia praelonga*. Some areas also have rarely occurring common nettle and cleavers and locally abundant raspberry. The habitat is likely to be a GWDTE.

7.4.49 On the north-east facing slopes Kinpurney Hill, a marsh (UKHab = f2b, NVC = M23b) is present immediately downslope of a break in the hillside. The flushed area is in a valley and has little to no grasses, and is dominated by soft rush, with common sorrel and marsh thistle frequently occurring, with occasional marsh violet over a carpet of mosses including abundant *H. splendens* and frequent *R. squarrosus*. This habitat is considered to be a GWDTE.

7.4.50 A surface water-fed marshy grassland is present on a tributary to the Denend Burn, jointed rush *Juncus articulatus* and soft rush are co-dominant, with tufted hair-grass locally abundant in the northern half of the stand. Lesser spearwort *Ranunculus flammula* is frequent, with sharp-flowered rush *Juncus acutiflorus*, marsh thistle and common sorrel occasional, and rarely occurring brook lime *Veronica beccabunga*. This area is Purple Moor Grass and Rush Pastures (PMRP) SBL priority habitat (UKHab = f2b, NVC = M23b). It is unlikely that this habitat is a GWDTE.

7.4.51 North of Scotston Farm is a marsh (UKHab = f2b, NVC = M23b) on sloping ground that is spring-fed and heavily poached by cows with dominant soft rush, frequent marsh thistle and creeping buttercup, with locally frequent jointed rush, occasional common chickweed *Stellaria media*, broad-leaved dock and various pleurocarpous mosses and approximately 25% bare ground. This habitat is considered to be a GWDTE.

7.4.52 North-east of Scotston Farm Cottages, south of the above and adjacent to the track, is a spring head of a watercourse that feeds a marsh (UKHab = f2b, NVC = M23b) dominated by soft rush, with frequent marsh thistle, occasional broad-leaved dock, common nettle, and common chickweed, over a carpet of pleurocarpous mosses. This habitat is considered to be a GWDTE.

7.4.53 All marshy grassland is Wet Grassland Tayside LPH and marshy grassland of the NVC type M23 is considered PMRP SBL priority habitat.

Acid Grassland – Semi-improved

7.4.54 The dry patches of grassland within a mosaic of marshy grassland at south of Kirkinch (UKHab = g1d, Other lowland acid grassland, NVC = U4b *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland, *Holcus lanatus-Trifolium* repens sub-community) possess red fescue, sweet vernal-grass, annual meadow-grass *Poa annua*, common bent, marsh violet, germander speedwell *Veronica chamaedrys*, tormentil, heath bedstraw, scaly male-fern, field woodrush *Luzula campestris* and the mosses *R. squarrosus* and *P. formosum*, with locally frequent common sedge in damp areas.

7.4.55 The grassland is not especially species-rich or of particular conservation importance and is therefore not considered to be an SBL priority habitat (or Annex I habitat).

Neutral Grassland - Semi-improved

7.4.56 Much of the survey area, including road verges and strips alongside ditches, as well as larger patches, is semi-improved neutral grassland (UKHab = g3c). Generally, this comprises common and widespread species dominated by grasses including Yorkshire-fog, cock's-foot and red fescue, with occasional spear thistle, common nettle, broad-leaved dock, cleavers, burdock *Arctium lappa*, common knapweed *Centaurea nigra*, common hogweed, yarrow *Achillea millefolium* and creeping buttercup and rarely occurring crane's bill *Geranium* sp. Damper areas support angelica *Angelica sylvestris*, meadowsweet *Filipendula ulmaria* and reed canary-grass.

7.4.57 The UKHab type g3c can be further split into the below subcategories:

- UKHab type g3c5 (*Arrhenatherum* neutral grassland) is dominated by red fescue, abundant Yorkshire-fog, with frequent tufted hair-grass, locally frequent creeping thistle, occasionally occurring common bent, common nettle, *R. squarrosus* and *P. purum*;
- UKHab type g3c6 (*Lolium-Cynosurus* neutral grassland) is dominated by red fescue with frequent common bent, crested dog's-tail *Cynosurus cristatus*, sweet vernal-grass, cock's-foot, locally frequent creeping thistle and Yorkshire-fog, with occasional heath speedwell *Veronica officinalis*, white clover *Trifolium repens*, and rarely occurring common mouse-ear and creeping buttercup over a moss carpet of abundant *R. squarrosus*;
- UKHab type g3c7 (*Deschampsia* neutral grassland, NVC = MG9 *Holcus lanatus-Deschampsia cespitosa* grassland) here has dominant or abundant tufted hair-grass, with frequent to abundant creeping thistle and Yorkshire-fog, with occasional common nettle, creeping buttercup, red fescue and common sorrel; and
- UKHab type g3c8 (*Holcus-Juncus* neutral grassland, NVC = MG10) is a marginal vegetation type adjacent to a watercourse dominated by tufted hair-grass and Yorkshire-fog with frequent soft rush. It is nutrient enriched from agricultural runoff and supports frequent common nettle and creeping thistle.

7.4.58 None of these are SBL priority habitats (e.g. Lowland Meadows) or Annex I habitats. However, NVC types MG9 and MG10 are considered to be Wet Grassland Tayside LPH, and these habitats are also regarded as GWDTE.

Poor Semi-improved Grassland

7.4.59 Species-poor semi-improved grasslands include heavily-grazed horse and sheep pastures. Crested dog's-tail, cock's-foot, common bent and red fescue are frequent to abundant; with locally frequent creeping thistle; and frequent to rarely occurring common nettle, broad-leaved dock, creeping buttercup, white clover, common mouse-ear, and *R. squarrosus*.

Improved Grassland

7.4.60 Modified grassland includes those grazed by sheep donkeys, pygmy goats and alpacas. These green, well-drained agricultural fields are dominated by perennial ryegrass *Lolium perenne*, with abundant red fescue, frequent broad-leaved dock, occasional creeping buttercup, and rarely occurring daisy *Bellis perennis*.

7.4.61 Both poor semi-improved and improved grasslands are common and widespread among agricultural areas in Scotland, and are not of particular value, being species-poor and having limited importance for biodiversity.

Cultivated Land

7.4.62 Arable fields (UKHab = c1, Arable and Horticulture) are widespread in the far north and south of the survey area. These are generally very species-poor and were often ploughed at the time of survey. Where the crop could be identified this was most frequently young cereals (UKHab = c1c, Cereal crops) or brassicas (UKHab = c1d8, Other non-cereal crops). Rarely the fields contained stubble from the previous harvest (UKHab = c1c5, Winter stubble).

Bracken - Continuous

7.4.63 A large proportion of the upland fringe between Henderston and North Balluderon is dense bracken (UKHab = g1c, Bracken), with occasional patches of broom and gorse. Bracken is also scattered in some other upland areas.

Other Tall Herb and Fern - Ruderal

7.4.64 Tall ruderal vegetation (UKHab = g3c) is present mainly along field edges, as well as the northern bank of the River Isla, and is locally dominated by common nettle or creeping thistle, with occasional broad-leaved dock.

Bare Ground

7.4.65 Bare ground (UKHab = u1c, Artificial unvegetated, unsealed surface) includes muddy areas within fields and informal tracks.

Built-up Areas

7.4.66 Several buildings and areas of hardstanding are present but were not inspected in detail. This includes the majority of habitats within areas which were not accessed, which are mainly private residences and their gardens.

Running Water

7.4.67 The following watercourses within the survey area were most recently assessed by SEPA in 2022. A search on the Water Classification Hub[29] revealed that:

- the River Isla (Glencally Burn to Dean Water Confluences) was in overall Good condition with Good or High ratings for all criteria including Good overall ecology;
- the Dean Water (Kerbet Water to River Isla Confluences) had an overall status of Moderate ecological potential with Poor overall ecology mainly due to poor hydromorphology. It is designated as a highly modified water body; and
- the Commerton Burn (near Kirkinch) had an overall status of Moderate ecological potential with Bad overall ecology mainly pertaining to its bad hydromorphology. It is designated as a highly modified water body, however, it rated High for fish.

7.4.68 The above watercourses likely qualify as Rivers SBL priority habitat by meeting at least one of the criteria listed on the SBL habitat description. The criterion likely to be met is supporting six or more of those species less dependent on water quality listed on Annex I of the UK Biodiversity Action Plan (BAP) priority habitat description for rivers[68] (e.g. European eel *Anguilla anguilla*, Atlantic salmon, brown / sea trout[69], brook lamprey, river lamprey, sea lamprey, otter and soprano pipistrelle *Pipistrellus pygmaeus*). Further information would be required to confirm this; however, for the purposes of this assessment, a precautionary approach is used, and the aforementioned watercourses are presumed to be priority habitat.

7.4.69 In particular, the River Isla and its tributary the Dean Water are part of the River Tay SAC, which is designated for five of the species listed above (otter, Atlantic salmon, and the three lamprey species). Furthermore, both watercourses are likely to support several of the other species listed, along with beaver. Evidence of beaver and otter was identified along both watercourses, including multiple refuges. Note that the River Isla and Dean Water are described here under linear habitats, but have been mapped as area features due to their size.

7.4.70 Though other watercourses within the LOD are highly unlikely to qualify as Rivers SBL priority habitat, there are occasionally burns with a more natural character (i.e. those which have not been artificially straightened for agricultural purposes etc). 'Burns' are highlighted as part of the LPH Rivers and Burns, and may have some minor importance for local wildlife, including the species listed in the paragraph above.

Hedges

7.4.71 Hedges within the survey area are restricted to the north of the survey area. Most are intact, but all are species-poor. The hedges are most commonly of non-native beech. Some, though still species-poor, are dominated by native hawthorn with occasional sycamore, ash, dog rose and bramble. Rarely there is blackthorn or holly *Ilex aquifolium*. All hedges are non-priority hedges in UKHab (UKHab = h2b).

Walls

7.4.72 Gappy dry-stone walls (UKHab = u1e, Built linear features) are common throughout the survey area and may have some importance as refugia for reptiles and amphibians.

Summary of Groundwater Dependent Terrestrial Ecosystems

7.4.73 The following NVC vegetation communities were identified within survey area that are recognised as indicators that a habitat is likely to be highly groundwater dependant according to SEPA (2017)[70]:

- potentially highly groundwater dependent:
  - M32; and
  - M23.
- potentially moderately groundwater dependent:
  - W1;
  - MG9; and
  - MG10.

[68] BRIG (2011). UK Biodiversity Action Plan: Priority Habitat Descriptions. JNCC, Peterborough.

[69] Sea 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.

[70] 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].

7.4.74 The results of a basic hydrological assessment undertaken in the field revealed that many of the potential GWDTE within the area surveyed were in good condition and may in many instances depend on groundwater for their maintenance.

7.4.75 Potentially highly GWDTE are within two spring flush habitats (M32) and rush-dominated mires down from breaks in sloping ground (M23), where the hydrological regime is unaffected by forestry or agricultural drainage. In these situations, it is highly probable that the potential GWDTE are dependent on groundwater to maintain their condition. All but one of the M23 mires identified within the LOD, a surface water-fed wetland on a tributary to the Denend Burn, are considered GWDTE.

7.4.76 Wet woodland of the NVC type W1 is probably dependant on groundwater to maintain its condition. This GWDTE was found in an isolated area, adjacent to dry woodlands. It should be assumed that ground water flows are present that have given rise to this wet woodland.

7.4.77 The damp grasslands of the NVC type MG9 and MG10 are more likely to be dependent on groundwater in some situations (for example on the slopes of Kinpurney Hill, near Newtyle), but are probably mostly or even entirely maintained by soil moisture present as a result of surface water accumulations in most instances. Regardless, as a conservative approach, these habitats are considered to be GWDTE. However, these grasslands are species-poor and of little biodiversity value.

7.4.78 Areas identified as being possible GWDTE are shown on Figure 7.1 (Volume 3).

Species

Bats

7.4.79 Full details of the bat survey results are provided in **Confidential** Appendix 7.2 (Volume 4). The desk study returned a single presence record of common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle, brown long-eared bat *Plecotus auritus* and one unidentified bat species from around Meigle and west of Kirkton of Auchterhouse.

7.4.80 Habitats across the LOD largely comprise agricultural farmland with a small stretch through more upland habitats when the LOD spans the Sidlaw Hills. There are patches of woodland dispersed throughout, and hedgerows/ lines of trees 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 LOD, the lack of connection between these habitats results in an overall 'Low' suitability (as defined in Table 4-2, **Confidential** Appendix 7.2 (Volume 4)).

7.4.81 In total, 75 trees were identified during the field survey within 10 m of proposed works (as understood at the time of survey). Of these, 42 are classified as being 'PRF-M' and 33 as 'PRF-I'. Additionally, an ivy-covered line of trees is categorised as 'PRF-I' on a precautionary basis but with no identifiable features beyond this. Furthermore, nine structures were recorded with potential to support roosting bats, of which six are categorised as having 'High', two as 'Moderate' and a single building is discerned as having 'Low' bat roost suitability. Trees and structures with potential roost suitability are largely confined to existing tracks and field edges across the LOD and are shown on **Confidential** Figure 7.2 (Volume 3).

7.4.82 The buildings identified will not be directly impacted by the proposed works, as such no further survey was conducted.

7.4.83 The 75 trees identified within 10 m of the proposed works 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 7.2 (Volume 3); **Confidential** Appendix 7.2 (Volume 4)).

7.4.84 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 and *Myotis* sp. At least some calls could be attributed to these species with confidence. Comprising 54.72% soprano pipistrelles, 21.98% common pipistrelle and 0.15% 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 sp (0.57%) and of brown long-eared bat (0.23%).

7.4.85 The greatest activity overall, was at S01 located on a line of trees, in between two arable fields, towards the north of the LOD, which also showed the highest average at 636 registrations per night for the full recording period. This was followed by S02, S05, S06, S03 and S04.

7.4.86 The timing of recordings of Myotis suggests that they are not roosting close to the static detector locations, but commuting through or foraging in small numbers. Brown long-eared bats were recorded at all locations within the mean emergence time for this species, suggesting that these bats may be roosting within the vicinity, though in small numbers.

7.4.87 Soprano and common pipistrelles were recorded across the night at each static detector, from 30 minutes after sunset onwards and this is suggestive of potentially both a roost in the vicinity and habitat suitable for foraging/ commuting bats throughout the night. At some statics the peak in activity was earlier in the night (e.g. common pipistrelle at S04) and others later (e.g. soprano pipistrelle at S05). The former is more suggestive of a large roost of common pipistrelle close to the static detector, the latter suggests bats are travelling to this location from a further distant roost. Note that S04 is located along a lane way with six PRF-M trees and close to B05, a shed categorised as having Moderate suitability for roosting bats. S01 was dominated by common pipistrelle calls, including within 30 minutes of sunset. This static is located close to B01 and B02, several PRF-M trees, and is in the vicinity of Drumkilbo House and grounds, so there are ample roosting opportunities for this species at this location. S03 was dominated by soprano pipistrelles, though the activity was across the night, suggesting this area is used extensively by foraging and commuting bats.

Otter

7.4.88 Full details of the otter survey results are provided in **Confidential** Appendix 7.3 (Volume 4). The desk study returned six recent records of otter. These were available at 1 km resolution but are likely associated with the River Tay.

7.4.89 Evidence of otter was found on watercourses throughout the LOD but was concentrated in the north along the River Islay, Dean Water and Kirkinch Burn (where all refuges were identified). No refuges were recorded south-east of Kirkinch. Other evidence of otter activity was found on Commerton Burn, Denend Burn, and Den Burn. Within the survey area, nine holts and two layups were identified. An additional possible holt feature was recorded just above water level on Dean Water from the opposite bank but could not be accessed to investigate closer. These and other field evidence of otter found during the survey are shown on **Confidential** Figure 7.3a (Volume 3).

7.4.90 None of the holts recorded during field survey are considered viable as natal holts due to their being exposed and not within habitats typically associated with natal holts. No refuges are at risk of being destroyed as a result of the Proposed Development. Three holts (OH05, OH08, and OH09) are within 30 m of proposed works hence are vulnerable to disturbance.

Beaver

7.4.91 Full details of the beaver survey results are provided in **Confidential** Appendix 7.3 (Volume 4). Over 1,000 recent records of beaver were identified during the desk study, all associated with the River Isla and tributaries thereof.

7.4.92 Evidence of beaver was found primarily along the River Isla and Dean Water including two lodges and six burrows, with additional foraging evidence and the beginnings of a dam structure recorded on Commerton Burn and an adjacent artificial drainage ditch. During field survey, two lodges and six burrows were identified with two further burrow-like features which were atypical of, but likely to be excavated by, beaver. These and other field evidence of beaver found during the survey are shown on **Confidential** Figure 7.3b (Volume 3). Furthermore, multiple live traps set by NatureScot were recorded along Dean Water. Subsequent investigation revealed these traps were removed shortly after surveys were carried out as the active beaver(s) were successfully translocated.

7.4.93 Five beaver refuges associated with Dean Water are at risk of being damaged by the Proposed Development.

Badger

7.4.94 Full details of the badger survey results are provided in **Confidential** Appendix 7.3 (Volume 4). No recent records of badger were identified during the desk study, but badger are widespread in Scotland and suitable habitat is abundant within the LOD.

7.4.95 No evidence of badger activity was recorded north of Kirkinch but was frequently recorded throughout the remainder of the LOD, including in the upland section within the Sidlaw Hills which comprises less optimal habitat for badger compared with the agricultural fields in lowland areas.

7.4.96 In total, ten setts were recorded during field survey, including one active main sett which, alongside associated annex and subsidiary setts, will be closed under license prior to works associated with the Proposed Development (see Section 7.6.3). These and other field evidence of badger found during the survey are shown on **Confidential** Figure 7.3c (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).

7.4.97 No badger setts would be destroyed as a result of the Proposed Development, however, seven setts are within 30 m of proposed works hence are vulnerable to disturbance. Three of these setts may need temporarily closed to avoid inadvertently causing injury to badger resting inside.

Pine Marten

7.4.98 Full details of the pine marten survey results are provided in **Confidential** Appendix 7.3 (Volume 4). No records of pine marten were identified during the desk study, however, the LOD is within their known range in Scotland[71].

7.4.99 One fresh scat was incidentally recorded during ornithology field survey at the eastern edge of Lin Den Plantation in the Sidlaw Hills. The mosaic of woodland, rough grassland and scrub within the Sidlaw Hills provides particularly suitable habitat for pine marten, and given their expanding distribution across Scotland[72], pine marten are likely present across this section of the LOD.

7.4.100 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[73,74]. Individuals might, for example, enter these parts of the Site 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

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

[72] Balharry et al. (1996) Distribution of pine martens in Scotland as determined by field survey and questionnaire. Scottish Natural Heritage Research, Survey & Monitoring Report, No. 48

73 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.

74 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.

in the Site beyond the Sidlaw Hills area. Therefore, pine marten is treated as effectively absent from those parts of the Site beyond the Sidlaw Hills.

Other Notable Mammals

7.4.101 Full details of the other mammal survey results are provided in **Confidential** Appendix 7.3 (Volume 4).

7.4.102 The desk study identified 184 recent records of red squirrel within the ZoI of the Proposed Development. These were associated with woodlands spread across the length of the LOD.

7.4.103 Sightings of two red squirrels were incidentally recorded during the field survey; one in the woodlands immediately north of Alyth Substation, and the other in Chapelbank Plantation. Additionally, a possible drey was incidentally recorded in Balkello Woodland. None of the incidental records were within the LOD, however, it is highly likely red squirrel occur across the LOD within suitable woodland.

7.4.104 Water vole have been recorded within the hectad overlapping the north of the LOD between Meigle and Ruthven as part of a national monitoring project[31] (Ordnance Survey Tile NO24) but no more precise information about location or when the record was made is available.

7.4.105 No evidence of water vole was recorded during field survey. The River Isla and Dean Water are the only watercourses which lie within both the LOD and Ordnance Survey Tile NO24. The River Isla is unsuitable for water vole due to its flow and no evidence of water vole was recorded on the Dean Water. Although some of the agricultural field ditches in other parts of the LOD offer suitable habitat for water vole, no evidence was recorded, and they are considered absent. This may in part be due to the presence of American mink across the LOD[31]. American mink is one of the leading causes of the decline in water vole populations across the UK and will impede any expansion of the species in this area.

7.4.106 The desk study also identified 24 recent records of brown hare associated with the agricultural fields between the River Isla and Dean Water. Three incidental sightings of brown hare within agricultural fields were made during field survey; two in the north of the LOD, and another in the south. It is highly likely brown hare are present in agricultural land across the LOD.

7.4.107 The desk study did not identify any other protected or important mammal records (including wildcat, mountain hare and hedgehog). No evidence of any other protected or important mammal records (listed above) was recorded during field surveys. Hedgehog are likely to be present owing to the diversity of suitable habitats for the species, including woodland, hedgerows and farmland which are widespread across the LOD.

7.4.108 Although the LOD is on the edge of the known distribution of mountain hare[71] and suitable habitat is present in the upland area associated with the Sidlaw Hills, this habitat is isolated from other suitable habitat by extensive surrounding agricultural land, so it is unlikely mountain hare are present within the LOD. Similarly, the LOD is outside of the core range of wildcat[54], and though Scottish Wildcat Action[75], which aims to conserve wildcats in Scotland, is a key project mentioned in the Tayside LBAP[9] for the work carried out within the Angus Glens wildcat priority area[76], they are considered absent from the LOD. Suitable habitats for wildcat are present within the LOD only where it crosses the Sidlaw Hills, however, this species tends to avoid intensely farmed lowlands which surround the LOD which isolates it from the nearest suitable habitat to the north. Furthermore, there is a distinct lack of continuous woodland or dense scrub along which a wildcat could disperse southwards from the Grampian Mountains.

[75] Royal Zoological Society of Scotland (2023). Saving Wildcats. (online) Available at: https://savingwildcats.org.uk/ [Accessed: July 2024]

[76] Littlewood, N.A., Campbell, R.D., Dinnie, L., Gilbert, L., Hooper, R., Iason, G., Irvine, J., Kilshaw, K., Kitchener, A., Lackova, P., Newey, S., Ogden, R. & Ross, A. (2014). Survey and scoping of wildcat priority areas. Scottish Natural Heritage Commissioned Report No. 768.

Amphibians and Reptiles

7.4.109 The desk study identified several records of common amphibians and reptiles (adder *Vipera berus*, common lizard *Zootoca*, and common toad *Bufo bufo*).

7.4.110 Two incidental sightings were made of common toad in Balkello Woodland. Furthermore, suitable habitat for adder, slow worm *Anguis fragilis*, common lizard, and common toad is present within the LOD. Heathland, bracken, woodland and woodland edge habitats are suitable for all reptiles, including adder, hence it can be assumed that all three common reptiles are likely to occur within the Sidlaw Hills where these habitats are found. Few areas appeared to support visible good hibernacula opportunities for adder (e.g. woodland edge with boulder scree), although reptiles are known to use invisible refuges in drier habitats, such as deep vegetation tussocks and small mammal burrows. Common lizards may also be present in field margins around agricultural land.

7.4.111 No records of great crested newt were identified during the desk study within 1 km of the OHL. The closest hectad to the Proposed Development containing a record is approximately 3 km away and is separated from the LOD by the A90 and large expanses of farmland, including intensively managed arable land which is unsuitable for the species.

7.4.112 Several ponds are also present which could theoretically support great crested newt, however, given the LOD is on the edge of their known distribution[54] and suitable habitat is isolated from nearby populations in the central belt by the River Tay, they are considered absent from the LOD.

7.4.113 Piles of boulder scree which may be suitable for use as hibernacula by common herptile species were incidentally recorded under Tower 656. Other suitable features, such as gappy dry-stone walls, are common around many field edges throughout the Site and have potential as refugia for reptiles and amphibians.

Fish

7.4.114 Watercourses throughout the LOD vary greatly, from artificial ditches between agricultural fields, to large rivers like the River Isla which intersects the LOD in the north. Watercourses within and around the LOD have been assigned an overall condition of 'Good Ecological Potential' or 'Moderate Ecological Potential' by the SEPA[29], with all assessed watercourses (with one exception – see below) being assigned 'High' suitability for fish. This is expected as the River Isla and tributaries thereof in the north of the LOD support migratory fish such as Atlantic salmon and sea trout[20]. Furthermore, Atlantic salmon, brook lamprey, river lamprey, and sea lamprey are all qualifying features of the River Tay SAC.

7.4.115 Fithie Burn in the south 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. Watercourses south of Kirkinch comprise ditches and shallow tributaries near the river source, neither of which are suitable for fish. Fish species are therefore considered absent in this part of the LOD.

Non-native Species

7.4.116 One record of American mink was returned by the desk study, plus they have been recorded in hectads across the LOD as part of a national monitoring project[31]. Furthermore, one refuge used by American mink was recorded along Balkeerie Burn, adjacent to a proposed bespoke track past West Nevay, east of Kirkinch. American mink are invasive in the UK and are one of the leading causes of the decline in water voles due to predation on the species.

7.4.117 188 records of grey squirrel *Sciurus carolinensis* were returned by the desk study, within woodlands across the LOD. Grey squirrel are invasive in the UK and can carry disease which is fatal to native red squirrels. No incidental sightings of grey squirrel were reported during field survey, however, the drey incidentally recorded in Balkello Woodland could be used by either grey squirrel or red squirrel.

7.4.118 Invasive non-native species of plants (plant INNS) are known to be present; Himalayan balsam, for example, is dominant along much of the Dean Water. However, their presence was incidentally recorded and does not represent a comprehensive depiction of their occurrence across the LOD. As noted in Section 7.6.4, 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.

Future Baseline

7.4.119 Construction of the Proposed Development is anticipated to commence in 2026. The potential for baseline conditions to change in advance of construction commencing is discussed below.

7.4.120 The vast majority of the LOD comprises land managed for agriculture (36 of the 45 pylons within the LOD are located in agricultural fields). As such, these areas will likely continue to be subject to routine farming operations including ploughing, drilling, harvesting, and crop rotation. In some cases, current agricultural land may be allocated to future development.

7.4.121 The amount of land allocated by AC and PKC to new housing is set by the TAYplan 2016-36[77] which incorporates a three tier principal settlement system to prioritise the locations of housing development. The TAYplan sets out that the majority of development should occur within the Perth and Dundee Core Areas. Outside of these, tier 2 settlements will accommodate less of a share of new development then tier 3 settlements will accommodate only a small share of new development. In proximity to the LOD, Alyth is highlighted in the TAYplan as a tier 3 settlement, however, no agricultural land within the LOD is expected to change land use.

7.4.122 An approximate 1 km stretch of the Proposed Development runs through Balkello Woodland which is managed as a community woodland by Scottish Forestry. Similarly, Tower 652 is situated within Kirkinch Wood; a young plantation woodland which was last felled approximately ten years ago[67]. These wooded areas are expected to continue to be managed as woodland.

7.4.123 The remaining towers are located in upland fringe habitat within the Sidlaw Hills where the existing management regime (presumed to be extensive sheep grazing) will continue and habitats will remain unchanged.

7.4.124 Most of the proposed access tracks follow existing routes which are likely to be subject to standard maintenance such as filling potholes and trimming / lopping of protruding hedgerows/ tree branches. As such, habitats bordering existing tracks are not anticipated to change before construction of the Proposed Development would commence.

7.4.125 The status of the following taxa would be expected to remain similar at the time of construction, despite any land management practices as described above which occurs in the interim, for the reasons given:

- bats – almost all features with potential to support roosting bats were found adjacent to existing access tracks. Any routine maintenance of these tracks (which would be required regardless of the Proposed Development being approved) is most likely to affect new growth which begins to encroach on the access corridor. Bats may be loyal to a maternity or good quality hibernation roost; however, roosts categorised as PRF-I are often one of multiple other roost features available for use in the area. None of the PRF-M roost features recorded were in locations which risk them being lost during routine track maintenance. Also, linear features as a whole (hedgerows or lines of trees) are predicted to be retained and would remain available for use as commuting routes. Therefore, the distribution and status of bats is expected to remain similar to the existing baseline;
- otter – otter are largely confined to the vicinities of watercourses and waterbodies, and this would remain the case whilst surrounding fields are managed for agriculture. There is currently no future development anticipated in proximity to watercourses which support otter on Site. Since the more substantial watercourses

[77] TAYplan Strategic Development Planning Authority (2015). TAYplan Proposed Strategic Development Plan 2016-2036. (online) Available at: https://www.angus.gov.uk/sites/angus-cms/files/2017-07/137_App2.pdf [Accessed: July 2024]

run through existing agricultural fields, and ongoing land management will not improve suitability of watercourses south of Kirkinch for otter, their status and distribution would likely remain similar to the existing baseline;

- beaver – beaver were reintroduced to Scotland in 2009 and since then their population and distribution has continued to grow. Whilst their range continues to expand across Great Britain, they are already widely distributed throughout the Tay catchment, hence their distribution across the LOD is not expected to change. Their highly territorial nature also means the population density within the LOD is likely to remain the same. Beaver are largely confined to the vicinities of watercourses and waterbodies, and this would remain the case where surrounding fields are managed for agriculture. Whilst beaver have the capacity to alter watercourses, the lack of suitable habitat for kilometres downstream of unoccupied ditches within the LOD means they are highly unlikely to expand their range into this area before construction commences;
- water vole – American mink are known to be present in and around the LOD which will greatly hinder any possibility of range expansion by water vole, unless concerted efforts to control mink populations are untaken. Though actions to monitor water vole populations and control American mink are highlighted in the Tayside LBAP[9], these are to be carried out over a long timescale and are unlikely to have tangible results before construction commences. Additionally, ongoing farming operations are unlikely to improve the suitability of watercourses within the LOD for water vole since the ground would be disturbed and agricultural run-off would continue to affect riparian vegetation and water quality. Watercourses within the Sidlaw Hills are near the top of tributaries and often resemble surface run-off, drying out over the summer. As such, management in this area is unlikely to improve the habitat for water vole. Though not anticipated, any possible improvement to watercourses within woodland would take years to achieve, so water vole are expected to remain absent in these habitats;
- badger – agricultural fields provide optimal foraging habitat for badger, and field edges are regularly used as commuting routes. Though the specific areas accessed by individuals for foraging will change over time with the availability of food, badgers live in clans which defend strict territories within which there is enough food resource to sustain the population throughout the year. Ongoing farming operations and woodland management is not considered sufficient to change the overall territorial area of any badger clans. Whilst the closure of setts BS01, BS02, and BS03 prior to works associated with the Proposed Development will alter the baseline slightly, mitigation (including provision of an alternative sett nearby but outside of potential disturbance distance), will be required as part of the NatureScot license required to carry out the closure. Therefore, the status and distribution of badger would largely remain similar to the existing baseline;
- reptiles – in the upland habitats, without management, bracken may encroach upon heathland (see Section 7.6.13 below regarding Auchterhouse Hill SSSI), restricting the distribution of reptiles over time, however, the extent of encroachment is unlikely to be significant by the time of construction, therefore reptiles will likely be largely confined to the same open habitat areas, dense scrub and field edges that currently exist; and
- fish – land management operations as described above, and proposed developments which progress quickly would be expected to be carried out under appropriate protocols to avoid gross sedimentation or other pollution of watercourses. Therefore, the existing complement of fish species, and their distributions, would likely remain unchanged.

7.4.126 For the following taxa, however, there may be a change in distribution:

- pine marten – pine marten populations are still recovering in the UK, but they are now considered to have an almost contiguous distribution north of the Central Belt in Scotland (MacPherson and Wright, 2021)[78]. Therefore, their distribution in Scotland is not expected to change. However, commercial forestry management of the woodlands, on Henderston and Scotston Hills, means local pine marten distribution will have altered as necessary - allowing for felling and replanting cycles that have and will take place periodically over the long-term. Furthermore, the scattered larch trees on Auchterhouse Hill are negatively affecting the

[78] MacPherson, J. and Wright, P., 2021. Long-term strategic recovery plan for pine martens in Britain. Vincent Wildlife Trust, 72.

SSSI (of the same name, see Section 7.6.13 below), hence these trees may be thinned or removed as part of management of the designated site. Alterations of this habitat may result in a change of local distribution of pine marten within this upland area. Furthermore, the Scottish population is anticipated to continue increasing - so pine marten density may increase within the LOD in future. However, the scale of suitable habitat available for pine marten in proximity to the LOD is such that the population is expected to remain small given the density at which they typically occur in Scotland[79];

- red squirrel – as with pine marten, red squirrel will have previously altered its local distribution as necessary according to felling and replanting of the commercial woodlands on Henderston and Scotston Hills that will have taken place periodically over many decades, and they will do so again as required; and
- amphibians – regular disturbance (such as ploughing) within agricultural land alters habitat suitability for amphibians, whose local distribution will have consequently changed periodically and will continue to do so under the anticipated management regimes.

7.4.127 For the purposes of considering the future baseline in the absence of the Proposed Development for this chapter, a point twenty years in the future has been adopted. Conditions which would be expected after this length of time are described below, considering the baseline presented above and ongoing management regimes in the area.

7.4.128 In the absence of the Proposed Development, the management of farmland which covers the majority of the LOD would continue, as would forestry operations in the localised woodlands. The LOD would therefore continue to be of relatively low ecological value. Areas of native broadleaved trees, which have been planted as part of the commercial management of the localised forestry land, would likely mature and may improve biodiversity in these areas, however, proximity to the OHL means much of this area would be managed to remain as scrub within the wayleave. Otherwise, the conditions identified by the studies described in this chapter are likely to remain largely unchanged in the absence of the Proposed Development.

7.4.129 The assessment of impacts on ecological features presented in this chapter has therefore been conducted on the basis that habitats and the status/ distribution of the majority of species will remain materially unchanged from the baseline conditions identified in this chapter by the time of construction of the Proposed Development.

7.5 Issues Scoped Out

7.5.1 As stated in Section 7.3.1, relevant ecological features are those that are 'important' and have the potential to be significantly affected by the Proposed Development**Error! Bookmark not defined.**. In view of the baseline data obtained through desk study and field survey presented above, the features in Table 7-4 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 7-4 Ecological Features Scoped Out of Further Assessment

Ecological Feature	Rationale for Exclusion from Further Assessment in this Chapter
Firth of Tay and Eden Estuary SAC	Although there is a hydrological link between the LOD and this SAC, there is no pathway for a pollution impact given the distance (8.79 km) from the Proposed Development and the dilution and dispersal effect (e.g. by wave action of the marine environment) of potential pollutants upon entering Firth of Tay and Eden Estuary.

[79] Stringer, A.P., MacPherson, J., Carter, S., Gill, R., Ambrose-Oji, B., Wilson, R., Kelsall, P., Feirn, W.G., Galbraith, L.C., Hilário, C.M. and Parry, G., 2015. The feasibility of reintroducing pine martens (Martes martes) to the Forest of Dean and lower Wye Valley. Herefordshire: Forestry Commission England, Gloucestershire Wildlife Trust, Vincent Wildlife Trust.

Ecological Feature	Rationale for Exclusion from Further Assessment in this Chapter
Loch of Kinnordy Ramsar site	In view of the nature of the Proposed Development, potential effects on this Ramsar site resulting from the Proposed Development are impossible. This is because it is 9 km away and is situated upstream of the LOD.
Oak Wood and Redmire Wood LNCS	There is no possibility of pollution impact on either LNCS due to their being topographically higher than the LOD and more than 1 km away from the Proposed Development, despite Oak Wood LNCS's hydrological connection to the LOD.
Common habitats (those that are not Annex I habitats, SBL priorities, GWDTE or broad-leaved or mixed woodland, including long-established plantation)	Proposed works around towers and along access tracks mainly affect habitats of poor ecological value (e.g. agricultural fields, semi-improved grasslands, and dense bracken). Habitats within the LOD that are not notable as SBL priorities, Annex I habitats, or GWDTE are generally widespread in Scotland and NHZ 16, and given the nature of proposed works, the Proposed Development does not threaten their conservation status. Given the emphasis on retention of woodland in AC LDP Policy PV7 (as detailed in Appendix 7.1 (Volume 4)), woodlands are not scoped out.
Water vole	No evidence of water vole was recorded during field surveys and, whilst suitable habitat is available within the LOD, the presence of American mink implies water vole are highly likely to be absent.
Wildcat	For reasons set out in Section 7.4.108 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 of this species was incidentally recorded during field surveys. There is very little suitable habitat for mountain hare on Site and that which is present, is isolated from the wider area. It is therefore considered likely that this species is absent.
Brown hare and hedgehog	No desk study records of hedgehog were identified. However, it is highly likely that this species occurs in areas of suitable habitat within the LOD e.g. farmland and woodland. Observations of brown hare were made in agricultural fields adjacent to the LOD and are likely to occur throughout the lowland areas of the LOD. Both species are relatively common and widespread, and any potential impacts upon them would be easily mitigated through standard animal protection measures (described in Section 7.6.4 below). Therefore, brown hare and hedgehog are scoped out of further assessment.
Great crested newt	The Proposed Development lies outside of the known core range of great crested newt and is further isolated from any populations which occur in the central belt by extensive farmland, large road networks, and the River Tay and its large tributaries. Furthermore, there are no records of great crested newt occurring within 3 km of the LOD. Consequently, this species is considered absent from the LOD.
Other amphibians and reptiles	Only common and widespread species of amphibians (this excludes great crested newt – see above) and reptiles are assumed to be present within the LOD (potentially including adder in the region of the Sidlaw Hills). Standard mitigation measures (described in Section 7.6.4 below) can be implemented to reduce impacts on common amphibians and reptiles.
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 believed from desk- and field-based evidence to be present on Site.
Plant INNS	Whilst present within the LOD, the embedded mitigation of detailed pre-construction survey for plant INNS 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.

7.6 Assessment of Effects, Mitigation and Residual Effects

7.6.1 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

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

- an existing OHL is being reinforced rather than a new route constructed;
- the existing wayleave of 40 m would be extended to 45 m (either side of the centreline of the OHL) because of the upgrade to the infrastructure; however, as is currently utilised within the existing wayleave, a risk-based approach to tree management would be adopted and trees within the operational corridor would be retained where 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 are being used whenever possible to minimise the requirement for construction of new access tracks;
- new tracks, where required, are to be temporary and affected habitats would be restored following completion of works; access routes across streams would be limited and localised, and would largely use existing crossing points that are to be upgraded, rather than the construction of new crossing points; the culvert and bridge upgrades would ensure that passage for protected and notable species (including fish and mammals) is equal to or better than baseline; the new culverts required would be temporary, to be removed when the relevant works are complete, and would also maintain fish/ mammal passage;
- insulators and fittings are to 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 minimizing disturbance;
- the working area around Tower 645 has been brought in on the south and west sides such that no vegetation clearance or other works will take place outside of the agricultural field adjacent to Dean Water;
- the working area and associated access tracks to Towers 658 to 660 on the eastern slopes of Kinpurney Hill have been adjusted so that the potentially highly GWDTE in this area will not be impacted; and

7.6.3 the working area around Tower 671 has been adjusted to avoid direct loss of degraded bog present here. The main and annex setts recorded during field survey directly under Tower 655 and adjacent to associated proposed access tracks (BS01, BS02 and BS03) will be closed under license, and appropriate mitigation implemented, by an appointed contractor prior to works associated with this EIA Report. Details of sett closures are available in the Badger Protection Plan[80]. As a result, these setts are not considered further in this EIA Report.

Standard Good Practice Mitigation

7.6.4 In addition to the above-described design mitigation measures, a range of measures that are standard good practice for developments 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:

[80] Balfour Beatty. Badger Protection Plan. Produced for use by SSEN.

- 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[81]:
    - 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 otter, pine marten, badger and red squirrel. In line with NatureScot guidance[8], the pre-commencement 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 construction site in accordance with all commitments and mitigation detailed in this EIA Report, statutory consents and authorisations, 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;
    - 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 impacts to 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. This would be 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*[82];

[81] Standard ECoW remit would also include other measures given in Chapter 8: Ornithology (Volume 2)).

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

- any artificial lighting required for construction works would be directional to avoid or minimise light spill beyond immediate working 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; and,
  - 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 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 8: Ornithology (Volume 2));
- further measures to prevent the injury or mortality of animals which would be implemented include:
  - where possible, pre-stressing whereby wildlife 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

7.6.5 The assessed importance of those ecological features identified in the baseline conditions, and which have not been scoped out in Section 7.5, is set out in Table 7-5, together with a rationale. Importance has been assessed considering geographic scale, in accordance with CIEEM[Error! Bookmark not defined.] guidelines.

7.6.6 When considering geographic scale, for the purposes of this assessment, the geographical 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 7-5 Importance of Ecological Features

Ecological Feature	Importance	Rationale
Designated Sites		
River Tay SAC	European	This is a nature conservation site designated at a European level.
Auchterhouse Hill SSSI	National	This is a nature conservation site designated at a National level.
Pitnappie Moss LNCS	Local	This is a nature conservation site designated at a Local level.
Habitats		
River Isla and Dean Water	European	The River Isla and Dean Water are significant watercourses which lie within the River Tay SAC. As such they are assessed within the River Tay SAC impact assessment and are important at European level.
Waterbodies and other watercourses outside of the River Tay SAC	Local	Waterbodies within the LOD comprise seven ponds, none of which constitute the Ponds SBL priority habitat, hence are non-priority ponds within or between agricultural fields

Ecological Feature	Importance	Rationale
		that do not appear to support a diverse range of aquatic flora. Watercourses within the LOD outside the River Tay SAC are generally small and typical of lowland Scotland. Therefore, waterbodies and other watercourses outside of the River Tay SAC are considered to be of Local importance.
LEP woodland	Regional	These woodlands (of which there are three 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 Not Listed on the AWI (including SBL Priority Habitats, Annex I Habitats, and GWDTE woodlands)	Local	Woodlands within NHZ 16 are fragmented in what is predominantly an agricultural landscape. All broadleaved and mixed woodlands, whether semi-natural or plantation provide opportunities for biodiversity. These include those for animals to commute, forage, shelter and breed. Woodlands allow for connectivity of mobile species in the wider landscape. LMDW SBL priority Habitat (Lowland Mixed Broadleaf Woodlands Tayside LPH) on the banks of the River Isla is the only stand of notable woodland within the LOD, outside of woodlands listed on the AWI. Other broadleaved woodland and plantation woodland are within the LOD that are Tayside LPHs: Scottish Pinewoods, Lowland Mixed Broadleaf (Deciduous) Woodlands and Planted Coniferous Woodlands. None of the woodlands within the LOD are considered to be Habitats Directive Annex I habitat or true ancient woodland. Considering the above, these woodlands are considered to be of Local level importance.
Other SBL Priority Habitats, Annex I Habitats, and GWDTE	Local	Other important habitats comprise Blanket Bog, Lowland dry acid grassland, Lowland Fen, Purple Moor Grass and Rush Pastures, Upland Heath and GWDTE. One localised area of blanket bog was present within the LOD, it is degraded and of limited extent. However, it represents the Habitats Directive Annex I habitat type ***Degraded blanket bog H7150*** (a non-priority form of the broader ***H7130*** Annex I type), Blanket bog SBL priority habitat. Lowland Dry Acid Grassland SBL priority habitats are present within the LOD within the wayleave through Kirkinch Wood. Acid grasslands within the LOD are relatively 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.

Ecological Feature	Importance	Rationale
		Highly localised areas of wetlands are within the LOD, two spring flushes, one swamp and one fen habitat. These are Lowland Fen SBL priority habitats and Wetlands Tayside LPH. However, they are species-poor and of little value, except as habitats that provide opportunities for biodiversity (such as for common and widespread invertebrates) and in the case of the swamp, habitat as part of a mosaic suitable for beaver (a notable mammal). Areas of PMRP SBL priority habitat are small and highly localised within the LOD in the upland fringe of the Sidlaw Hills. Heathlands are present within the LOD within the upland fringe of the Sidlaw Hills. All dry heath is ***H4030 European dry heaths*** Annex I habitat. In addition, the dry heath (and dry dwarf shrub heath in mosaic with acid grassland) is Upland Heathland SBL priority habitat. Heath is overall widespread and common in Scotland, but is localised in NHZ 16. GWDTE were found in highly localised areas within the upland fringe of the of the Sidlaw Hills and one lowland area of woodland. GWDTE were identified from the following wetland types: spring flush, wet woodland, marsh / marshy grassland and damp grasslands. None of the examples are species-rich and all are of limited biodiversity value. Considering the above other important habitats are considered, on balance, to be of Local importance.
Species		
Bats	Local	Bats are European Protected Species and remain strictly protected under the Habitats Regulations. Given that habitats across the LOD offer Low suitability for bats, they are expected to be sparsely distributed and at low densities. Habitats within the LOD are typical of those within NHZ 16 There is little potential for significant bat roosts in the LOD, however, roosts of soprano pipistrelle and/or common pipistrelle as a precaution may be considered present in the LOD. Therefore, Regional importance would be disproportionate.
Otter	Local	The national otter population is estimated to be around 8,000 individuals[83], and they are widespread across Scotland, including the Eastern Lowlands[71]. Evidence of otter was sparsely recorded throughout the LOD but was concentrated in the north along the River Islay and Dean Water (which forms part of the River Tay SAC). In total, 800 m of these watercourses lie within the LOD, which is a fraction of the size of an otter's territory; freshwater otter home ranges are very large (typically around 15 km for females and considerably more for males), thus otters associated with the Proposed Development will be ranging much more widely. It is also relevant that there are important fish prey resources passing through the Proposed Development. Aside from the River Isla or Dean

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

Ecological Feature	Importance	Rationale
		Water, the majority of watercourses across the LOD comprise agricultural drainage ditches and likely only support a small number of otters, probably on an occasional basis. The small numbers regularly passing through the Site are unlikely to be of Regional importance since most activity is localised in the north of the Site. The LOD is, therefore, assumed to support a population of otter of Local importance.
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[84], hence any impact on individuals within the LOD would not affect the wider population, especially considering the small number of watercourses which support beaver.
Badger	Site	Badger receives legal protection as this species is susceptible to human persecution. However, it is a common and widespread species across lowland Scotland, including the Eastern Lowlands[85]. The population of badger which may use the LOD is therefore assessed as being of no more than LOD importance.
Pine marten	Local	Pine marten is fully protected under the WCA but is only likely to be present in localised parts of the Site near extensive woodland. Furthermore, pine marten is relatively common nationally[71] and in this part of Scotland[78], and no den sites suitable for breeding were identified by field survey. Consequently, the population in the Site vicinity would not be of Regional importance.
Red squirrel	Local	Red squirrel is protected by its listing on Schedule 5 of the WCA. However, it is widespread and relatively common in woodland across Scotland, and although more localised in the central belt it is still evidently common in the Site vicinity where there is suitable woodland (such as at Balkello Woodland). The numbers passing through the Site itself would also be insignificant. Therefore Regional importance would be disproportionate.
Atlantic salmon in the River Isla, Dean Water, Meigle Burn, Commerton Burn	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 IUCN Red List[86] (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 Site would be large and critical to the River Tay SAC, even if limited numbers (if any) would actually breed in the Site. Therefore, Regional importance is considered appropriate.

[84] 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.

[85] 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.*

[86] Darwall, W.R.T. 2023. Salmo salar. The IUCN Red List of Threatened Species 2023: e.T19855A67373433.(online) Available at: https://dx.doi.org/10.2305/IUCN.UK.2023-1.RLTS.T19855A67373433.en. [Accessed: September 2024]

Ecological Feature	Importance	Rationale
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[87,88], whilst sea lamprey are more patchily distributed[89]. Watercourses up- and downstream of the River Isla and Dean Water 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 Site will be very large, and the muddy tributaries in the Site 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

7.6.7 The following broad categories of impact could arise during the construction and/ or operation 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 7-5:

- 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.

7.6.8 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 Paragraph 7.6.4. These measures are normal practice for a development of this type and are considered as embedded.

7.6.9 According to guidance published by the IAQM[90], dust generated by plant and machinery on construction sites can impact habitats located at distances up to 50 m from works, and up to 500 m from site entrances. Due to the nature of the Proposed Development, site entrances would 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

[87] IUCN (2010). European River Lamprey Lampetra fluviatilis. (online) Available at: https://www.iucnredlist.org/species/11206/97805807 [Accessed: July 2024]
[88] IUCN (2010). European Brook Lamprey Lampetra planeri. (online) Available at: https://www.iucnredlist.org/species/11213/97806694 [Accessed: July 2024]
[89] 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.
[90] 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]

(for example through wetting of access tracks during periods of dry weather), where necessary. Hence, pollution through dust generation would be avoided.

7.6.10 The Design Manual for Roads and Bridges (DMRB) advises that air quality impacts only need to be assessed where a project would increase annual average daily traffic (AADT) of light vehicles (e.g. cars) by more than 1,000 movements and/or heavy-duty vehicles (HDV) by more than 200 movements[91]. 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.

7.6.11 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

7.6.12 A detailed assessment of the potential impacts and effects of the Proposed Development on the River Tay SAC is provided in the Statement to Inform HRA (Appendix 7.4, 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 Paragraph 7.6.4. The Statement to Inform HRA 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 this SAC 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 the SAC, it is therefore concluded that there will be **Negligible effect** on the River Tay 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**.

Auchterhouse Hill SSSI

7.6.13 Auchterhouse Hill SSSI is designated for the subalpine dry heath (or upland dwarf shrub heath) it contains; the richest area of upland heathland in the Sidlaw Hills in Angus[92]. It supports more vascular plants, bryophytes and lichens than any other known heathland site in the Sidlaws. The SSSI is currently assessed as being in 'Unfavourable' condition due primarily to encroachment of bracken caused by under-grazing as well as regeneration of non-native larch.

7.6.14 A proposed new temporary stone track overlaps the southwestern corner of this SSSI for approximately 6.2 m to utilise an existing unsurfaced track and gateway through the adjacent stone dyke. This section of access would involve construction of a new temporary track which would be returned to its previous condition when construction is complete. Therefore, a maximum 100 m^2 area (equal to 0.004% of the SSSI) would be temporarily lost within the boundary of the SSSI. Affected habitats would comprise grassland and adjacent dense bracken. Consequently, direct loss of notified subalpine dry heath is not expected. Temporary removal of habitats which make up or border an existing unsurfaced track would not compromise the integrity of the designated habitats within the SSSI. Therefore, habitat loss would have a **Negligible temporary adverse effect** which is **Not**

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

[92] Scottish Natural Heritage (2011). Auchterhouse Hill Site of Special Scientific Interest Site Management Plan. (online) Available at: https://sitelink.nature.scot/site/103 [Accessed: July 2024]

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, operation 21: Construction, removal or destruction of roads, tracks, walls, fences, hardstands, banks or other earthworks, or the installation, maintenance or removal of pipelines and cables), and it would therefore be an offence to carry out any such work within the boundary of the SSSI without prior authorisation from NatureScot.

7.6.15 Heathland habitat for which this SSSI is designated is uphill from proposed works. Given this topographic relationship, there is no possible means of affecting this habitat through runoff pollution. Furthermore, as described in Paragraph 7.6.4above, standard mitigation measures would include suppression of dust, hence there would be **No effect** from pollution.

Pitnappie Moss LNCS

7.6.16 Pitnappie Moss is designated as an LNCS for the marshy grassland, basin mire and woodland habitats it contains. It is situated within 100 m of the LOD. It is hydrologically connected to, and downstream of, the LOD via tributaries of the Auchterhouse Burn. The nearest proposed works to this LNCS is an existing farm track which would only require minor upgrades, such as widening.

7.6.17 There would be no pollution of watercourses or wetlands during construction due to implementation of standard mitigation measures, and this LNCS is more than 50 m from proposed works so would not be affected by dust creation. Consequently, there would be **No effect** on Pitnappie Moss LNCS resulting from pollution impact.

Waterbodies and other watercourses outside of the River Tay SAC

7.6.18 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 12: Hydrology, Hydrogeology and Soils, Tables 12-14 (Volume 2)), and there would be upgrades to 21 existing water crossings across the LOD, and installation of four temporary culverts in the upland fringe. These works have potential to cause pollution of the watercourses. However, as described in Paragraph 7.6.4, pollution would be controlled by embedded mitigation measures, as required by statutory authorities for all construction. Culvert works would also necessarily adhere to SEPA's Controlled Activities Regulations (CAR)[93]. Given also the minor nature of the proposed works, 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 above).

7.6.19 With regard to loss or damage of watercourses habitat, the 21 upgrades to existing culverts and bridges at water crossings, and construction of four new temporary culverts in the upland fringe, will incur minor impacts to riparian bank habitat and channel substrate. For the upgrades, the culverts already exist, thus 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 four temporary culverts 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 12: Hydrology, Hydrogeology and Soils (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**.

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

Long-established Plantation Woodland

7.6.20 The Proposed Development would result in minor permanent loss of LEP woodland since some trees must be felled to prevent them being a danger to the OHL (the location of LEP woodland is displayed on Figure 7.1c (Volume 3)). The small corner of LEP woodland northwest of Kirkinch within the LOD would not be affected by the Proposed Development. None of the LEP woodlands which would be affected by proposed works resemble true ancient woodland due to inundation with invasive non-native species, recent felling operations, and / or comprising species not native to the area.

7.6.21 At Crow Wood mixed broadleaved woodland would be selectively felled around the existing wayleave. The majority of the AWI woodland east and west of the existing wayleave would remain untouched, with only three trees requiring removal.

7.6.22 Within Kirkinch Wood, mixed conifers at the edge of the existing wayleave corridor would be felled, along with young willows and birches growing under the OHL. Much of Kirkinch Wood has already been felled and replanted within the past 16 years[67], except the south-westerly corner which retains mature Scots pine and birch trees. Young willows growing within the existing wayleave are important as they constitute Wet Woodland SBL priority habitat (Figure 7.1d (Volume 3)), however, this is a relatively poor example of the SBL priority type, given the paucity of wetland herbs. As described in Appendix 7.1 (Volume 4), AC LDP Policy PV7 ensures that woodland, trees and hedges which contribute to the nature conservation value of the area will be protected and enhanced. Considering its largely immature nature, the baseline maintenance of the existing wayleave, and that Kirkinch Wood is largely isolated in the wider environment by agricultural fields, the woodland is of limited ecological value. Up to 114 trees would require removal to facilitate access and to widen the wayleave.

7.6.23 The remaining LEP is a stand of mature Scots pine north of Auchterhouse. The area of this woodland within the widened wayleave corridor is not within the boundary listed on the AWI. Whilst this woodland resembles a Caledonian pine forest, it is outside the natural range of semi-natural pine woods. However, it can still provide ecological value by supporting a range of wildlife including red squirrels and pine marten. Numerous windblown trees were evident during field survey, highlighting the longevity of this woodland is at risk. It is proposed that this woodland be redesigned as part of the Proposed Development to increase resilience of the woodland to adverse weather and enhance its ecological value.

7.6.24 The Proposed Development would result in, at most, 3 ha of LEP being permanently lost, though approximately half of this has previously undergone a regime of felling to form the existing wayleave. This accounts for a small area (at most, 6% of the two LEPs which would be directly affected) and any effects would be on a localised scale only. As discussed above, the LEP woodlands are not of particularly high conservation value or high quality. Considering this, and applying professional judgement, tree felling to widen the existing wayleave and enable the construction of access tracks and working areas would have a **permanent adverse effect of Local significance** on LEP woodland within the LOD. It is not considered of National significance, the scale at which LEP was assigned importance, because the degree of impact is too small, and almost all the LEP remaining is unaffected. Plans to improve the resilience of the woodland north of Auchterhouse could result in a **permanent beneficial effect** of **Site significance**. . Effects of permanent tree loss on LEP woodland are, therefore, **Not Significant** in the context of this EIA.

7.6.25 The Proposed Development has the potential to cause damage to ground flora and / or tree roots from vehicles and the installation of new temporary access tracks, however, separation by drainage ditches means the extent of woodland edge which could be affected is small (approximately 1.15 km). The LEP woodlands are also already modified by forestry and farming operations as well as by management of the existing wayleave which would already likely have affected the ground flora in vulnerable woodland edges. Consequently, vehicles would have a **Negligible effect** on ground flora within LEP woodlands which is **Not Significant**.

7.6.26 Standard mitigation measures (as described in Section 7.6.40) would prevent any pollution event. Hence pollution would have **No effect** on LEP woodland.

Woodland Not Listed on the AWI (including SBL Priority Habitats, Annex I Habitats, and GWDTE woodlands)

7.6.27 As with LEP woodland above, the Proposed Development would result in some permanent loss of trees since felling would be required to prevent them being a danger to the OHL and to enable construction of access tracks and working areas. Though habitats removed to make way for temporary access tracks are being reinstated, tree loss is treated as a permanent loss due to the timescale for regrowth. Areas of woodland are sparsely scattered throughout the LOD, and none are of particular ecological value. For example, the LMDW recorded within the habitat survey area was a poor example of this priority habitat. Tree removal is to be selective and at a small scale. 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 (described in Appendix 7.1 (Volume 4)). Furthermore, felling along the edge of woodland blocks such as at the Lin Den Plantation would be at a lesser extent than baseline forestry operations.

7.6.28 Nonetheless, up to 461 trees outside of AWI Woodland are proposed to be felled as part of the Proposed Development. Felling is spread across the LOD but is concentrated at Tower 668 and between Towers 674 and 679 with 80% of trees proposed to be removed occurring in these areas ((Figure 7.1d). (Volume 3)). Minor tree loss (less than five trees) would be required at several other towers, but this is negligible in the wider area. At Tower 668 117 trees would be removed from a conifer plantation dominated by black pine, a non-native species, of limited ecological value. Between Towers 674 and 679 a mix of broadleaved and coniferous woodlands would be affected, most of which occur within Balkello Woodland where 265 trees would require removal within 8.75 ha (approximately 1.5% of Balkello Woodland as a whole). Many of these are immature and associated with the existing wayleave and where mature broadleaved trees would be felled, these are typically non-native such as sycamore but also potentially include birches and/ or oaks. A further 33 trees would be felled between Towers 674 and 675. The woodland there resembles a Caledonian pine forest but is outside the natural range of semi-natural pine woods, so it is not of high ecological value in this area. Considering this, tree felling would have a **permanent adverse effect of Site significance** on woodlands within the LOD. In the context of EIA, this effect is **Not Significant**.

7.6.29 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 working areas. Proposed works around towers and along access tracks mainly affect habitats of poor ecological value (e.g. agricultural fields, semi-improved grasslands, and dense bracken). However, where works are conducted in proximity to woodlands, damage would be very localised to the edge of proposed tracks and working areas, and habitats would be reinstated following completion of construction. Therefore, there is a **Negligible effect** on woodland ground flora which is **Not Significant**.

Other SBL Priority Habitats, Annex I Habitats, and GWDTE

7.6.30 Habitats of greater ecological value within the LOD and wayleave corridor are located around the River Isla and Dean Water, within the wayleave through Kirkinch Wood, and within the Sidlaw Hills. 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. The extent of habitat loss would be minor (a fraction of a hectare at each location) owing to the nature of proposed works in these areas and any proposed access tracks would be constructed such that they are permeable and do not affect the hydrology of the landscape. Furthermore, it is an embedded design measure that the working area and access tracks in proximity to potentially highly GWDTE and degraded bog have been adjusted such that no vegetation clearance or other work will directly impact these habitats. 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**.

7.6.31 Whilst waterborne pollution could theoretically damage blanket bog and other important habitats through transfer of pollutants in surface run-off, standard pollution prevention measures would be implemented (as described in Section 7.6.4), and it is unlikely that polluted surface water run-off would cause damage to these habitats. There is consequently predicted to be **Negligible effect** on important habitats during construction from pollution which is **Not significant**.

Bats

7.6.32 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. 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**.

7.6.33 While vegetation clearance would be highly localised, there is the potential that some of the 76 trees and nine structures within 10 m of proposed works have the potential to support roosting bats. Of these, 46 trees had suitability for use by multiple bats, potentially including a maternity colony, and six structures are categorised as having 'High', two as 'Moderate' and one as having 'Low' bat roost suitability. These trees and structures were almost exclusively recorded along proposed access tracks, the vast majority of which are along existing tracks which, at most, require upgrading. There is little potential for significant bat roosts of Myotis or brown long-eared bats in the LOD, however, on a precautionary basis, based on the activity recorded with static detectors, roosts of the more widespread species, soprano pipistrelle and/ or common pipistrelle, may be present. 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 roosts will be avoided or suitably mitigated, should they be found. As such, **Negligible effect** on roosting bats is expected due to habitat loss from construction activities which is **Not significant**.

7.6.34 Construction works will predominantly take place during daylight hours, when bats are less active. Disturbance of commuting/ foraging bats would therefore largely be avoided hence would have **No effect**. However, while there is little potential for significant bat roosts within the LOD, on a precautionary basis, based on the activity recorded with static detectors, roosts of the more widespread species, 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 roosts will be avoided or suitably mitigated, should they be found. As such, **Negligible effect** on roosting bats is expected due to disturbance during construction activities which is **Not significant**.

Otter

7.6.35 Although otter could occur across the LOD, the majority of evidence of this species (including all recorded resting places) was found north-west of Kirkinch along the River Islay, Dean Water and Kirkinch Burn. These watercourses are likely to contain the greatest prey resource, with the other smaller or artificial watercourses on Site lacking many fish, if present at all.

7.6.36 No otter refuges are anticipated to be lost as a result of the Proposed Development. 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[94]. 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. Three holts are within 30 m of the LOD (OH05, OH08, and OH09). Otters using these refuges may be disturbed and/ or displaced during construction of the Proposed Development.

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

7.6.37 The habitat where works are in proximity to otter refuges comprises 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. 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 a relatively small stretch of watercourse 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**.

7.6.38 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).

7.6.39 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, a **Negligible effect** on commuting/ foraging otter is expected due to disturbance from construction activities which is **Not Significant**.

7.6.40 Where proposed access tracks cross watercourses, existing tracks and water crossings would be utilised except for access within the Sidlaw Hills where four new culverts would be temporarily installed. Within the Sidlaw Hills, watercourses within which new culverts would be installed are shallow and often resemble surface run-off, drying out over the summer. These watercourses would likely only be used by otter for commuting, if at all, and no evidence of their use was recorded during field survey in this area. Nineteen culverts and two bridges across the LOD would require upgrading, many of which are only suitable for commuting otter, but occasionally offer foraging opportunities. Furthermore, (per embedded mitigation) water crossings would be left such that they remain passable for wildlife overnight if works are not complete within one day, hence any impact would only apply during active working hours. Considering their motility, the temporary nature of proposed works, and the localised area which would be affected, loss of commuting/ foraging habitat would have a **Negligible effect** which is **Not significant**.

7.6.41 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. 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 (a major prey type for otter) in watercourses throughout the Site which is **Not significant**.

7.6.42 As mentioned above, no refuges would be destroyed during construction of the Proposed Development and works would typically take place in daylight (outside periods when otters are most active). Vehicular traffic volume is expected to be low (at most six light vehicles and two heavy vehicles passing per day) 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 7.6.13). Consequently, there is expected to be **No effect** from injury or mortality of otter during the construction phase.

Beaver

7.6.43 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 and would have **No effect** on the local population.

7.6.44 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 and lodges identified during field survey (with the exception of BB06) are within the LOD, and those within the oxbow lake off Dean Water as well as BB03 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 and vegetation clearance around the base of Tower 645, however, the working area would be confined to within the adjacent agricultural field which is subject to baseline disturbance from agricultural activities such as ploughing. It is assumed that trees would be manually felled in this area, 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[95], therefore a license may be required if trees being felled are in proximity to the burrows, particularly if they are on the same bank. Considering the nature of works near burrows and lodges, the availability of multiple refuges in the area, the recent removal of beaver from the area, and that impacts would occur across a very localised area within the Site, there would be **Negligible effect** from damage to burrows and lodges during construction which is **Not significant**. Nonetheless, a licence would be required from NatureScot where a 20 m buffer zone around burrows and lodges cannot be maintained.

7.6.45 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 temporary nature of these works limits any impact this would have on commuting / foraging beaver. Furthermore, (per embedded mitigation) water crossings would be left such that they remain passable for wildlife if works are not complete within one day, and passage through upgraded culverts and bridges would be equal to, if not better than, the baseline. It is therefore considered that restriction of movement due to works within watercourses would have a **Negligible effect** on beaver which is **Not significant**.

7.6.46 The likelihood of beaver injury or mortality is negligible given the timing of works, embedded mitigation, and that beaver are mainly active within watercourses whilst works are predominantly terrestrial, hence there would be **No effect** on the local population from this impact.

Badger

7.6.47 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. For the most part, existing access routes would be utilised with new temporary tracks confined to within agricultural fields, which are widespread in the surrounding landscape. However, in the upland section of the LOD, between Tower 668 and Tower 679 (**Confidential** Figure 7.3c (Volume 3)) where badger are known to be active, new temporary access tracks would be constructed through habitats including dense scrub which is utilised by badger. Widening and surfacing of these tracks would result in the loss of approximately 1 ha of scrub and woodland. Badger are more than capable of crossing temporary tracks so there would be **No effect** of habitat fragmentation. No badger setts except those being closed outside the scope of this EIA; see Paragraph 7.6.3) would be destroyed as part of the Proposed Development (though some may require temporary closure to avoid risk of injury to resting badger). Considering

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

the vast area of surrounding habitat which would remain available for sett establishment, foraging and commuting, the impact of temporary or permanent habitat loss would have a **Negligible effect** on badger which is **Not Significant**.

7.6.48 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[96]. The nature of the proposed works 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 uplands.

7.6.49 Eight of the ten setts recorded during the field survey are situated within the LOD, and seven of these are within 30 m of proposed works so hence are vulnerable to disturbance. Of these, BS09 and BS05 were disused at the time of survey (BS09 is in proximity to tree felling works to expand the wayleave and BS05 is in proximity to an existing access tracks which would only require minor upgrades); BS10 is a partially-used outlier sett in proximity to a proposed new temporary track; BS08 is in proximity to Tower 668 where construction of the working area requires removal of trees within the same woodland; and the remaining three setts will be closed outside the scope of this EIA (see Paragraph 7.6.3). However, the nature of the proposed works 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 works. 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 four remaining setts would require a license to allow the commencement of works where a 30 m exclusion zone cannot be applied.

7.6.50 With regard to badger mortality or injury, 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 Paragraph 7.6.4. Furthermore, if there is a risk of damage to a nearby sett during construction such that resting badger could be injured, temporary closure under licence following embedded pre-construction surveys would be implemented. There is consequently likely to be **No effect** on badger from injury or mortality during construction.

Pine Marten

7.6.51 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[97]. However, some woodland would be lost at Lin Den Plantation, Balkello Woodland, and Kirkinch Wood, totalling 464 trees. Considering the vast territory of pine marten and the scale of habitat loss from construction of the Proposed Development, with cognisance given to the relatively limited availability of woodland in the surrounding landscape, this impact would have a **Negligible effect** on foraging or commuting pine marten which is **Not Significant**.

7.6.52 Given the loss of habitat is confined to locations which comprise already fragmented habitats within the landscape following historic clearance of the wayleave, pine marten are expected to be able to continue to navigate such habitats. Pine marten do not actively avoid roads[97] and frequently use forestry tracks for marking their territory.

[96] 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]

97 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.

Furthermore, movement of pine marten is typically influenced by proximity to cover and prey abundance, neither of which would be significantly affected by track upgrades, hence the impact of habitat fragmentation from track upgrades are likely to have **No effect** on pine marten.

7.6.53 No den sites were identified during field surveys, however, pine marten may use old bird nests or squirrel dreys which were not specifically surveyed for, or which could be erected prior to the commencement of works. Nonetheless, the embedded standard mitigation of pre-construction survey and appointment of an ECoW would address this and (in the unlikely event it is found necessary) enable licensing with proportionate mitigation. Considering the small extent of woodland loss, and that pine marten use multiple den sites, potential loss of dens would have a **Negligible effect** on pine marten. Similarly, disturbance of pine marten whilst resting within a den would have a **Negligible effect**. Both of these effects are **Not significant**.

7.6.54 Construction works would take place during daylight hours, when pine marten are less active and are avoiding areas with potential for disturbance from proposed works. 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 area which could possibly be impacted would be very small and would be at the edge of already fragmented woodland allowing for displacement into 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 Paragraph 7.6.4). Therefore, the probability of pine marten casualties during construction is low and there is expected to be **No effect** on commuting / foraging pine marten.

Red Squirrel

7.6.55 Any requirement to fell trees would be highly localised around towers, along proposed access track routes, and along the OHL route. At Towers 652 and 668 114 and 117 trees would be lost to accommodate access tracks and working areas respectively. Additionally, between Towers 674 and 679 approximately 253 trees would be felled to accommodate access tracks and working areas, the majority of which are within Balkello Woodland (Figure 7.1c (Volume 3), however, the conifer woodland immediately west of Balkello which resembles a Caledonian pine forest but is outside the natural range of semi-natural pine woods, would also be affected. Minor tree loss (less than five trees) would be required at several other towers. In comparison to the scale of tree felling required, there is ample alternative habitat available for foraging and commuting in the wider area, and although red squirrels spend most of their time in the canopy, they will venture down to the ground to forage on the forest floor and cross open areas. Therefore, they would be capable of navigating across the new temporary track. Subsequently there would be **No effect** on commuting / foraging red squirrels as a result of tree felling.

7.6.56 It is not known how many dreys are present in trees which would be felled, however, through the embedded standard mitigation of pre-construction survey and appointment of an ECoW, a check would be made for squirrel dreys and their use by red squirrel confirmed prior to construction, and derogation licensing (if this is found necessary) put in place with any required proportionate mitigation. The scale of tree loss required means the proportion of dreys that might be lost to tree felling (if any) would be very small. Also, red squirrel may have multiple actively used dreys within their home range which they could seek alternative refuge in[98]. Consequently, there would be **Negligible effect** on red squirrel populations from the impacts of habitat loss and disturbance whilst resting in a drey which are **Not Significant**.

7.6.57 Movement of construction vehicles along tracks would be infrequent and slow-moving, posing negligible risk of injury or mortality to red squirrels. Therefore, injury or mortality of red squirrel would have a **Negligible effect**

[98] FCS (2006). Forest operations and red squirrels in Scottish forests - the law and good practice. FCS Guidance Note 33

which is **Not significant.** 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[99]. **Negligible effect** from disturbance of red squirrel during construction is therefore predicted which is **Not Significant**.

Atlantic Salmon

7.6.58 This species is known to be present within the River Isla, Dean Water, Meigle Burn and Commerton Burn, according to data available from Marine Scotland Maps NMPi[20] and is considered absent from watercourses within the LOD south of Kirkinch.

7.6.59 Proposed works include the upgrade of 19 culverts and two bridges, as well as the construction of four new temporary culverts within the Sidlaw Hills. All works associated with water crossings would comply with the SEPA CAR[100]. The watercourses which would be crossed by new temporary culverts are at the top of tributaries where they resemble surface run-off and dry out over the summer, making them unsuitable for Atlantic salmon. The culverts which would require upgrading typically cross ditches with too little water to support Atlantic salmon, except a few larger watercourses near Kirkinch. Mitigation by design would ensure that passage is not affected, hence the impact of creating a barrier to movement would only apply to during the upgrade works. Considering this very temporary impact, the very few locations at which it would occur where salmon may be present, barriers to salmon migration as a result of construction is considered to have a **Negligible effect**,, which is **Not significant**.

7.6.60 As stated in the previous paragraph, the temporary culvert is not in a location that could support salmon, and only two water crossing upgrades are at locations which may be suitable for salmon spawning. However, even if salmon spawning habitat was present at these locations, 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**.

7.6.61 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 includes clearance for Tower 645 on the north bank of the Dean Water, though it is an embedded design measure that the working area here has been reduced such that no vegetation clearance or other work will occur outside of the adjacent agricultural field. 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.

7.6.1 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, mortality of fish during construction is considered a **Negligible effect**, which is **Not significant**.

Other Fish Species

7.6.2 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 to the north of the Proposed Development which may be silty could be used by spawning lamprey. The few watercourses affected by culvert works are all small and not part

[99] 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]
[100] Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended).

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 works, 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, pollution or mortality during construction, which is **Not significant** in all cases.

Operational Phase

7.6.3 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 Proposed Development would be identical to those of the requirements of the existing OHL and towers.

7.6.4 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

7.6.5 Specific mitigation measures would be implemented to minimise the adverse effects on ecological features identified in this chapter. Although mitigation is not required where effects are considered to be Not Significant (i.e. they have been assessed as being of Negligible significance or Local importance), in some cases, measures would be implemented where these can be readily achieved. Furthermore, in certain instances, measures would be required to ensure compliance with relevant wildlife legislation, even when an insignificant effect on a relevant species was concluded. Such mitigation is summarised in Table 7-6 below.

Table 7-6 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	Across the LOD but mainly in the upland fringe	Detailed design and construction	Proposed works to be planned so direct loss of important habitats is avoided where possible.	To reduce the extent of temporary loss of important habitats.	ECoW to be consulted where required.	ECoW to check compliance as necessary.
E-2	Auchterhouse Hill SSSI	During detailed design and construction	New temporary stone track to be narrowed as far as possible, minimising the extent of habitat loss within SSSI boundary, and microsited so as to avoid heathland habitat completely. Authorisation will be sought from NatureScot.	To reduce the extent of works within Auchterhouse Hill SSSI boundary and ensure NatureScot authorisation.	NatureScot to be consulted on works along this track, and their authorisation would be required to proceed with works within the SSSI boundary.	ECoW to check works avoid heathland habitat, or avoid the SSSI boundary if NatureScot have not given authorisation. Further monitoring may be requested by NatureScot.
E-3	Access to Tower 645	During construction	The proposed trackway access route which passes an oxbow lake off Dean Water would be confined to within the agricultural field, avoiding field margins. The adjacent oxbow lake would only be impacted where required for the wayleave.	To reduce the impact on lowland fen SBL priority habitat and prevent damage to beaver refuges in the area as much as possible.	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.
E-4	Tower 645	During construction	Embedded mitigation already stipulates adjustment of the working area around Tower 645 to ensure no vegetation clearance or other works on the banks of Dean Water with only agricultural field and some semi-improved neutral grassland under the tower being removed.	To reduce risks from pollution or other indirect effects on Dean Water (an SBL priority river habitat).	None	ECoW to check compliance as necessary. Monitoring will be required as part of licence mitigation, if licence found necessary.
E-5	Watercourses across the Site	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	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 / bridge works) would adhere to pollution control measures and CAR.	ECoW to check compliance as necessary. Unless requested by SEPA, no other monitoring is anticipated.

Mitigation Item	Location	Timing of Measure	Description	Mitigation Purpose / Objective	Specific Consultation or Approval Required	Potential Monitoring Requirements
			clearance areas and the banks of watercourses (excepting the banks of Dean Water in the vicinity of Tower 645 which would be avoided, as stated above). Embedded mitigation already includes for adherence to pollution controls for all works.			
E-6	In the vicinity of Towers 645 and 651	Detailed design/ construction	A Species Protection Plan 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-7	Where works are in close proximity to badger setts (as per **Confidential** Figure 7.3c (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 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-8	All affected semi-mature or mature woodland	Detailed design/ construction	Embedded mitigation includes for pre-construction surveys, which will include checks for dens and dreys by the ECoW in affected woodland/ trees.	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.

Mitigation Item	Location	Timing of Measure	Description	Mitigation Purpose / Objective	Specific Consultation or Approval Required	Potential Monitoring Requirements
			If dens or dreys are found during pre-construction survey and are liable to be destroyed during tree removal (or disturbed, disturbance distance being 100/ 50 m from active breeding dens/ dreys and 30/ 5 m or adjacent tree for other dens/ dreys), then NatureScot licence to be obtained.			
E-9	Off-site location yet to be determined.	Timing of habitat creation measure not known.	(BNG enhancement measures to ensure net gain are detailed in a BNG Report (Appendix 7.6 (Volume 4)) and would be implemented as prescribed (253.7 area-based habitat units and 0.94 Linear Watercourse Units are required to achieve 10% net gain).	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-10	All trees categorised as PRF-M and FAR	Prior to works commencing	Targeted survey to confirm the status of PRF-Ms s 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 lopping 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.
E-11	Where works are in close proximity to beaver burrows and lodges (as per **Confidential** Figure 7.3b (Volume 3))	Detailed design / construction	A Species Protection Plan would be produced to inform works in proximity to beaver burrows and lodges in this area. If a 20 m buffer zone cannot be implemented from burrows and lodges via detailed design, a NatureScot licence will be necessary, and works would be planned such that actual damage to burrows and lodges is	To reduce the number of burrow and/or lodge closures / destructions required, minimise disturbance to beavers, and comply with legislation.	Where works are within 20 m of a beaver burrow / lodge, 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
			avoided. For example, where trees in proximity to beaver burrows / lodges 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 refuge entrances.			

Biodiversity enhancements

7.6.6 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*".

7.6.7 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* [emphasis added] *biodiversity, including nature networks so that they are in a demonstrably better state than without intervention*".

7.6.8 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.

7.6.9 As part of the Applicant's Sustainability Strategy, a commitment was made to deliver BNG on all eligible future projects since 2023[101]. 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 7.6 (Volume 4)).

Residual effect

7.6.10 With mitigation in place as described above, residual effects are all **Negligible**, apart from effects on woodland (both LEP and those not listed on the AWI) 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

7.6.11 Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location[Error! Bookmark not defined.]. For this chapter, the inter-cumulative assessment has been considered in the context of the Eastern Lowlands NHZ (NHZ 16). It considers the schemes identified in Table 7-7 and Table 7-8 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.

[101] 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 7-7 Assessment of Cumulative Effects with Intra 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
Tealing -Westfield 275 kV OHL upgrade	A	Tealing-Westfield/ Glenrothes	Upgrade of approximately 37 km of an existing 275 kV OHL between Tower 182 (west of Tealing Substation) and the licence boundary with Scottish Power Energy Networks (SPEN) (Westfield/ Glenrothes) (midspan between Towers 66 and 65) 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, also an OHL upgrade with only slight impacts on habitats and associated fauna, similarly to the slight effects of the Proposed Development, suggests that in-combination effects would remain slight and insignificant.	None.
Emmock (Tealing) substation	B	Near Emmock Road, Tealing	Construction of a new 400 kV substation in Tealing.	Status: Scoping Report submitted	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.
Kintore- Tealing 400 kV Connection	C	Kintore-Tealing	Construction of a new 400 kV OHL between Kintore and Tealing.	Status: 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.	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
						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.	
Alyth-Tealing and Tealing-Westfield OHL Tealing (Emmock) substation tie-ins and associated tower dismantling	D	Tealing	Construction of a new OHL originating from the Proposed Development between Tower 680 and Tower 682, as well as Tealing – Westfield between Tower 180 and Tower 182 (likely Tower 181), connecting to the proposed Tealing (Emmock) substation. This will enable the removal of approximately 1.5 km of redundant OHL between Tower 682 and the existing Tealing Substation.	Status: 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 7-8 Assessment of Cumulative Effects with Inter 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 likely significant effects identified through Screening Request, no likely significant 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 indicated there will likely be no 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	Status: 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	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
					protected species was recorded.		
Fithie Energy Park BESS	I	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.	Unlikely to have any significant effects. No likley significant cumulative effects. No change.	None.
Ark Hill Wind Farm Extension	J	Approximately 2.5 km northeast of Alyth-Tealing	Extension of Ark Hill Wind Farm consisting of the erection of 4 wind turbines measuring a maximum height of 89.5 m (to blade tip) with a rotor diameter of 71 m, the formation of access tracks and associated hardstanding areas, set down areas, construction compound, electrical substation and borrow pit.	Application validated 21st October 2021, awaiting decision. EIA Required	Not signficant residualeffects.	No likely significant cumulative effects.	None.
Balnuith Farm BESS (Tealing)	K	Balnuith Farm, Tealing, DD4 0RE	The construction and operation of a battery energy storage facility 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 2022	Not available.	No significant effects identified ithrough Screening Request. Therefore, no likely significant cumulative effects.	None.
Myreton BESS	L	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.	No significant effects identified ithrough Screening Request. Therefore, no likely significant cumulative effects.	None.

7.6.12 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.

1.1 Summary

7.6.13 Table 7-9 Summary of ecological impact assessment

Receptor	Ecological Importance	Description of impact	Effect	Specific mitigation	Residual effect	Significance
Designated Sites						
River Tay SAC	European	Mainly, negligible pollution risk	Negligible.	None required, embedded design mitigation at Tower 645 and pollution controls sufficient.	No effect.	Not significant.
Auchterhouse Hill SSSI	National	Temporary loss of up to 100 m^2 of grassland and bracken within SSSI boundary to construct access track.	Negligible.	Access track reduces as far as possible and microsited to avoid heathland. No works within SSSI boundary without NatureScot authorisation.	Negligible.	Not significant.
		Pollution.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
Pitnappie Moss LNCS	Local	Pollution (airborne or via run-off).	No effect	None required, embedded mitigation sufficient.	No effect.	Not significant.
Habitats						
Waterbodies and other watercourses outside of the River Tay SAC	Local	Pollution	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Loss or damage to riparian habitat.	Negligible.	None required, embedded	Negligible.	Not significant.

Receptor	Ecological Importance	Description of impact	Effect	Specific mitigation	Residual effect	Significance
				mitigation sufficient.		
LEP woodland on AWI	National	Permanent habitat loss.	Permanent adverse effect of Local significance.	None required, embedded mitigation sufficient.	Permanent adverse effect of Local significance.	Not significant.
		Redesign of woodland to improve resilience.	Beneficial effect of Site significance.	None.	Beneficial effect of Site significance.	Not significant.
		Damage to ground flora / tree roots	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Pollution.	No effect.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
Woodland not listed on the AWI	Local	Permanent habitat loss.	Permanent adverse effect of Site significance.	BNG enhancement measures as prescribed in the BNG Report.	Minor permanent adverse effect of Site significance.	Not significant.
		Damage to ground flora / tree roots	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
Other SBL Priority Habitats, Annex I Habitats, and GWDTE	Local	Temporary habitat loss.	Negligible.	Works to be planned to avoid important habitats where possible.	No effect.	Not significant.
		Pollution risk.	Negligible.	None required, embedded pollution controls sufficient.	Negligible.	Not significant.
		Negligible pollution risk.	Negligible.	None required, embedded pollution controls sufficient.	Negligible.	Not significant.

Receptor	Ecological Importance	Description of impact	Effect	Specific mitigation	Residual effect	Significance
		Loss of riparian/ channel habitat	Negligible.	None.	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 foraging/ commuting habitat	No effect	None required, embedded mitigation sufficient.	No effect.	Not significant.
		Disturbance of roosting habitat.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
Otter	Local	Disturbance of resting otter.	Negligible.	Maintain a 30 m buffer around otter refuges where possible and obtain a derogation licence where not possible.	Negligible.	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.
		Pollution of watercourses.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Injury or mortality of otter.	No effect.	None required,	No effect.	Not significant.

Receptor	Ecological Importance	Description of impact	Effect	Specific mitigation	Residual effect	Significance
				embedded mitigation sufficient.		
Beaver	Site	Loss of foraging habitat.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
		Damage to burrows and lodges.	Negligible.	Plan works to avoid damage to burrows and lodges. If this is not possible, obtain a derogation licence.	Negligible.	Not significant.
		Loss of commuting habitat.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Injury or mortality of beaver.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
Badger	Site	Habitat fragmentation.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
		Habitat loss.	Negligible.	None required, embedded mitigation sufficient.	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 or mortality of badger.	No effect.	Maintain a 30 m buffer from badger setts where possible,	No effect.	Not significant.

Receptor	Ecological Importance	Description of impact	Effect	Specific mitigation	Residual effect	Significance
				obtain a derogation licence where not possible.		
Pine marten	Local	Permanent loss of foraging / commuting habitat.	Negligible.	BNG enhancement measures as prescribed in the BNG Report.	Negligible.	Not significant.
		Habitat fragmentation.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
		Loss of den sites.	Negligible.	Avoid pine marten dens if identified during pre-construction surveys where possible and obtain derogation licence where not possible.	Negligible.	Not significant.
		Disturbance of resting pine marten.	Negligible.	Maintain an appropriate buffer around dens where possible and obtain derogation licence if not possible.	Negligible.	Not significant.
		Disturbance of commuting / foraging pine marten.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
Red squirrel	Local	Permanent loss of commuting / foraging habitat.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Loss of dreys.	Negligible.	Avoid red squirrel dreys if identified during pre-construction	Negligible.	Not significant.

Receptor	Ecological Importance	Description of impact	Effect	Specific mitigation	Residual effect	Significance
				surveys where possible and obtain derogation licence where not possible.		
		Disturbance of red squirrel *whilst in a drey*.	Negligible.	Maintain an appropriate buffer around red squirrel dreys where possible and obtain a derogation licence where not possible.	Negligible.	Not significant.
		Injury or mortality of red squirrel.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	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.
		Pollution of watercourses.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
		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	Negligible.	Not significant.

Receptor	Ecological Importance	Description of impact	Effect	Specific mitigation	Residual effect	Significance
				mitigation sufficient.		
		Pollution of watercourses.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
		Mortality.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.

7.6.14 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.

7.6.15 It is considered that there would be **No Likely Significant effect** on any important ecological features from the Proposed Development during its operational phase due to no change from baseline conditions.

Table 7-9 Summary of ecological impact assessment

Receptor	Ecological Importance	Description of impact	Effect	Specific mitigation	Residual effect	Significance
Designated Sites						
River Tay SAC	European	Mainly, negligible pollution risk	Negligible.	None required, embedded design mitigation at Tower 645 and pollution controls sufficient.	No effect.	Not significant.
Auchterhouse Hill SSSI	National	Temporary loss of up to 100 m^2 of grassland and bracken within SSSI boundary to construct access track.	Negligible.	Access track reduces as far as possible and microsited to avoid heathland. No works within SSSI boundary without NatureScot authorisation.	Negligible.	Not significant.
		Pollution.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
Pitnappie Moss LNCS	Local	Pollution (airborne or via run-off).	No effect	None required, embedded mitigation sufficient.	No effect.	Not significant.
Habitats						
Waterbodies and other watercourses outside of the River Tay SAC	Local	Pollution	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Loss or damage to riparian habitat.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
LEP woodland on AWI	National	Permanent habitat loss.	Permanent adverse effect of Local significance.	None required, embedded mitigation sufficient.	Permanent adverse effect of Local significance.	Not significant.

Receptor	Ecological Importance	Description of impact	Effect	Specific mitigation	Residual effect	Significance
		Redesign of woodland to improve resilience.	Beneficial effect of Site significance.	None.	Beneficial effect of Site significance.	Not significant.
		Damage to ground flora / tree roots	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Pollution.	No effect.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
Woodland not listed on the AWI	Local	Permanent habitat loss.	Permanent adverse effect of Site significance.	BNG enhancement measures as prescribed in the BNG Report.	Minor permanent adverse effect of Site significance.	Not significant.
		Damage to ground flora / tree roots	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
Other SBL Priority Habitats, Annex I Habitats, and GWDTE	Local	Temporary habitat loss.	Negligible.	Works to be planned to avoid important habitats where possible.	No effect.	Not significant.
		Pollution risk.	Negligible.	None required, embedded pollution controls sufficient.	Negligible.	Not significant.
		Negligible pollution risk.	Negligible.	None required, embedded pollution controls sufficient.	Negligible.	Not significant.
		Loss of riparian/ channel habitat	Negligible.	None.	Negligible.	Not significant.
Species						
Bats	Local	Loss of foraging/ commuting habitat	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.

Receptor	Ecological Importance	Description of impact	Effect	Specific mitigation	Residual effect	Significance
		Loss of roosting habitat.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Disturbance of foraging/ commuting habitat	No effect	None required, embedded mitigation sufficient.	No effect.	Not significant.
		Disturbance of roosting habitat.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
Otter	Local	Disturbance of resting otter.	Negligible.	Maintain a 30 m buffer around otter refuges where possible and obtain a derogation licence where not possible.	Negligible.	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.
		Pollution of watercourses.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Injury or mortality of 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.

Receptor	Ecological Importance	Description of impact	Effect	Specific mitigation	Residual effect	Significance
		Damage to burrows and lodges.	Negligible.	Plan works to avoid damage to burrows and lodges. If this is not possible, obtain a derogation licence.	Negligible.	Not significant.
		Loss of commuting habitat.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.
		Injury or mortality of beaver.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
Badger	Site	Habitat fragmentation.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
		Habitat loss.	Negligible.	None required, embedded mitigation sufficient.	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 or mortality of badger.	No effect.	Maintain a 30 m buffer from badger setts where possible, obtain a derogation licence where not possible.	No effect.	Not significant.
Pine marten	Local	Permanent loss of foraging / commuting habitat.	Negligible.	BNG enhancement measures as prescribed in the BNG Report.	Negligible.	Not significant.

Receptor	Ecological Importance	Description of impact	Effect	Specific mitigation	Residual effect	Significance
		Habitat fragmentation.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
		Loss of den sites.	Negligible.	Avoid pine marten dens if identified during pre-construction surveys where possible and obtain derogation licence where not possible.	Negligible.	Not significant.
		Disturbance of resting pine marten.	Negligible.	Maintain an appropriate buffer around dens where possible and obtain derogation licence if not possible.	Negligible.	Not significant.
		Disturbance of commuting / foraging pine marten.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
Red squirrel	Local	Permanent loss of commuting / foraging habitat.	Negligible.	None required, embedded mitigation sufficient.	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 *whilst in a drey*.	Negligible.	Maintain an appropriate buffer around red squirrel dreys where possible and obtain a derogation licence where not possible.	Negligible.	Not significant.

Receptor	Ecological Importance	Description of impact	Effect	Specific mitigation	Residual effect	Significance
		Injury or mortality of red squirrel.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	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.
		Pollution of watercourses.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
		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.
		Pollution of watercourses.	No effect.	None required, embedded mitigation sufficient.	No effect.	Not significant.
		Mortality.	Negligible.	None required, embedded mitigation sufficient.	Negligible.	Not significant.