

# 6 Ecology

## 6.1 Introduction

- 6.1.1 This chapter reports the assessment of the likely impacts and effects of the construction and operation (including maintenance) of the Proposed Development on ecological features, including ornithological features. Where appropriate, this chapter provides details of mitigation measures which have been identified to avoid, reduce, or compensate for adverse effects on ecological features as well as proposed enhancement measures.
- 6.1.2 This chapter is supported by the following figures:
- Figure 6.1: Location of Proposed Development;
  - Figure 6.2: Statutory Designated Sites;
  - Figure 6.3: Non-statutory Designated Sites and Ancient Woodland/Tree Inventory;
  - Figure 6.4: Habitat Survey Results;
  - Figure 6.5: Important Species Survey Results; and
  - Figure 6.6: Wintering Waterbirds Survey Results.
- 6.1.3 Due to the persecution of some protected species, Figure 6.5 is confidential with a redacted version available to share publicly.
- 6.1.4 This chapter is also supported by the following Appendices:
- Appendix 6.1: Methodology;
  - Appendix 6.2: Great Crested Newt;
  - Appendix 6.3: ECU – LWUP XL Route Refurbishment Ecological Walkover DRAFT REPORT;
  - Appendix 6.4: Statement to Inform Habitats Regulations Appraisal
- 6.1.5 Appendix 6.4 provides information to allow the determining authorities to carry out the Habitats Regulations Appraisal (HRA) of the likely effects from the Proposed Development on European sites (which comprise Special Areas of Conservation (SAC) and Special Protection Areas (SPA)). Wetlands of International Importance (Ramsar sites) are also considered through HRA.
- 6.1.6 As described in Chapter 4 Description of the Proposed Development, the Proposed Development is split into three components comprising the following subcomponents that are referred to as necessary throughout the chapter:
- KINN (Kincardine North Substation and associated works);
    - Substation footprint (combined area of the new 400kV substation);
    - Drainage (including drainage ditches and Sustainable Drainage System (SuDS) features);
    - Landscaping (as depicted in Chapter 7, Figure 7.5);

- Access roads (permanent roads to provide access to the substation and around the site and temporary access from the A876 to the east of the substation);
- Hawkhill Road Access Improvements;
- OHL works (Overhead Line Works);
  - Towers (existing Towers that require no works);
  - Reconductoring Towers (Towers XL012 to XL020);
  - Existing Towers to be removed (XL005, ZCN019, and ZCS019);
  - New Towers;
  - Temporary masts;
  - Working areas (assumed to be a 50x50 m area around all towers);
  - Access tracks (comprising existing tracks and trackway panels);
  - Pulling positions (hardstanding for stringing conductors (Equi-potential zones));
  - Scaffolding over roads/railway;
  - Laydown areas for temporary material storage;
- SPD works (Scottish Power Distribution Works);
  - Wood pole removal (between Hawkhill Road and Pole 17);
  - Underground cabling (between Hawkhill Road and Pole 17, and between Broomknowe Farm and Tulliallan Poultry Farm); and
  - Temporary connection (between the Wood pole and temporary welfare compound).

6.1.7 The area encompassed by the EIA boundary shown on Figure 6.1 is herein referred to as the 'Site'. OHL works comprises two packages of work a) the uprating of XL route between mid-span north of tower XL033 at Blairingone and the downloads from tower XL001A at the existing Kincardine Substation, including the potential reconductoring between towers XL012 and XL020 (herein this chapter referred to as 'XL uprating and reconductoring works'); and b) the construction of twelve new towers to connect the XL, ZCN and ZCS routes into the proposed Kincardine North Substation, removal of three existing towers, and installation of temporary masts and diversion of the three routes whilst other works are carried out (herein this chapter referred to as 'OHL tower works').

6.1.8 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 (Ref 6.1) and for bryophytes, Smith (Ref 6.2) and Paton (Ref 6.3). 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.

## 6.2 Legislation, Policy and Guidance

### Legislation

6.2.1 This assessment has been carried out in the context of relevant nature conservation legislation including, but not necessarily limited to, the following:

- Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (more commonly referred to as the ‘Habitats Directive’);
- Council Directive 2009/147/EC on the conservation of wild birds (more commonly referred to as the ‘Birds Directive’);
- Council Directive 2000/60/EC establishing a framework for Community action in the field of water policy (the ‘Water Framework Directive’ (WFD));
- Convention on Wetlands of International Importance (‘Ramsar Convention’);
- Conservation (Natural Habitats, &c.) Regulations 1994 (the ‘Habitats Regulations’);
- Wildlife and Countryside Act 1981 (the ‘WCA’);
- Nature Conservation (Scotland) Act 2004;
- Wildlife and Natural Environment (Scotland) Act 2011 (‘WANE Act’);
- Regulation 1143/2014 on invasive alien species (the ‘Invasive Alien Species Regulation’);
- Protection of Badgers Act 1992;
- Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003; and
- Environmental Authorisation (Scotland) Regulations 2018.

### **Planning Policy**

- 6.2.2 Information on relevant planning policy can be found in Chapter 5 Planning Policy Context of this EIAR. However, a brief summary of national and local planning policy relevant to nature conservation is given under the following sub-headings.

#### National Planning Policy

- 6.2.3 National Planning Framework 4 (NPF4) was formally adopted by Scottish Ministers on 13 February 2023. Policies 3 and 4 (Biodiversity and Natural Places) of NPF4 include the following statements of policy intent: “*To protect biodiversity, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks*” and “*To protect, restore and enhance natural assets making best use of nature-based solutions*”.
- 6.2.4 Policy 3 Biodiversity requires developments to contribute to the enhancement of biodiversity. This includes restoring degraded habitats and building/strengthening nature networks where relevant. The policy states that national development (such as the Proposed Development) will only be supported where it can be demonstrated that they will conserve, restore and enhance biodiversity, including nature networks so they are in a demonstrably better state than without intervention. It requires proposals for national development to demonstrate:
- i. the proposal is based on an understanding of the existing characteristics of the site and its local, regional and national ecological context prior to development, including the presence of any irreplaceable habitats;
  - ii. wherever feasible, nature-based solutions have been integrated and made best use of;
  - iii. an assessment of potential negative effects which should be fully mitigated in line with the mitigation hierarchy prior to identifying enhancements;
  - iv. significant biodiversity enhancements are provided, in addition to any proposed mitigation. This should include nature networks, linking to and strengthening habitat

connectivity within and beyond the development, secured within a reasonable timescale and with reasonable certainty. Management arrangements for their long-term retention and monitoring should be included, wherever appropriate; and

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

6.2.5 In compliance with the above, the Proposed Development has sought to both protect existing ecological features within the Site and to deliver an overall gain for biodiversity. At the time of preparing this chapter (June 2026), there was no formal policy requirement in Scotland to undertake a quantitative Biodiversity Net Gain (BNG) assessment as part of the planning process for infrastructure developments. Measures which will be taken to enhance biodiversity are detailed in Section 6.11: Biodiversity Enhancement.

6.2.6 Policy 4 Natural Places provides protection to natural assets including designated sites and protected species. In relation to ecological interests, it sets out the following:

- (a) Development proposals which by virtue of type, location or scale will have an unacceptable impact on the natural environment, will not be supported.
- (b) Development proposals that are likely to have a significant effect on an existing or proposed European site (Special Area of Conservation or Special Protection Areas) and are not directly connected with or necessary to their conservation management are required to be subject to an “appropriate assessment” of the implications for the conservation objectives.
- (c) Development proposals that will affect a Site of Special Scientific Interest will only be supported where:
  - i. The objectives of designation and the overall integrity of the areas will not be compromised; or
  - ii. Any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by social, environmental or economic benefits of national importance.

All Ramsar sites are also European sites and/ or Sites of Special Scientific Interest and are extended protection under the relevant statutory regimes.

- (d) Development proposals that affect a site designated as a local nature conservation site or landscape area in the LDP will only be supported where:
  - i. Development will not have significant adverse effects on the integrity of the area or the qualities for which it has been identified; or
  - ii. Any significant adverse effects on the integrity of the area are clearly outweighed by social, environmental or economic benefits of at least local importance.
- (e) The precautionary principle will be applied in accordance with relevant legislation and Scottish Government guidance.
- (f) Development proposals that are likely to have an adverse effect on species protected by legislation will only be supported where the proposal meets the relevant statutory tests. If there is reasonable evidence to suggest that a protected species is present on a site or may be affected by a proposed development, steps must be taken to establish its

presence. The level of protection required by legislation must be factored into the planning and design of development, and potential impacts must be fully considered prior to the determination of any application.

- 6.2.7 Prior to the United Kingdom's (UK) exit from the European Union (EU), Scotland's SACs and SPAs were part of a wider European network of such sites known as the 'Natura 2000 network'. They were consequently referred to as 'European sites'. Now that the UK has left the EU, Scotland's SACs and SPAs are no longer part of the Natura 2000 network but form part of a UK-wide network of designated sites referred to as the 'UK National Site Network'. However, it is current Scottish Government policy to retain the term 'European site' to refer collectively to SACs and SPAs (Ref 6.4).
- 6.2.8 Policy 6 Forestry, Woodland and Trees is intended to provide protection to and encourage expansion of forests, woodland trees. Its sets out:
- a) Development proposals that enhance, expand and improve woodland and tree cover will be supported.
  - b) Development proposals will not be supported where they will result in:
    - i. Any loss of ancient woodlands, ancient and veteran trees, or adverse impact on their ecological condition;
    - ii. Adverse impacts on native woodlands, hedgerows and individual trees of high biodiversity value, or identified for protection in the Forestry and Woodland Strategy;
    - iii. Fragmenting or severing woodland habitats, unless appropriate mitigation measures are identified and implemented in line with the mitigation hierarchy;
    - iv. Conflict with Restocking Direction, Remedial Notice or Registered Notice to Comply issued by Scottish Forestry.
  - c) Development proposals involving woodland removal will only be supported where they will achieve significant and clearly defined additional public benefits in accordance with relevant Scottish Government policy on woodland removal. Where woodland is removed, compensatory planting will most likely be expected to be delivered.
  - d) Development proposals on sites which include an area of existing woodland or land identified in the Forestry and Woodland Strategy as being suitable for woodland creation will only be supported where the enhancement and improvement of woodlands and the planting of new trees on the site (in accordance with the Forestry and Woodland Strategy) are integrated into the design

#### Local Planning Policy

- 6.2.9 The Site lies on the boundary between Fife Council and Clackmannanshire Council local authority areas with OHL works extending into both. Consequently, relevant local planning policies are stated in Fife's Local Development Plan (LDP) 'FIFEplan', adopted in September 2017, and in the Clackmannanshire LDP, adopted in August 2015. Table 6-1 and
- 6.2.10 Table 6-2 below list those LDP policies relevant to nature conservation.

**Table 6-1 Summary of relevant policies within FIFEplan**

| Policy                                           | Relevant supporting policy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Policy 1: Development Principles</b>          | <p>Avoid flooding and impacts on the water environment.</p> <p>Safeguard or avoid the loss of natural resources, including effects on internationally designated nature conservation sites.</p> <p>Provide green infrastructure as required in settlement proposals and identified in the green network map.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Policy 7: Development in the countryside</b>  | <p>Development must be located and designed to protect the overall environmental quality of the area.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Policy 11: Low Carbon Fife</b>                | <p>Planning permission will only be granted where it has been demonstrated that sustainable drainage measures will ensure that there will be no increase in the rate of surface water run-off in peak conditions or detrimental impact on the ecological quality of the water environment.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Policy 12: Flooding and Water Environment</b> | <p>Development proposals will only be supported where they can demonstrate that they will not, individually or cumulatively:</p> <ul style="list-style-type: none"> <li>• increase flooding or flood risk from all sources (including surface water drainage measures) on the site or elsewhere;</li> <li>• reduce the water conveyance and storage capacity of a functional flood plain;</li> <li>• detrimentally impact on ecological quality of the water environment, including its natural characteristics, river engineering works, or recreational use;</li> <li>• detrimentally impact on future options for flood management;</li> <li>• require new defences against coastal erosion or coastal flooding; or</li> <li>• increase coastal erosion on the site or elsewhere.</li> </ul> |
| <b>Policy 13: Natural Environment and Access</b> | <p>Development proposals will only be supported where they protect or enhance natural heritage and access assets including:</p> <ul style="list-style-type: none"> <li>• designated sites of international and national importance, including Natura 2000 sites and Sites of Special Scientific Interest (SSSI);</li> <li>• designated sites of local importance, including Local Wildlife Sites (LWS);</li> <li>• woodlands (including native and other long-established woods), and trees and hedgerows that have a landscape, amenity, or nature conservation value;</li> <li>• biodiversity in the wider environment;</li> <li>• protected and priority habitats and species;</li> <li>• carbon rich soils (including peat); and</li> <li>• green networks and greenspaces.</li> </ul>      |

**Table 6-2 Summary of relevant policies within Clackmannanshire LDP**

| Policy                                                                                       | Relevant supporting policy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Policy SC14: Renewable Energy</b>                                                         | <p>Proposals for associated transmission infrastructure, including any mitigation measures proposed, will normally be supported, where they meet criteria including:</p> <ul style="list-style-type: none"> <li>the development would not have a significant adverse impact on the natural and built environment, including designated areas of nature conservation value, the water environment, and the carbon stocks in carbon rich soils;</li> <li>the development would not impact upon the integrity of the Firth of Forth SPA or River Teith SAC either alone or in combination with other projects and plans; and,</li> <li>they would not result in any significant adverse amenity, landscape or ecological impacts as a result of the cumulative impacts associated with existing sites, extensions and undeveloped sites with planning permission. The potential impact from other proposals at the same stage of the planning process will be a material consideration.</li> </ul>                                                     |
| <b>Policy SC23: Development in the Countryside – General Principles</b>                      | <p>Proposals outwith settlements will only be supported where the applicant has demonstrated that the proposed site meets criteria including:</p> <ul style="list-style-type: none"> <li>the proposals respect the character of the site and its location, and maintain and enhance the visual amenity and distinctive landscape character of the surrounding area, and will be expected to contribute to the green network objectives set out in the Green Infrastructure Supporting Guidance (SG); and</li> <li>the proposals will not contribute to adverse effects on the integrity of the Firth of Forth SPA either alone or in combination with other projects and plans.</li> </ul>                                                                                                                                                                                                                                                                                                                                                          |
| <b>Policy EP3: Business and Industrial Uses Outwith Existing or Allocated Business Sites</b> | <p>Business and industrial proposals outwith the business and industrial sites identified in the Plan, will only be supported where criteria are met including:</p> <ul style="list-style-type: none"> <li>the proposed development would not result in adverse effects upon the integrity of the Firth of Forth SPA either alone or in combination with other projects and plans.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Policy EA1: Clackmannanshire Green Network</b>                                            | <p>The aim of this policy is to support the implementation of the Central Scotland Green infrastructure by ensuring that new development contributes to its objectives where possible:</p> <ul style="list-style-type: none"> <li>wherever possible, new development should contribute to Green Network principles and objectives as set out in this Plan and the Green Infrastructure SG and demonstrably enhance the Clackmannanshire Green Network;</li> <li>the potential impact of all new development proposals on the Green Network will be assessed to ensure that they comply with the principles set out in the Green Infrastructure SG;</li> <li>all new development will be expected to contribute to the enhancement of the connectivity, quality and/or extent of the network, except where this impractical. Proposals for new development must demonstrate how this has been incorporated into the proposed design of the development, or alternatively how enhancement will be achieved through off-site provision; and</li> </ul> |

| Policy                                                                  | Relevant supporting policy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                         | <ul style="list-style-type: none"> <li>development resulting in any reduction in the connectivity, quality or extent of the network will not be permitted unless adequate proposals for mitigation can be agreed.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Policy EA2: Habitat Network and Biodiversity</b>                     | <p>This policy aims to encourage the protection and enhancement of biodiversity and habitat networks by safeguarding the integrity of features of the landscape which are important because of their linear and continuous structure or function as intermediate sites for the movement of both fauna and flora.</p> <p>All development proposals will be expected to fulfil the following criteria:</p> <ul style="list-style-type: none"> <li>maximise the potential of their development to contribute positively to biodiversity conservation and enhancement (and seek mitigation for any adverse impacts of development);</li> <li>protect and enhance existing habitat networks in or adjacent to the development site;</li> <li>mitigate any negative impacts on habitats, species or network connectivity either resulting from the development or as a result of the cumulative effects of developments locally; and</li> <li>identify opportunities to strengthen the existing habitat network by creating new habitat links.</li> </ul> <p>Wherever possible, development proposals should contribute to the objectives of the Clackmannanshire Biodiversity Action Plan; and the ongoing improvement of the Integrated Habitat Network and the Clackmannanshire Green Network, in accordance with the Green Infrastructure SG.</p> |
| <b>Policy EA3: Protection of Designated Sites and Protected Species</b> | <p>This policy aims to protect designated sites and protected species by requiring an appropriate appraisal to assess the impact on international designations, protected species, national designations, and local designations.</p> <p>In all cases, developments will only be supported where appropriate mitigation and enhancement measures are proposed to conserve, as far as possible, the site's wildlife or habitat interest and provide for replacement of habitats or features where damage is unavoidable. These measures will be agreed either through the use of planning conditions or a legal agreement.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Policy EA7: Hedgerows, Trees and Tree Preservation Orders</b>        | <p>Where necessary, endangered trees and woodlands will be protected through the designation of Tree Preservation Orders (TPOs). Development will not be supported within TPO areas unless the applicant demonstrates that the proposals will not adversely affect the longevity, stability or appearance of the trees.</p> <p>Where development is permitted which will involve the loss of existing woodland, trees or hedgerows, development proposals must include appropriate replacement planting in terms of number, size and species. The use of native species or species of known biodiversity value will be favoured.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Policy EA11: Environmental Quality</b>                               | <p>Though not directly relevant, this policy aims to protect the quality of the environment which indirectly affects ecological features (e.g. through disturbance of species or pollution of habitats).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Policy EA12: Water Quality</b>                                       | <p>Though not directly relevant, this policy aims to protect and enhance the water environment which indirectly affects ecological features (e.g. aquatic species and habitats).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

## Guidance

- 6.2.11 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 (Ref 6.5);
  - Standing advice notes for protected species published by NatureScot (Ref 6.6);
  - Fife Local Biodiversity Action Plan (LBAP);
  - FIFEplan supplementary guidance (Ref 6.7);
  - Clackmannanshire Biodiversity Action Plan (BAP); and
  - Clackmannanshire LDP supplementary guidance (Ref 6.8).
- 6.2.12 In addition, other industry-standard good practice guidelines for surveying for protected/important ecological features were also followed and are referenced throughout Appendix 6.1: Methodology.

## 6.3 Consultation

- 6.3.1 Fife Council and Clackmannanshire Council were consulted for pre-application advice and a scoping opinion for KINN. Pre-application advice/information relevant to ecology offered by each local authority is provided below.
- 6.3.2 Fife Council:
- Relevant policies within NPF4 and FIFEplan were highlighted within pre-application advice (discussed under Section 6.2: Legislation, Policy and Guidance above).
  - The Natural Heritage Officer (NHO) initially advised that habitat within the Site is likely to be of relatively low ecological value but may be important for a range of bird species. The NHO later clarified that the application site is within arable fields and that the substation compound is at some distance from nearby woodland (baseline habitats are described under Habitats in Section 6.5: Baseline);
  - The NHO recommended that construction works and clearance of the Site should be undertaken outside of the bird breeding season; where this is not possible a nesting bird check would be required (committed to in Section 6.6: Embedded Mitigation);
  - The following should be fully considered when submitting an application for planning:
    - An ecological appraisal including phase 1 survey and protected species surveys should be provided (detailed in Section 6.5: Baseline);
    - A supporting statement illustrating compliance with Policy 3 of NPF4 and Making Fife's Places Supplementary Guidance (2018) should be provided including proposals relating to natural heritage and biodiversity; this should include the use of native species of local origin in landscaping (commitment is made to using native species in landscaping under Habitat Creation and Landscaping in Section 6.6: Embedded Mitigation and, per Section 6.11: Biodiversity Enhancement, details will be provided in a LEMP); and

- Full details of all trees within and adjacent to the site was initially requested but it was later accepted that trees and woodland can be scoped out of further assessment (woodland habitats (both priority and non-priority habitat types) are scoped out in Section 6.7: Assessment of Effects);
- The NHO initially highlighted the need to assess impacts on the existing SUDS pond and later clarified that an assessment of effects on the SUDS pond adjacent to the A876 should be made in the ecology chapter, including the following impacts: physical disturbance, pollution, dust (impacts are considered in Section 6.7: Assessment of Effects). Works in the vicinity of the SUDS pond should be covered by the CEMP (included in Section 6.6: Embedded Mitigation);
- The NHO emphasised the need for compensatory planting measures since scrub removal is required to facilitate access, utilisation of native species is a priority for Fife Council (compensatory planting is discussed under Habitat Creation and Landscaping in Section 8: Embedded Mitigation); and
- The proposal should ensure enhancement of site biodiversity (described in Section 6.11: Biodiversity Enhancement).

#### 6.3.3 Clackmannanshire Council:

- The Planning Officer advised that the development should deliver measures to enhance the biodiversity value of the site and seek to integrate with and enhance existing green infrastructure in the area (described in Section 6.11: Biodiversity Enhancement); and
- The Planning Officer also calls for consideration to be given to measures which naturalise and enhance the canal burn (habitat creation will include planting riparian woodland as described in Section 6.6: Embedded Mitigation).

#### 6.3.4 A scoping opinion was also sought for OHL works from a list of consultees including the following who made comments relevant to ecology:

- Clackmannanshire Council;
- Kincardine Community Council;
- NatureScot;
- SEPA; and
- Marine Directorate – Science Evidence Data and Digital (MD-SEDD).

#### 6.3.5 Clackmannanshire Council advised that the development should deliver where appropriate measure to enhance the biodiversity value of the site and seek to integrate with and enhance existing green infrastructure in the area. Enhancement measures are detailed in 6.11: Biodiversity Enhancement.

#### 6.3.6 Kincardine Community Council is keen to understand the likely significant effects relating to ecology and nature conservation. These are addressed in Section 6.7: Assessment of Effects.

#### 6.3.7 NatureScot is satisfied with the proposed approach to EIA but questioned if a HRA would be completed. A report to inform HRA has been completed and is provided in Appendix 6.4: Statement to Inform Habitats Regulations Appraisal.

- 6.3.8 SEPA raised no concerns about the scope of assessment and made reference to their standing advice document. Consideration is given to advice relating to groundwater dependent terrestrial ecosystems (GWDTEs).
- 6.3.9 The MD-SEDD also provided their standard “*advice in relation to the installation of overhead line developments*” document which outlines EIA requirements including assessing the direct and indirect impacts of developments on water quality, biodiversity, and protected species like Atlantic salmon. In addition to identifying the main watercourses and waterbodies within and downstream of the proposed development area, developers should identify and consider, at this early stage, any SACs where fish are a qualifying feature and proposed felling operations particularly in acid sensitive areas. There is one SAC in proximity to the Proposed Development, the River Teith SAC. This is discussed in Section 6.5: Baseline.
- 6.3.10 MD-SEDD also provided standing advice for overhead lines which outlines what information, relating to freshwater and diadromous fish and fisheries, is expected in the EIA report. The provided checklist was considered when undertaking this EIA and can be found within the Gatecheck Report.

## 6.4 Methods

### Introduction

- 6.4.1 This chapter sets out the approach to desk study, study areas, field surveys undertaken, and assessment methodology where it differs to that set out within Chapter 2 Approach to EIA.
- 6.4.2 This assessment considers the effects of construction and operation of the Proposed Development; as described in Chapter 4: Description of the Proposed Development, decommissioning effects have been scoped out.
- 6.4.3 The scope of survey and assessment described in this chapter was informed by the guidance contained in the published documents listed under Guidance in Section 6.2: Legislation, Policy and Guidance, on the responses of consultees (as set out in Section 6.3: Consultation), and on the results of detailed study once underway.
- 6.4.4 NatureScot has devised 21 ‘Natural Heritage Zones’ (NHZ) covering the whole of Scotland (Ref 6.9) 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), within which the Proposed Development is located (see **Figure 6.1: Location of Proposed Development**). This includes the assessment of cumulative effects which has considered the potential for in-combination effects to arise due to other energy developments and land use changes within NHZ 16.
- 6.4.5 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 northwest and the Southern Uplands to the southwest. This NHZ is of particular importance for agriculture, river systems, coast and estuaries, and settlements (Ref 6.10).
- 6.4.6 The guidelines for EcIA published by Chartered Institute of Ecology and Environmental Management (CIEEM) recommend that only those features that are ‘important’ and that could be significantly affected by the Proposed Development require detailed assessment, stating that “*it is not necessary to carry out detailed assessment of ecological features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable*” (Ref 6.5).

6.4.7 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, SPAs 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 Ancient Woodland Inventory (AWI);
- Habitats listed on Annex I of the Habitats Directive;
- Species listed on Annex I of the Birds Directive;
- Species listed on Annex II of the Habitats Directive;
- Species listed on Schedules 2 and 4 of the Habitats Regulations;
- Species listed on Schedules 1, 5 and 8 of the WCA;
- Badger *Meles meles*, which is afforded protection under the Protection of Badgers Act 1992;
- Habitats and species listed on the Scottish Biodiversity List (SBLtree survey report<sup>1</sup>, which are thus identified as being of principal importance for biodiversity conservation in Scotland;
- Species on the Red List of Birds of Conservation Concern (BoCC) 5 (Stanbury *et al.*, 2021);
- Species or species assemblages shown to indicate Good habitat conditions, for example Good Ecological Status or better in relation to the WFD; and
- Invasive non-native species listed on Schedule 9 of the WCA (although this no longer legally applies in Scotland), those considered to be of EU concern under the Invasive Alien Species Regulation 1143/2014, and those listed in Annex B of NatureScot’s Developing with Nature Guidance (NatureScot, 2025b).

6.4.8 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.

#### **Study Area**

6.4.9 The Zone of Influence (Zol) of the Proposed Development is the area over which ecological features may be subject to impacts as a result of its construction and/or operation and may extend beyond the Site.

6.4.10 The Zol will vary for different ecological features depending on their sensitivity to environmental change. It is therefore appropriate to identify different Zol for different features. As recommended by CIEEM, professionally accredited or published studies and guidance, where available, were used to help determine the likely Zol, as well as professional judgement (Ref 6.5). However, CIEEM also highlight that establishing the Zol should be an iterative process

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<sup>1</sup> Owing to the time of surveys all references to the SBL relate to the 2012 version, not the newest 2025 update.

and can be informed by further desk study and field survey. Where limited information was available, the Precautionary Principle (Ref 6.11) was adopted and a Zol estimated on that basis.

6.4.11 As described in Section 6.1: Introduction, Paragraph 6.1.6, the Proposed Development is split into three distinct components, each comprising several subcomponents. This assessment considers each component separately and applies appropriate study areas to the relevant subcomponents. The study areas used were designed to allow sufficient data to be collected to establish the baseline condition of ecological features, they are as follows:

- study area for habitats – 50 m buffer of relevant subcomponents (or 10 m buffer for temporary access tracks for XL uprating and reconductoring works);
- study area for otter *Lutra lutra* – 200 m buffer of relevant subcomponents;
- study area for great crested newt *Triturus cristatus* – 250 m buffer of relevant subcomponents;
- study area for wintering waterbirds – 500 m buffer of relevant subcomponents;
- study area for badger – 100 m of the substation footprint and 50 m of all other relevant components; and
- study area for other species (including but not limited to bats, and beaver *Castor fiber*) – 30 m buffer of relevant subcomponents.

#### **Desk Study Methods**

6.4.12 A desk study was carried out to identify nature conservation designations and records of important habitats and species (as defined under Assessment Methodology below) potentially relevant to the Proposed Development. A stratified approach was taken when defining the desk study area to capture different ecological features within a potential Zol of the Proposed Development. Accordingly, the desk study sought to identify:

- SPAs, SACs, and Ramsar sites within at least 10 km of the Proposed Development (or further where a hydrological or other ecological connection may exist);
- SSSIs (or other nationally designated sites) within 2 km of the Proposed Development (or further where a hydrological or other ecological connection may exist);
- any other locally designated nature conservation sites within 1 km of the Proposed Development;
- records of protected and/or important habitats and species within 1 km of the Proposed Development made in the last ten years; and,
- local policies relevant to nature conservation.

6.4.13 Study areas are shown on Figure 6.2: Statutory Designated Sites and Figure 6.3: Non-statutory Designated Sites and Ancient Woodland/Tree Inventory.

6.4.14 A range of data sources were used for the desk study, as set out in Appendix 6.1: Methodology.

#### **Field Survey Methods**

6.4.15 Full details of the field survey methodologies followed are set out in Section 2 of Appendix 6.1: Methodology along with the definitions of each ‘survey area’ which are also shown on Figure 6.4: Habitat Survey Results, Figure 6.5: Important Species Survey Results, or Figure 6.6:

Wintering Waterbirds Survey Results. The following surveys were carried out within the original KINN Boundary (as it was understood at time of survey) plus a suitable buffer on 15 and 16 April 2024 where access was possible and safe to inform the baseline of this assessment:

- Phase 1 habitat survey (noting any invasive plant species, if present);
- Bat surveys comprising Daytime Bat Walkover (DBW), Preliminary Roost Assessment (PRA), and Ground Level Tree Assessment (GLTA);
- Great crested newt trisurveys comprising Habitat Suitability Index assessment (HSI assessment) and environmental DNA (eDNA) sampling;
- Otter, water vole *Arvicola amphibius*, and beaver surveys; and
- Badger and pine marten *Martes martes* surveys.

6.4.16 Survey of wintering waterbirds was carried out once per month from October 2023 to March 2024 inclusive, in areas of suitable habitat within the Kincardine North Substation boundary (as it was understood at the time of survey) plus a 500 m buffer.

6.4.17 Surveys along the XL route were carried out on 08 and 09 July 2024 by Bowland Ecology Ltd. The methodology followed is described in Section 2 and the survey area is shown on BOWS23.097: XL Route Ecological Constraints Plan; both in Appendix 6.3: ECU – LWUP XL Route Refurbishment Ecological Walkover DRAFT REPORT. Surveys comprised:

- Habitat surveys (noting the most common invasive plant species, if present);
- GLTA;
- HSI assessment; and
- a search for evidence of and potential for other protected and notable species.

#### **Assessment Methodology**

6.4.18 The assessment of impacts and effects on ecological features described in this chapter was conducted in accordance with the guidelines published by CIEEM (Ref 6.5). This differs from the approach described in Chapter 2: Approach to EIA, however, it aligns with industry-standard good practice which discourages the use of a matrix approach. A detailed description of the CIEEM method for impact assessment is provided in Section 3 of Appendix 6.1: Methodology.

6.4.19 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 (both those likely to be present at the time works begin, and for comparison, those predicted to be present at a set time in the future);
- the importance of identified ecological features is evaluated to place their relative biodiversity and nature conservation value into a geographic context, determining those that need to be considered further within the impact assessment;
- the potential impacts of the Proposed Development on relevant ecological features are described, considering established best practice, legislative requirements and embedded design measures;

- the likely significant effects (adverse or beneficial) on relevant ecological features are assessed;
- measures to avoid or reduce any likely significant effects, if possible, are developed in conjunction with other elements of the design (including mitigation for other environmental disciplines);
- any likely residual effects of the Proposed Development and their significance are reported;
- scope for enhancement measures is considered; and,
- monitoring of mitigation and enhancement measures is carried out and remedial action undertaken, where this is found to be necessary, to achieve desired outcomes.

6.4.20 For the purposes of this EIA, the geographical level of 'National' means Scotland, 'Regional' is defined as the area encompassed by NHZ 16, 'County' as the combined area of the Fife and Clackmannanshire local authority areas, and 'Local' as the area within 10km of the Proposed Development.

6.4.21 Effects predicted to be significant on an ecological feature at the County or greater geographic level are considered to be 'Significant' in broader EIA terms, whereas those predicted to be significant only at the Local or Negligible levels, are considered to be 'Not Significant' in broader EIA terms.

#### **Limitations and Assumptions**

6.4.22 A detailed list of limitations is provided in Section 5 of Appendix 6.1: Methodology. The most notable limitation that is considered throughout this assessment is that desk study search areas and field survey areas were based on the original KINN boundary which subsequently changed. Therefore, some of the study areas considered in this assessment were not surveyed during field surveys, including along Hawkhill Road. Aerial imagery and Google Street View are used to supplement field surveys where necessary as well as independent reports from Bowland Ecology Ltd and Callophrys Tree Consultancy (Ref 6.12).

6.4.23 Owing to the above, some assumptions are made in relation to the baseline, most notably in the case of bats. These are clearly set out as relevant within Section 6.5: Baseline.

## **6.5 Baseline**

### **Introduction**

6.5.1 The baseline ecology is set out below. Given the multiple components comprising the Proposed Development, clarity is provided on the baseline in relation to each of the components of the Proposed Development.

### **Kincardine North Substation**

#### Designated Sites

#### Statutory Designated Sites

Firth of Forth SPA and Ramsar site are the only internationally designated sites within the KINN study area. These sites are designated for a wide range of non-breeding birds detailed in Appendix 6.4: Statement to Inform Habitats Regulations Appraisal (Ref 6.13; Ref 6.14).

6.5.2 Firth of Forth SSSI is also situated within the KINN study area and is largely concurrent with the SPA and Ramsar site. In addition to an array of non-breeding birds (for which the Firth of Forth SPA and Ramsar site are designated) and geological features, the following are notified biological features of this SSSI:

- breeding ringed plover *Charadrius hiaticula*, shelduck *Tadorna tadorna*, and eider *Somateria mollissima*;
- coastal habitats (maritime cliff, saltmarsh, and sand dunes);
- mudflats and saline lagoons;
- lowland neutral grassland;
- transition grassland;
- vascular plant assemblage;
- beetle assemblage; and,
- northern brown argus *Aricia artaxerxes*.

6.5.3 These largely concurrent sites are all situated, at closest, 245 m west and downstream of the Site, and are hydrologically connected to the Site via the Canal Burn. Intervening land comprises the A876, a small agricultural field and strips of scrub / woodland to the west of the Site, and Kincardine Generating Station to the south. The location of these sites in relation to the Proposed Development is shown on Figure 6.2.

6.5.4 The River Teith SAC is approximately 13.5 km northwest of the Site and is hydrologically connected via the River Forth and Firth of Forth. However, this SAC lies upstream of the confluence of the Firth of Forth and the Canal Burn (which flows through the KINN Site), and habitats within the Site are not suitable for qualifying features of this SAC. Therefore, the River Teith SAC is considered outside the Zol of KINN.

6.5.5 Note also that Slamannan Plateau SPA is approximately 14.5 km southwest of the Site; however, it is designated only for Taiga bean goose *Anser fabalis fabalis* which travel significantly shorter distances from roost sites to forage than other important goose species, hence this is considered outside the Zol of KINN.

6.5.6 Similarly, South Tayside Goose Roosts SPA and Ramsar site, which is designated for waterbird species including pink-footed goose *Anser brachyrhynchus* and greylag goose *Anser anser*, is over 20 km northwest of the Site. The maximum limit at which connectivity to a goose SPA can be assumed is generally considered to be 20 km (Ref 6.15). Therefore, this SPA is regarded as being outside the Zol of KINN.

#### Non-statutory Designated Sites

6.5.7 There are no non-statutory designated sites within 1 km, or further afield, which are connected hydrologically or ecologically to KINN.

#### Habitats

#### Desk Study

6.5.8 No woodland listed on the AWI is present within or immediately adjacent to the Site; however, four areas of long-established woodland of plantation origin (LEPO) are present within 1 km. The closest of these are associated with Old Tulliallan Castle Woods and Tulliallan Golf Club,

which are approximately 225 m and 250 m from the KINN Site, respectively. Additionally, numerous veteran and notable trees are recorded on the Ancient Tree Inventory within 1 km of the KINN Site. These are spread around Scottish Police College, at closest, 600 m east of the KINN Site. The location of AWI woodland and ancient/notable trees in relation to the OHL works is shown in Figure 6.3: Non-statutory Designated Sites and Ancient Woodland/Tree Inventory. Considering the lack of connectivity and intervening distance, LEP associated with Tulliallan Golf club is outside the ZOI of KINN.

- 6.5.9 No watercourses within the Site have been assessed under the Water Framework Directive; however, the Upper Forth Estuary, which encompasses the Firth of Forth between Kincardine and Stirling and is downstream of and hydrologically connected to the Site, is classed as having Moderate overall status and is rated Good for fish. Its hydromorphology lowers the overall rating as it has been designated as a heavily modified water body (HMWB).

#### Field Survey

- 6.5.10 Habitats recorded during field survey are shown on Figure 6.4 with priority habitats highlighted where present.
- 6.5.11 The Site is dominated by arable crops except along existing tracks / roads and field boundaries where there are strips of scrub and unmanaged neutral grassland with locally scattered trees. There is one pond present in the far western part of the Site with transitional swamp habitat around the margins, and heavily modified watercourses flow along the northern and southern edges of the Site boundary.

#### Woodland and scrub

- 6.5.12 One area of mature broadleaved woodland considered to be Lowland Mixed Deciduous Woodland (LMDW) SBL priority habitat was identified during the survey. It is located adjacent to the railway southeast of the Site and is dominated by mature birch *Betula* sp. with occasional willow *Salix* sp.. Wych elm *Ulmus glabra*, sycamore *Acer pseudoplatanus*, rowan *Sorbus aucuparia*, oak *Quercus* sp. and immature ash *Fraxinus excelsior* are also found more rarely. Occasionally shrubs including dog-rose *Rosa canina* and hawthorn *Crataegus monogyna* are present.
- 6.5.13 The ground flora is dominated by neutral grasses with abundant bramble *Rubus fruticosus* agg. and wild strawberry *Fragaria vesca*. Frequently there is raspberry *Rubus idaeus*, nettle *Urtica dioica*, cleavers *Galium aparine*, germander speedwell *Veronica chamaedrys*, and, rarely, red campion *Silene dioica*, lesser celandine *Ranunculus ficaria*, herb-Robert *Geranium robertianum*, primrose *Primula vulgaris* and ground-ivy *Glechoma hederacea*. Locally, particularly to the south, there are patches of bluebell *Hyacinthoides non-scripta* and wood anemone *Anemone nemorosa*. This woodland is not listed on the AWI, although it is contiguous with the area of long-established plantation associated with Old Tulliallan Castle Woods, but it does reflect some characteristics of ancient semi-natural woodland.
- 6.5.14 An additional area of mature woodland which also likely qualifies as LMDW is located adjacent to the above, south of the Site. This could not be fully inspected due to access constraints; however, it appeared to support similar tree species with additional non-native conifers. This may indicate that this woodland is of lower quality than that described above, and it is possible the woodland should be classed as 'mixed' rather than purely 'broadleaved', although ancient woodland indicators including bluebell could still be seen in abundance from accessible land. A small fragment of this woodland located slightly further west along an unnamed watercourse

was entered and found to support dog's-mercury *Mercurialis perennis*, another ancient woodland indicator.

- 6.5.15 The remaining woodland within the habitat survey area, located northeast of the Site, is not of sufficient quality to qualify as LMDW, being relatively immature and having a scrubby and species-poor ground flora. It is dominated by ash with abundant hawthorn and elder *Sambucus nigra* within the shrub layer. The ground flora supports mainly nettle, bramble and neutral grasses, with occasional cleavers, rosebay willowherb *Chamerion angustifolium*, common hogweed *Heracleum sphondylium* and, rarely, red campion.
- 6.5.16 The majority of scrub within the habitat survey area is bramble, hawthorn, willow or gorse *Ulex europaeus* with occasional elder and raspberry, often with ruderal species such as rosebay willowherb scattered throughout.
- 6.5.17 Locally, surrounding Pond KINN03, the scrub is damper and comprises immature goat willow *Salix caprea* and hawthorn with a ground flora containing occasional common reed *Phragmites australis*. This is not considered to qualify as any SBL priority habitats due to the immaturity of the woodland and sparseness of wetland herbs in the ground flora.

#### *Neutral grassland*

- 6.5.18 Semi-improved neutral grassland is locally present on road verges and along ditches within the habitat survey area. It is not of particular note and is dominated by grasses such as false oat-grass *Arrhenatherum elatius*, Yorkshire-fog *Holcus lanatus* and red fescue *Festuca rubra*. Frequently there is ribwort plantain *Plantago lanceolata*, dock *Rumex* sp., bramble, common hogweed, creeping thistle *Cirsium arvense* and daisy *Bellis perennis*. Locally around ponds KINN01 and KINN02 the grassland is slightly more diverse with occasional common knapweed *Centaurea nigra*, yarrow *Achillea millefolium*, cuckooflower *Cardamine pratensis*, meadow vetchling *Lathyrus pratensis* and, rarely, wild angelica *Angelica sylvestris*.
- 6.5.19 Also present and of minimal ecological note is poor semi-improved grassland. This is located mainly along field edges used by agricultural vehicles and in locally damp parts of fields which have not been resown. It is overwhelmingly dominated by false oat-grass with occasional dock, creeping thistle and colt's-foot *Tussilago farfara*.

#### *Agricultural habitats*

- 6.5.20 The vast majority of the habitat survey area (and almost the entire Site excluding access routes) is dominated by heavily modified agricultural land in the form of improved pasture and cereal crops. This includes stubble from harvested crops and ploughed areas. There are no noteworthy field margins around the arable fields. Improved grasslands include damp horse-grazed fields south of the Site.

#### *Aquatic habitats*

- 6.5.21 Two ponds are present within the habitat survey area – ponds KINN02 (within the Site) and KINN03 (approximately 30 m north of the Site).
- 6.5.22 Both KINN02 and KINN03 are likely man-made SUDS associated with the adjacent A876 road and industrial yard, respectively. Both are surrounded by common reed dominated swamp and constitute Reedbed SBL priority habitat. Reedbeds recorded within the study area (and which extend northward) are most likely to fit National Vegetation Classification (NVC) community S28 *Phalaris arundinacea* tall-herb fen which is not considered a likely GWDTE (Ref 6.16). Additional marsh marigold *Caltha palustris*, yellow iris *Iris pseudacorus*, meadowsweet

*Filipendula ulmaria* and duckweed *Lemna minor* were noted at KINN02 and bulrush *Typha latifolia* at KINN03.

- 6.5.23 An additional two ponds – KINN01 and KINN04 – are outside the habitat survey area but are considered for their potential to support great crested newt (see Great Crested Newt below).
- 6.5.24 Canal Burn, which flows along the northern border of the Site, appears artificially canalised with a maximum width of 2 m. The water appeared deep with a soft substrate, though this could not be confirmed due to safety concerns. Locally in the north the Canal Burn is densely vegetated by common reed and reed canary-grass *Phalaris arundinacea*. To the east, the Canal Burn is locally culverted, both within the agricultural fields and where it is crossed by the A876. Immediately east of the A876 the banks of the Canal Burn are very steep and dominated by scrubby vegetation. The Canal Burn is fed from the north by KINN02 via a smaller, locally culverted watercourse.
- 6.5.25 An unnamed tributary of the Canal Burn borders the main part of the Site to the south. This also has a maximum width of approximately 2 m and an unknown depth with likely soft substrate, becoming more shallow and narrower to the east. There is extensive evidence of iron oxide deposits, and of recent ditch mechanical clearance/widening. The bankside habitat is of managed farmland to the north and mature woodland to the south. No significant in-channel vegetation is present. The banks of this tributary also become steeper and scrubbier to the west, and it is culverted beneath the A876.
- 6.5.26 The unnamed tributary and Canal Burn converge to the west of the A876, approximately 260 m before it joins the Firth of Forth, which, at this point, is brackish and tidal.

#### *Other habitats*

- 6.5.27 Tall ruderal vegetation is present in patches along the unnamed tributary which runs along the southern boundary of the Site. This comprises Japanese knotweed *Reynoutria japonica*, an invasive non-native species (INNS) that is discussed in more detail below.
- 6.5.28 The industrial yard located north of the Site contains hardstanding and industrial/office buildings. There is also a bare earth track used by agricultural vehicles along the south-westerly edge of the Site.

#### Species

##### Bats

- 6.5.29 No records of bats were identified during the desk study; however, the Site is within the distribution range of the following bat species (Ref 6.17):
- brown long-eared bat *Plecotus auritus*;
  - common pipistrelle *Pipistrellus pipistrellus*;
  - Daubenton's bat *Myotis daubentonii*;
  - Nathusius' pipistrelle *Pipistrellus nathusii*;
  - Natterer's bat *Myotis nattereri*;
  - noctule *Nyctalus noctula*;
  - soprano pipistrelle *Pipistrellus pygmaeus*; and,
  - whiskered bat *Myotis mystacinus*.

- 6.5.30 Habitats within the KINN study area are mostly of Low suitability for commuting and foraging bats (Ref 6.18). This is because the vast majority (including the entirety of the substation footprint) comprise arable fields which offer limited foraging habitat (low invertebrate density) and/or commuting features for bats. However, there is greater suitability associated with the woodlands, occasional scattered trees and wetland habitats that occur peripherally, and the line of mature trees that align Hawkhill Road which have some connectivity to habitats in the wider area (e.g., via habitat along the railway and field edges). The Canal Burn offers poor quality for foraging and commuting at baseline, with few trees, highly disturbed riparian vegetation and minimal invertebrate communities expected due to the influence of brackish water and agricultural pollutants. Therefore, bats are unlikely to frequently use these as commuting routes.
- 6.5.31 Of the species listed above, those considered most likely to occur within the KINN study area are common and widespread species plus possibly noctule bats and/or Nathusius' pipistrelle<sup>2</sup> which are rarer in this part of Scotland. Other rarer species are highly unlikely to occur owing to the location of the Site and the habitats present.
- 6.5.32 Three trees with potential to support roosting bats were identified within the GLTA survey area during GLTA and are described below in Table 6-3.

**Table 6-3. Trees with the potential to support roosting bats**

| Ref        | Tree description                      | PRF description                                                                                                                                                                   | Suitability* | Photo                                                                                | Relationship to Proposed Development                                                                                                    |
|------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <b>T01</b> | Mature coppiced willow<br>DBH = 75 cm | Trunk rotten and with stripped bark towards east and south-east.<br>Resulting feature between 1 and 2 m above the ground, internal cavity appears small and is likely to be damp. | PRF-I        |  | Within the Site;<br>100 m west of substation footprint;<br>~5 m south and on the opposite side of Canal Burn to temporary access track. |

<sup>2</sup> Mature woodland associated with Norris Knowe has potential to support Nathusius' pipistrelle. In lieu of detailed baseline information, this species is considered in the assessment on a precautionary basis.

| Ref        | Tree description              | PRF description                                                                                                                                                                                                                                                                                                 | Suitability* | Photo                                                                               | Relationship to Proposed Development                                                                      |
|------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>T02</b> | Mature willow<br>DBH = 100 cm | Hollow rotten trunk from 1 m above ground which is exposed on the north-facing side and in higher branches, but also extends up into a branch where there is potentially a sheltered cavity. Drop-zone from feature is clear.                                                                                   | PRF-M        |   | On the northern top bank of Canal Burn; 150 m north of substation footprint; ~50 m west of proposed SUDS. |
| <b>T03</b> | Mature ash                    | Several features on tree with the potential to extend into cavities:<br><br>Knothole facing south-east at 8 m above the ground.<br><br>Pruning cut at 6 m above the ground facing south.<br><br>Several features facing north at 6 m above the ground.<br><br>Rot feature at 4 m above the ground facing north. | PRF-M        |  | On northern Site boundary; 300 m northeast of substation footprint; ~180 m east of proposed SUDS.         |

\* from preliminary, ground-based assessment only

- 6.5.33 Owing to survey restrictions (discussed in Section 5: Limitations and Assumptions of Appendix 6.1: Methodology), it is possible additional PRFs are present within the KINN study area, particularly along Hawkhill Road but also in the woodland associated with Norris Knowes.
- 6.5.34 The Hawkhill Road Tree Survey (Ref 6.12) identified 48 trees; predominantly pedunculate oak *Quercus robur* but also sycamore and ash. Full details of the size and condition of trees is provided in Appendix 3 of the Hawkhill Road Tree Survey (Ref 6.12). Specific damage (e.g., tear out wounds) was noted on nine trees, with deadwood and/or signs of decay recorded on a further 20 trees. Many of the trees along Hawkhill Road are covered with ivy *Hedera helix* which limited the tree survey in some instances and would impede visibility of PRFs if GLTA survey was carried out. In the absence of comprehensive survey, it is assumed on a precautionary basis that all mature trees (including early mature) contain PRFs with potential to support multiple bats, including possibly a maternity colony (i.e. are PRF-M). The Hawkhill Road Tree

Survey (Ref 6.12) identified 40 mature trees along Hawkhill Road. One additional tree within the KINN study area, east of Hawkhill Road where it intercepts an unnamed road in the south, was not included in the Hawkhill Road Tree Survey (Ref 6.12). Review of StreetView indicates this is a sycamore and, on a precautionary basis, it is assumed to be PRF-M. Therefore, in total, up to 41 trees are present in the Hawkhill Road Access Improvements study area with suitability to support significant bat roosts.

- 6.5.35 As discussed above, bat species most likely to occur within the KINN study area, and hence roost in trees along Hawkhill Road, are common and widespread species plus potentially noctule bats which are rarer in this region. Trees along Hawkhill Road are not suitable for use by Nathusius' pipistrelles since these trees occur in a tree line as opposed to woodland habitat preferred by this species.

#### Otter

- 6.5.36 The desk study did not identify any records of otter; however, otter is widespread in Scotland (Ref 6.17) including the Eastern Lowlands.
- 6.5.37 A single potential resting place was identified during field surveys. The feature comprises a large culvert (approximately 2 m diameter) carrying the unnamed tributary of the Canal Burn beneath the railway (see Plate 6.1). It has a ledge above water level which is of suitable size for resting otters and multiple spraints indicate frequent use. Due to this, it is precautionarily assumed to be a resting place (which would be traditionally termed a layup feature), though this cannot be confirmed without camera trapping. The assumed layup is approximately 5 m from the southeast corner of the Site and 350 m south-east of the substation footprint. Tree planting as part of the proposed landscape and biodiversity plan (discussed in Section 6.8: Additional Mitigation) extends into the south-eastern corner of the Site, 5 m from the identified layup.
- 6.5.38 A pile of old and recent spraints was observed on the shelf at the culvert entrance and more may have been present within. The culvert extends for approximately 20 m, and the upstream end could be seen clearly through the opening but was not accessed for closer inspection (discussed in Section 5: Limitations and Assumptions of Appendix 6.1: Methodology). The potential resting place is likely to experience variable conditions (e.g., water levels) so is not suitable as a natal holt.

*Plate 6.1. Photograph of a large culvert which passes under the railway line and is presumed to be used as a layup by otter*



- 6.5.39 An additional two spraint sites were identified within the otter survey area. One of these was further west along the unnamed tributary of the Canal Burn, downstream of the layup, and comprised one fresh and two old spraints. The other was a single recent spraint found on the bank of pond KINN01 which is likely accessed via Canal Burn. No other field signs of otter were recorded during surveys. All evidence of otter recorded during field surveys is shown on Figure 6.5.
- 6.5.40 The Canal Burn and an unnamed tributary of the Canal Burn flow along the north-westerly and southerly boundaries of the Site, flowing from northeast to southwest. Both watercourses are typical of ditches in an agricultural landscape and have little opportunity for holt establishment. However, no survey was carried out southwest of where the unnamed tributary flows under the adjacent road (discussed in Section 5: Limitations and Assumptions of Appendix 6.1: Methodology). Nonetheless, it is extremely unlikely there are any holts present within 30 m of proposed works. As discussed below under Fish, watercourses and waterbodies within and around the Site are of poor quality for most fish species, a key prey item for otter, but may support a limited number of amphibians and offer suitable commuting routes.
- 6.5.41 It is likely that the watercourses are utilised by otters commuting throughout the wider landscape between habitats with greater prey availability such as the Firth of Forth or Peppermill Dam. This may include mobile cubs but the stretch of suitable habitat within the KINN study area is unlikely to be a core part of any breeding site.

#### Water Vole

- 6.5.42 No records of water vole were returned during the desk study, and the nearest hectad (10 x 10 km grid square) with a positive water vole record from the NWVDP is at least 2 km from KINN (both south and north-east) with either no direct hydrological connection or an impassable barrier to movement (i.e. the Firth of Forth).
- 6.5.43 No evidence of water vole was recorded during field surveys which, despite alterations to the Site boundary, covered all areas of suitable habitat where water vole could potentially be impacted (if present) within the KINN study area. This included a search for any signs of historic occupancy (burrows often remain intact for many years though may be less obvious when infrequently used outside of breeding season). Although results are limited to a single survey (discussed in Section 5: Limitations and Assumptions of Appendix 6.1: Methodology), the influence of obvious iron oxide pollution and presence of American mink in the area (discussed further under Non-native Species below) reduces habitat suitability for water vole.
- 6.5.44 Water voles are therefore considered likely absent from the KINN study area.

#### Beaver

- 6.5.45 The desk study returned one record of beaver provided by Fife Nature Records Centre. Details about this record are limited (though it is assumed to be an individual sighting) and the location accuracy of this record was 10 km<sup>2</sup>, so its relevance to the Proposed Development is uncertain.
- 6.5.46 During the field survey, a willow adjacent to the unnamed ditch in the far southwest of the Site showed evidence of having been historically gnawed by beaver. However, no recent evidence was found during the survey. Although it is possible for beaver burrow entrances to be concealed underwater, the vast majority of the banks were visible and where water was opaque, limiting visibility, watercourses had a very soft silty substrate which is highly unlikely to support a large burrow structure.
- 6.5.47 Beaver is therefore considered to be likely absent from the KINN study area, and no refuges are present within 20 m of works.

#### Pine Marten

- 6.5.48 The desk study identified two records of pine marten provided by Fife Nature Records Centre; however, these records are only accurate to 10 km<sup>2</sup>, so it is unclear how relevant they are KINN.
- 6.5.49 No evidence of pine marten was recorded during field surveys, including potential dens; however, access to suitable habitat was limited (discussed in Section 5: Limitations and Assumptions of Appendix 6.1: Methodology). Pine martens are unlikely to use arable fields which occupy the majority of the Site, nor take refuge within these habitats.
- 6.5.50 Therefore, pine martens are considered absent from the majority of the KINN study area, but on a precautionary basis are considered present within more suitable woodland habitat south of the substation footprint where dens may be present.

#### Red Squirrel

- 6.5.51 The desk study identified nineteen records of red squirrel provided by Fife Nature Records Centre to the south and east of the substation footprint, spread across trees and woodland associated with Old Tulliallan Castle, Tulliallan Golf Club, and Kincardine town. Further records submitted to Saving Scotland's Red Squirrels also indicate that red squirrels are

present in these areas. The closest record of red squirrel identified during the desk study is approximately 200 m east of the Site.

- 6.5.52 No evidence of red squirrel was incidentally recorded during field surveys for other protected species; however, survey within suitable habitat was limited by access constraints (discussed in Section 5: Limitations and Assumptions of Appendix 6.1: Methodology).
- 6.5.53 Considering arable fields are unsuitable habitat, red squirrel are considered largely absent from the KINN study area but are likely present along tree lines and within woodlands which border the field within which the substation footprint is situated.

#### Badger

- 6.5.54 No records of badger were identified during the desk study. Nor was any definitive evidence of badger identified during field surveys; however, survey within suitable habitat was limited by access constraints (discussed in Section 5: Limitations and Assumptions of Appendix 6.1: Methodology).
- 6.5.55 A single mammal burrow was identified during field surveys. Surveys were limited so it is possible the burrow is used by badger; hence its location is undisclosed due to persecution risk. However, the burrow is within the ZOI of tree and scrub planting as part of the proposed landscape and biodiversity plan (discussed further in Section 6.8: Additional Mitigation).
- 6.5.56 The burrow comprised a single large hole with recent spoil at the entrance and an associated well-trodden trail. The feature could not be inspected further (e.g. to search for the presence of badger hairs / footprints) due to an obstruction. If occupied by badger, this burrow likely functions as an outlier sett at most owing to the singular entrance hole and lack of badger evidence in the surrounding area. Woodland south of the substation footprint which could not be accessed during the survey also has the potential to support badger setts.
- 6.5.57 As badgers are common and widespread in Scotland, they are likely to be present the KINN study area and forage/commute across the landscape. On a precautionary basis, badger setts are assumed to be present within Tulliallan Castle Woodland; however, if a main sett was present in proximity to the badger survey area, evidence of activity would be expected to be recorded.

#### Other Important Mammals

- 6.5.58 The following records of other important mammals were identified during the desk study, provided by Fife Nature Records Centre:
- eight records of brown hare *Leptus europaeus* associated with open habitats in the east and south of the KINN study area (records were at least 400 m from the Site);
  - seven records of hedgehog *Erinaceus europaeus* mainly in the south and east of the INN study area, with one record of roadkill on the A876, approximately 200 m west of the Site; and
  - one record of minke whale *Balaenoptera acutorostrata* from within the River Forth, approximately 1 km south of the Site.
- 6.5.59 During the field survey, four brown hares (a SBL priority species) were incidentally recorded exhibiting courtship behaviour within the arable field where the substation footprint is proposed. The location of these sightings is shown on Figure 6.5. No other important mammals, or field signs indicative of their presence, were recorded during field survey;

however, habitats around the periphery of the KINN study area, specifically rough grassland, scrub, and woodland, are suitable to support hedgehog.

- 6.5.60 There is no habitat suitable for marine mammals, mountain hare, or wildcat and these species are considered absent from the KINN study area.

#### Birds

- 6.5.61 The desk study identified records of 52 important bird species provided by Fife Nature Records Centre. Of these, the following species may be present in habitats within the KINN study area for foraging and roosting, species underlined may also breed in these habitats and qualifying features of relevant designated sites (detailed under Statutory Designated Sites above) are written in bold:

- barn owl *Tyto alba*;
- **bar-tailed godwit** *Limosa lapponica*;
- black-headed gull *Chroicocephalus ridibundus*;
- black-tailed godwit *Limosa limosa*;
- bullfinch *Pyrrhula pyrrhula*;
- **curlew** *Numenius Arquata*;
- fieldfare *Turdus pilaris*;
- **golden plover** *Pluvialis apricaria*;
- greenfinch *Chloris chloris*;
- greylag goose;
- grey partridge *Perdix perdix*;
- herring gull *Larus argentatus*;
- house martin *Delichon urbicum*;
- house sparrow *Passer domesticus*;
- kestrel *Falco tinnunculus*;
- lesser redpoll *Acanthis cabaret*;
- linnet *Linaria cannabina*;
- little egret *Egretta garzetta*;
- mediterranean gull *Ichthyaetus melanocephalus*;
- merlin *Falco columbarius*;
- mistle thrush *Turdus viscivorus*;
- **northern lapwing** *Vanellus vanellus*;
- peregrine *Falco peregrinus*;
- redwing *Turdus iliacus*;
- ruff *Calidris pugnax*;

- short-eared owl *Asio flammeus*;
- siskin *Spinus spinus*;
- skylark *Alauda arvensis*;
- song thrush *Turdus philomelos*;
- starling *Sturnus vulgaris*;
- swift *Apus apus*;
- tree sparrow *Passer montanus*;
- twite *Linaria flavirostris*;
- whooper swan *Cygnus cygnus*;
- woodcock *Scolopax rusticola*; and
- yellowhammer *Emberiza citronella*.

- 6.5.62 Following incidental consultation with the groundskeeper, it was indicated that barn owls may nest in Old Tulliallan Castle, which is 200 m south of the Site and 460 m south of the substation footprint.
- 6.5.63 Pink-footed goose, curlew and herring gull were the only waterbirds recorded during field surveys. Flocks of pink-footed goose and curlew were observed foraging within the KINN study area at high and low tide; both species are qualifying features of the Firth of Forth SPA, Ramsar site and SSSI. Curlews were regularly recorded during field surveys, whereas pink-footed geese were only recorded in early 2024.
- 6.5.64 Additionally, two grey partridges were incidentally recorded outside the KINN study area, to the west, in a nearby field during the March 2024 wintering waterbird field survey. Field survey results are summarised in Table 6-4 and Figure 6.6 shows where target (and incidentally recorded) birds were observed foraging on the ground.

**Table 6-4: Wintering waterbird survey results**

| Survey month         | Tidal state | Species      | Number of birds* | Location and proximity to Site                                                                                                                                                                                                                                                                                                                       |
|----------------------|-------------|--------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>October 2023</b>  | High        | Curlew       | 40               | In an adjacent field to KINN, in the southwest of the KINN study area, where planning for Kincardine Grid Services Complex has been approved.<br>~20 m from the Site and 95 m from the substation footprint.                                                                                                                                         |
| <b>November 2023</b> | Low         | Curlew       | 44 + 5           | Two groups in adjacent fields (one where planning for Kincardine Grid Services Complex has been approved and another north of KINN02).<br>The larger group were within 5 m of the Site to the southwest and the smaller group were within the westernmost part of KINN study area. The closest individuals were ~75 m from the substation footprint. |
|                      |             | Herring gull | 2                | In an arable field approximately 450 m west of the Site and 550 m west of the substation footprint.                                                                                                                                                                                                                                                  |

| Survey month                                                  | Tidal state | Species                     | Number of birds* | Location and proximity to Site                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------|-------------|-----------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>December 2023</b>                                          | High        | Curlew                      | 10 + 4 + 9       | Three groups in adjacent fields (one where planning for Kincardine Grid Services Complex has been approved and another north of KINN02).<br><br>The larger group were ~45 m southwest of the Site and the smaller group were within the westernmost part of Site where it overlaps the adjacent field to the north-east. The closest individuals were ~140 m west of the substation footprint. |
| <b>January 2024</b>                                           | Low         | No target species observed. |                  |                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>February 2024</b>                                          | High        | Curlew                      | 150 + 12 + 5     | Three groups observed in fields west of the Site.<br><br>The closest group was ~270 m from the Site and ~500 m west of the substation footprint.                                                                                                                                                                                                                                               |
|                                                               |             | Pink-footed goose           | 200              | In an arable field approximately 500 m west of the Site and ~800 m southwest of the substation footprint on the banks of the Firth of Forth.                                                                                                                                                                                                                                                   |
| <b>March 2024</b>                                             | Low         | Pink-footed goose           | 200 + 145        | Two groups of birds were observed in the arable fields where the substation footprint is proposed. Some individuals were observed within the substation footprint.                                                                                                                                                                                                                             |
| <b>* Where large flocks occurred, counts are approximate.</b> |             |                             |                  |                                                                                                                                                                                                                                                                                                                                                                                                |

- 6.5.65 Peak numbers of curlew and pink-footed goose observed within the Site or adjacent fields during one survey visit was 49 (in November 2023) and 345 (in March 2024) respectively which represents approximately 9% and 3% of the Firth of Forth SPA populations when considering the latest population estimates (Ref 6.19).

#### Great Crested Newt

- 6.5.66 No records of great crested newt were identified during the desk study. The nearest hectad within which great crested newt have been recorded on RecordPool is south of the Firth of Forth (a significant barrier to movement).
- 6.5.67 The desk study identified six waterbodies within the KINN study area. Two waterbodies, both located within the industrial yard in the north, were scoped out of further survey due to their being unsuitable; one was a large industrial tank at ground level with no means for a newt to access/egress, the other is a large artificial drainage area which rarely wets and contains sparse terrestrial vegetation.
- 6.5.68 The results of the HSI assessment and eDNA sampling for the ponds are summarised in Table 6-5. Full details of the HSI assessment and eDNA analysis for each waterbody are provided in Appendix 6.2: Great Crested Newts and the location of ponds is shown on Figure 6.5: Important Species Survey Results.

**Table 6-5. Great crested newt HSI assessment and eDNA survey results**

| Pond reference                                              | Description                                                                                                                                                                                        | Relation to Site                                              | HSI Score*                    | HSI suitability category* | eDNA analysis result** |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-------------------------------|---------------------------|------------------------|
| KINN01                                                      | SUDS pond with poor water quality and high cover of common reed.                                                                                                                                   | 35 m west of the Site.<br>Connected via Canal Burn.           | 0.68                          | Average                   | Negative               |
| KINN02                                                      | Large SUDS pond with poor water quality. Open centrally with dense common reed around perimeter transitioning into marsh habitat.                                                                  | Within Site.<br>Upstream of Canal Burn.                       | 0.72                          | Good                      | Negative               |
| KINN03                                                      | Pond comprising two distinct areas of open water with moderate water quality, bordered by scrub. Southern area is peripherally vegetated with common reed and northern area is covered by bulrush. | 20 m north of the Site.<br>Upstream of Canal Burn.            | 0.73                          | Good                      | Negative               |
| KINN04                                                      | Unknown                                                                                                                                                                                            | 125 m south of the Site.<br><br>No hydrological connectivity. | Unknown - no access to KINN04 |                           |                        |
| *As calculated/assigned following HSI methodology           |                                                                                                                                                                                                    |                                                               |                               |                           |                        |
| **As provided by SureScreen following water sample analysis |                                                                                                                                                                                                    |                                                               |                               |                           |                        |

- 6.5.69 Great crested newts live in a metapopulation structure comprising multiple breeding ponds typically within 500 m of one another (Ref 6.6). Aside from the surveyed ponds (none of which support great crested newt), the nearest identified ponds to KINN04 are approximately 380 m east within a golf course and are separated by an active railway line as well as the A977 meaning KINN04 is highly isolated. Therefore, although KINN04 could not be accessed to confirm presence or absence via targeted survey, it is highly likely great crested newt are absent from this pond and the Site.

#### Other Common Amphibians

- 6.5.70 Records of other amphibians including common toad *Bufo bufo* are available on Record Pool within the hectads which overlap the KINN study area. Common amphibians may occur along field margins or within adjacent woodland and rough grassland habitats, particularly in proximity to wetland habitats such as ditches and ponds but are highly unlikely to be present centrally within the study area where the substation footprint is situated. Considering the absence of optimal amphibian habitat in the area there is unlikely to be a significant population of common amphibians within the KINN study area.

### Reptiles

- 6.5.71 Common lizard *Zootoca vivipara* is present within the hectads overlapping the Site, as recorded via Record Pool. However, arable land is highly unfavourable for reptile species; which require habitats offering foraging, shelter, and basking opportunities, such as mosaics of rough grassland, moorland and scrub with open areas. Although common lizard and slow worm *Anguis fragilis* could occur in limited numbers along field edges and in surrounding habitats, the arable fields which dominate the KINN study area are entirely unsuitable for these species. Furthermore, there is no suitable habitat in the KINN study area for adder *Vipera berus*. Considering the limited availability of suitable habitat and poor connectivity due to enclosure by the A876 and A977 there are unlikely to be significant populations of any reptiles within the KINN study area.

### Fish

- 6.5.72 No records of fish were identified during the desk study; however, migrating Atlantic salmon *Salmo salar* are present within the River Forth, downstream of KINN according to Scotland's National Marine Plan (NMP). Watercourses around the periphery of the KINN study area are not considered suitable for most notable fish species (including Atlantic salmon) for the following considerations:

- there is a high frequency of obstacles to migration (especially the numerous culverts)
- water quality is poor and was observed to be both slightly brackish and with evidence of iron oxide deposits
- substrate is likely soft which does not offer suitable spawning habitat, and
- there is a lack of connectivity to suitable spawning habitat upstream (if present).

- 6.5.73 There is, however, limited suitability for these watercourses to support eel. Without targeted survey to confirm presence/absence, eels are assumed to be present within the KINN study area on a precautionary basis.

### Invertebrates

- 6.5.74 Two records of cinnabar moth *Tyria jacobaeae* and one record of grey dagger *Acronicta psi* were identified during the desk study. These records were provided by Fife Nature Records and were located south of KINN, near Kincardine. Both species are widespread and common in Scotland, but have been included as they were listed on the 2012 SBL.
- 6.5.75 Cinnabar moths show foraging preference for ragwort *Senecio jacobaea* as this is where they source the toxins which makes them unpalatable to predators (Ref 6.20). Ragwort does not grow in intensively farmed arable fields since it cannot tolerate regular soil cultivation, hence is absent across the majority of the KINN study area.
- 6.5.76 Grey daggers are most associated with broadleaved woodland so may be present around the periphery of the KINN study area, particularly in the south. There is no suitable habitat for grey daggers within the arable field where the substation platform is proposed. Therefore, these important moth species are considered likely absent from the majority of the KINN study area; however, it is possible a few cinnabar individuals may forage within the westernmost reaches and grey daggers may be present in woodland in the south.

- 6.5.77 The KINN study area is predominantly an area of arable crop which is species-poor and not likely to support any other notable invertebrates. Peripheral habitats are typical of those in the Eastern Lowlands and are not of particular value to invertebrate assemblages.

Non-native Species

- 6.5.78 No records of non-native flora were identified during the desk study; however, records of grey squirrel *Sciurus carolinensis* are interspersed with records of red squirrel on Saving Scotland's Red Squirrels, particularly around Kincardine town. Also, American mink *Neovison vison* has been recorded in National Grid Reference NS98 (within which the KINN study area is situated) as part of the National Water Vole Database Project (NWVDP).
- 6.5.79 Japanese knotweed was noted in five locations along the drainage ditch to the south during field surveys, the locations of which are shown on Figure 6.4. In two incidences, individual plants were recorded and the remaining three comprised larger stands, between 5 and 20 m long. Old stems from the previous year were only noted at a single location. None of the plants observed exhibited particularly vigorous growth, and there was no definitive evidence of herbicide treatment. The stands were recorded to be sparse, with unhealthy individual stems present; this was considered a likely result of constant disturbance of the soil from agricultural activities.
- 6.5.80 Two stands of Japanese knotweed are adjacent to the proposed SUDS pond; one single plant on the opposite side of the unnamed tributary and a larger stand which has been frequently disturbed by agricultural activities. The larger stand is spread across approximately 10 m<sup>2</sup>, with old stems present and no signs of treatment. Tree planting is proposed for the southeast corner of the field in which the substation footprint is located as part of the proposed landscape and biodiversity plan (discussed 6.8: Additional Mitigation). This is adjacent to the 20 m long stand comprising immature plants and a separate single stem of Japanese knotweed.

**Overhead Line Works (XL/ZCN/ZCS Uprating and Turn-ins)**

Designated Sites

Statutory Designated Sites

- 6.5.81 The Firth of Forth SPA and Ramsar site are the only internationally designated sites within the OHL works study area. These sites are designated for a wide range of non-breeding birds detailed in Appendix 6.2: Information to Inform Habitats Regulations Appraisal.
- 6.5.82 Firth of Forth SSSI is also situated within the OHL works study area and is largely concurrent with the SPA and Ramsar site. In addition to an array of non-breeding birds (for which the Firth of Forth SPA and Ramsar site are designated) and geological features, the following are notified biological features of this SSSI:
- breeding ringed plover, shelduck, and eider;
  - coastal habitats (maritime cliff, saltmarsh, and sand dunes);
  - mudflats and saline lagoons;
  - lowland neutral grassland;
  - transition grassland;
  - vascular plant assemblage;
  - beetle assemblage; and

- northern brown argus.

- 6.5.83 The largely concurrent Firth of Forth SPA, Ramsar site, and SSSI are all situated, at closest, 550 m southwest of the OHL works and are hydrologically connected via the Canal Burn. The Site is approximately 900 m upstream of these designated sites. Intervening land comprises the A876, agricultural fields and strips of scrub / woodland.
- 6.5.84 The location of all internationally and nationally designated sites in relation to the Proposed Development is shown on Figure 6.2: Statutory Designated Sites.
- 6.5.85 The River Teith SAC is approximately 13.4 km northwest of the OHL works and is hydrologically connected via the River Forth and Firth of Forth. However, this SAC lies upstream of the confluence of the Firth of Forth and the Canal Burn (which flows through the Site), and habitats within the Site are not suitable for qualifying features of this SAC. Therefore, the River Teith SAC is considered outside of the Zol of the OHL works.
- 6.5.86 Note also that Slamannan Plateau SPA is approximately 14.7 km southeast of the Site. However, this SPA is designated only for Taiga bean goose which travel significantly shorter distances from roost sites to forage than other important goose species, hence this is considered outside the Zol of the OHL works.
- 6.5.87 Loch Leven SPA and Ramsar site, designated for non-breeding waterbirds including pink-footed goose, is situated 18 km northeast of XL uprating and reconductoring works and more than 20 km from the Site. Intervening land comprises a large expanse of agricultural fields and localised woodland parcels. Of the qualifying species pink-footed goose could potentially range the furthest from the SPA, at up to 20 km. Survey data presented in Mitchell (Ref 6.21) show that core foraging areas for pink-footed goose are located within approximately 10 km of the SPA. As such no qualifying species are likely to use habitats on or near the Site or XL uprating and reconductoring works area.
- 6.5.88 South Tayside Goose Roosts SPA and Ramsar site is designated for non-breeding greylag goose and pink-footed goose, which are considered to have core foraging ranges of up to 20 km from sites for which they are qualifying features (Ref 6.22). The XL uprating and reconductoring works are located, at closest, approximately 18.2 km from South Tayside Goose Roosts SPA and Ramsar site, and therefore at the very upper limit of the core foraging range of these species. Based on the foraging distribution provided in Mitchell (Ref 6.21) the core foraging areas from this SPA are to the northeast of the SPA and directly to the southwest. As such SPA qualifying birds are unlikely to forage on or near the OHL tower works.
- 6.5.89 Craigmad Wood SSSI, designated for its upland oakwood and lowland heath habitats, and Linn Mill SSSI, designated for its upland mixed ash woodland, are 0.75 km southeast and 1.9 km northwest of the Reconductoring Towers, respectively. Due to the nature of works, that the designated features are sedentary, at these distances and with lack of other connectivity, these SSSIs are outside of the Zol of the Proposed Development.

#### Non-statutory Designated Sites

- 6.5.90 There are no non-statutory designated sites within the OHL works study area, or further afield, which are connected hydrologically or ecologically.
- 6.5.91 Brucefield Local Nature Conservation Site (LNCS) and Garrison Dam provisional LNCS (shown on Figure 6.3 Non-statutory Designated Sites and Ancient Woodland/Tree Inventory) are situated approximately 100 m east and 250 m west of the nearest XL uprating and

reconductoring works (a Reconductoring Tower and access track), respectively. Though not specified by Clackmannanshire Council in relation to Garrison Dam, both sites appear to be notable for woodland and scrub habitats that are likely support a diverse wildlife assemblage. At this distance, Garrison Dam LNCS is outside the Zol of XL uprating and reconductoring works.

#### Habitats

##### Desk Study

- 6.5.92 No woodland listed on the AWI is present in proximity to OHL tower works; however, five areas of long-established plantation woodland are present within 1 km. The closest of these is associated with Tulliallan Golf Club, approximately 125 m from the Site. A further four parcels are in proximity to XL uprating and reconductoring works, the closest of which overlaps Reconductoring Towers XL018 and XL019. The location of AWI woodland in relation to the OHL works is shown in Figure 6.3 Non-statutory Designated Sites and Ancient Woodland/Tree Inventory .
- 6.5.93 No watercourses in the vicinity of the OHL works have been assessed under the WFD. However, the Upper Forth Estuary, which encompasses the Firth of Forth between Kincardine and Stirling and is downstream of and hydrologically connected to the Site, is classed as having Moderate overall status and is rated Good for fish. Its hydromorphology lowers the overall rating as it has been designated as a HMWB. Similarly, the Black Devon (Source to Birkhill Plantation) is downstream of works at Towers XL018 and XL019, though there is only weak hydrological connectivity via artificial forestry drains. The Black Devon (Source to Birkhill Plantation) is classed as having Poor overall status with Poor rating for fish but High and Good ratings for invertebrate animals and aquatic plants, respectively.

##### Field Survey

- 6.5.94 Habitats within the OHL works study area, recorded during field surveys, are shown on Figure 6.4: Habitat Survey Results with priority habitats (considered to be important) highlighted where present. Habitats recorded by Bowland Ecology Ltd are shown in BOWS23.097 XL: Route Ecological Constraints Plan in Appendix 6.3: ECU – LWUP XL Route Refurbishment Ecological Walkover DRAFT REPORT.
- 6.5.95 The OHL tower works study area is dominated by arable crops and improved pastures except along the railway and at the edge of the neighbouring industrial land where there are strips of scrub, woodland, and unmanaged neutral grassland. There is one pond present in the far northern part of the OHL tower works study area with transitional swamp habitat around the margins, and a heavily modified watercourse flows through the western part of the Site.
- 6.5.96 Habitats in the XL uprating and reconductoring works study area are proposed to take place largely comprise arable and pasture fields. Some woodland habitats (and successive habitats that establish following clear felling) are present peripherally within the habitat study area, including where there are parcels of long-established plantation woodland.

##### Woodland and scrub

- 6.5.97 Semi-natural broadleaved woodland (assumed to be LMDW SBL priority habitat) is present along the railway in the northeast of the OHL tower works study area, and west of Tower XL006 and across the road from Tower XL020.

- 6.5.98 Remaining woodland within the OHL tower works study area, also located in the northeast along the railway, is mostly not of sufficient quality to qualify as LMDW SBL priority habitat. This is because it is relatively immature and has a scrubby and species-poor ground flora. It is dominated by ash with abundant hawthorn and elder within the shrub layer. The ground flora supports mainly nettle, bramble and neutral grasses, with occasional cleavers, rosebay willowherb, common hogweed and, rarely, red campion. Trees are kept small due to safety and maintenance requirement of the adjacent railway and existing OHL.
- 6.5.99 The majority of scrub within the OHL tower works study area is bramble, hawthorn, willow or gorse with occasional elder and raspberry, often with ruderal species such as rosebay willow herb scattered throughout.
- 6.5.100 Locally, surrounding Pond KINN03, the scrub is damper and comprises immature goat willow and hawthorn with a ground flora containing occasional common reed. This is not considered to qualify as any SBL priority habitats due to the immaturity of the woodland and sparseness of wetland herbs in the ground flora.
- 6.5.101 The only woodlands recorded within the XL uprating and reconductoring works study area are:
- semi-natural broadleaved woodland south of an existing road that will be used to access Towers XL013-XL016 that appears from Google Street View to be a line semi-mature trees lining a public path;
  - mixed woodland plantation around Towers XL018 and XL019; and
  - semi-natural mixed woodland around Tower XL019 that appears from aerial imagery and Google Street View to be immature self-seeded trees on previously felled forestry land.
- 6.5.102 Scattered trees within the XL uprating and reconductoring works study area align fields and existing tracks.
- 6.5.103 It is assumed that only one tree would be felled to facilitate OHL works (a mature willow referenced T02 in relation to bats below), although localised lopping/trimming cannot be ruled out in the OHL corridors.

*Neutral grassland*

- 6.5.104 Semi-improved neutral grassland locally occurs on road verges and along ditches within the OHL works study area. This habitat is not of particular ecological note as it is common and widespread across Scotland.

*Marsh/marshy grassland*

- 6.5.105 Marshy grassland is present around Tower XL018 and along the proposed access route to XL019. Here, the overhead line corridor cuts through commercial forestry which appears from desk study information (Carbon and Peatland 2016) to be on peaty gleys. This habitat has potential to be groundwater dependent.

*Agricultural habitats*

- 6.5.106 The vast majority of the OHL works study area is dominated by heavily modified agricultural land in the form of improved pasture, semi-improved neutral grassland, and cereal crops. This includes stubble from harvested crops and ploughed areas. No noteworthy field margins were recorded around the arable fields.

*Aquatic habitats*

- 6.5.107 One pond is present within the OHL tower works study area (KINN03). This pond appears to be a man-made SUDS pond associated with the adjacent private industrial land. It is surrounded by common reed dominated swamp with frequent bulrush which constitutes Reedbed SBL priority habitat. Reedbeds recorded within the study area (and which extend northward) are most likely to fit National Vegetation Classification (NVC) community S28 *Phalaris arundinacea* tall-herb fen which is not considered a likely GWDTE (Ref 6.16).
- 6.5.108 An additional five ponds (KINN01 and KINN02, and Pond 1, Pond 2, and Pond 8) are outside the OHL works study area for habitats but are considered for their potential to support great crested newt (see Great Crested Newt section below).
- 6.5.109 The Canal Burn flows north to west in the north of the OHL tower works study area and through the western part of the OHL tower works study area (at closest, 25 m from the working area around New Towers). The Canal Burn appears artificially canalised with a maximum width of 2 m and the water appeared deep with a soft substrate, though this could not be confirmed due to safety concerns. Locally in the north the Canal Burn is densely vegetated by common reed and reed canary-grass. To the west, the Canal Burn is locally culverted, both within the agricultural fields and where it is crossed by the A876. Immediately west of the A876 the banks of the Canal Burn are very steep and dominated by scrubby vegetation.
- 6.5.110 Watercourses in the XL uprating and reconductoring works study area comprise artificial drainage ditches.

*Other habitats*

- 6.5.111 Dense bracken was recorded at the edge of forestry plantations beside Tower XL012 within the XL uprating and reconductoring works study area.
- 6.5.112 The industrial yard located in the north of the OHL tower works study area contains hardstanding and industrial/office buildings.

Species

Bats

- 6.5.113 No records of bats were identified during AECOM's desk study; however, Bowland Ecology Ltd returned records of common pipistrelle, soprano pipistrelle, and brown long-eared bats (described in paragraph 3.16 of Appendix 6.3: ECU – LWUP XL Route Refurbishment Ecological Walkover DRAFT REPORT) from a wider search area. The OHL works are also within the distribution range of the following bat species (Ref 6.17):
- Daubenton's bat;
  - Nathusius' pipistrelle;
  - Natterer's bat;
  - noctule; and
  - whiskered bat.
- 6.5.114 The agricultural habitats covering the vast majority of the OHL works study area are considered to be of Low suitability (Ref 6.18) for commuting and foraging bats. However, there may be some greater suitability associated with woodlands, occasional scattered trees, scrub, and wetlands at the periphery which have some connectivity to habitats in the wider area via

habitat along field edges and the railway line. Thus, if bats are present, they most likely occur peripherally. Of the species listed above, those considered most likely to occur within the OHL Works study area are common and widespread species plus noctule bats and/or *Nathusius' pipistrelle*<sup>3</sup>. Other rarer species are highly unlikely to occur owing to the habitats present.

- 6.5.115 One tree (T02) with potential to support roosting bats was identified within the OHL tower works study area during GLTA, this is shown in Plate 6-2 below. The tree is a mature willow with DBH of approximately 100 cm. The trunk is rotten and exposed through large rot holes on the north aspect from 1 m above the ground. One hollowed branch appears to extend upwards beyond the rot hole into a potentially sheltered cavity with room for multiple bats. In the absence of further survey, and on a precautionary basis it is assumed this feature is suitable for use by multiple bats including possible a maternity roost (i.e. is a PRF-M). Owing to the location of T02 and the type of features present, it is highly unlikely to be used by noctule or *Nathusius' pipistrelle*. In the absence of any further data, the assessment assumes that the tree is used by a maternity colony of a common and widespread species.

**Plate 6-2: Photographs of tree T02**



- 6.5.116 The access track to Tower XL017 is adjacent to a hawthorn hedgerow with scattered trees including immature birch and two mature deciduous trees. The mature trees may have bat roosting potential; however, they were not inspected during surveys carried out by Bowland Ecology Ltd due to livestock obstructing access. On a precautionary basis, these trees are assumed to be used by roosting bats but owing to the nature of works in this area, they are outside the Zol.
- 6.5.117 Between two fields, where access is proposed to Tower XL013, there is a mature oak tree with a potential feature (small cavity) suitable for an individual bat (PRF-I). This tree is labelled T1 and is shown in BOWS23.097 XL: Route Ecological Constraints Plan and described in the Ecological Constraints Table in Appendix 6.3: ECU – LWUP XL Route Refurbishment Ecological Walkover DRAFT REPORT.

#### Otter

- 6.5.118 The desk study did not identify any records of otter; however, otter is widespread in Scotland (Ref 6.17) including the Eastern Lowlands.

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<sup>3</sup> The extent of woodland that may be suitable for *Nathusius' pipistrelle* is extremely small in the Zol of OHL works.

- 6.5.119 A single potential otter resting place was identified during field surveys; an assumed layup in the southeast of the otter survey area, but this is outside of the OHL works study area relevant to otter.
- 6.5.120 An additional two spraint sites were identified within the surveyed area: one along the unnamed tributary of the Canal Burn, downstream of the assumed layup, and one on the bank of pond KINN01. Although this is outside of the OHL tower works study area, it indicates that otters are active along the Canal Burn. No other field signs of otter were recorded during surveys. All evidence of otter recorded during field surveys is shown on Figure 6.5: Important Species Survey Results.
- 6.5.121 As discussed in Section 5: Limitations and Assumptions of Appendix 6.1: Methodology, although the unnamed tributary of the Canal Burn was not accessed upstream of where it is culverted under the railway, this watercourse is typical of ditches in an agricultural landscape and is extremely unlikely to offer suitable opportunity for holt establishment west of the A977. Due to the nature of works, any possible holts present west of the A977 would effectively be screened from disturbance and outside the Zol of OHL works.
- 6.5.122 There are no suitable watercourses within the XL uprating and reconductoring works study area, only two small ponds are present (between Reconductoring Towers XL014 and XL015, and XL016 and XL017) and artificial drainage ditches. These are not connected to the wider area by suitable commuting channels, so it is extremely unlikely that otter occur there and otter are considered absent.
- 6.5.123 As discussed below under Fish, watercourses and waterbodies in the OHL tower works study area are of poor quality for most fish species, a key prey item for otter, but may support a limited number of amphibians and offer suitable commuting routes. Therefore, it is likely that the watercourses are utilised by opportunistic otter commuting throughout the wider landscape between habitats with greater prey availability such as the Upper Forth Estuary or Peppermill Dam.

#### Water Vole

- 6.5.124 No records of water vole were returned during the desk study, and the nearest hectads with positive water vole records from the NWVDP are at least 2 km from the OHL works (both to the south and northeast) with either no direct hydrological connection or an impassable barrier to movement (i.e. the Upper Forth Estuary) in-between.
- 6.5.125 No evidence of water vole was recorded during field surveys which, despite changes to the site boundary, covered all areas of suitable habitat where water vole could potentially be impacted (if present) within the OHL tower works study area. This included a search for any signs of historic occupancy (burrows often remain intact for many years though may be less obvious when infrequently used outside of breeding season). Although results are limited by a single survey (discussed in Section 5: Limitations and Assumptions of Appendix 6.1: Methodology), the influence of obvious iron oxide pollution reduces habitat suitability for water vole, and American mink is understood to be present within the area (discussed further under Non-native Species below). There are no suitable watercourses within the XL uprating and reconductoring works study area.
- 6.5.126 Water voles are therefore considered likely absent from the OHL works study area.

#### Beaver

- 6.5.127 The desk study returned one record of beaver provided by Fife Nature Records Centre. Details about this record are limited (though it is assumed to be an individual sighting) and the location accuracy of this record was 10 km<sup>2</sup>, so its relevance to the OHL works is uncertain.
- 6.5.128 During the field survey, a willow adjacent to the unnamed ditch in the southwest of the beaver survey area, far outside the OHL tower works study area, showed evidence of having been historically gnawed by beaver. However, this was the only evidence recorded and nothing more recent was found during the survey. Although it is possible for beaver burrow entrances to be concealed underwater, the vast majority of the banks were visible and where water was opaque, limiting visibility, watercourses had a very soft silty substrate which is highly unlikely to support a large burrow structure.
- 6.5.129 As discussed for otter above, there are no suitable watercourses within the XL uprating and reconductoring works study area, only three small ponds are present (between Reconductoring Towers XL014 and XL015, and XL016 and XL017). These are not connected to the wider area by suitable commuting channels and are too small to sustain a beaver family, so it is extremely unlikely that beavers are present.
- 6.5.130 Beaver is therefore considered to be likely absent from the OHL work study area, and certainly no refuges are present within 20 m of XL uprating and reconductoring works or OHL tower works.

#### Pine Marten

- 6.5.131 The desk study identified two records of pine marten provided by Fife Nature Records Centre; however, these records are only accurate to 10 km<sup>2</sup>, so it is unclear how relevant they are to OHL works.
- 6.5.132 No evidence of pine marten was recorded during field surveys. Pine martens are unlikely to use arable fields which occupy the majority of the Site, nor take refuge within these habitats.
- 6.5.133 Therefore, pine martens are considered absent from the majority of the KINN study area, but on a precautionary basis are considered present within more suitable woodland habitat south of the substation footprint where dens may be present; however, this is extremely limited within the OHL works study area.

#### Red Squirrel

- 6.5.134 The desk study identified nineteen records of red squirrel provided by Fife Nature Records Centre to the south and east of OHL tower works, spread across trees and woodland associated with Old Tulliallan Castle, Tulliallan Golf Club, and Kincardine town. Further records submitted to Saving Scotland's Red Squirrels also indicate that red squirrels are present in these areas. The closest record of red squirrel identified during the desk study is approximately 200 m east of the Site.
- 6.5.135 Red squirrels have also been consistently recorded within woodland east of Towers XL017-XL019 as part of Saving Scotland's Red Squirrels.
- 6.5.136 No evidence of red squirrel was incidentally recorded during field surveys. Considering arable fields are unsuitable habitat, red squirrels are considered largely absent from OHL works study area but are likely present along tree lines and within woodlands around the periphery.

Badger

- 6.5.137 No records of badger were identified during the desk study, nor was any definitive evidence of badger identified during field surveys; however, survey within suitable habitat was limited by access constraints (discussed in Section 5: Limitations and Assumptions of Appendix 6.1: Methodology).
- 6.5.138 A single mammal burrow was identified during field surveys. Surveys were limited so it is possible the burrow is used by badger; hence its location is undisclosed due to persecution risk. However, the burrow is within the Zol of scaffolding.
- 6.5.139 It comprised a single large hole with recent spoil at the entrance and an associated well-trodden trail. The feature could not be inspected further (e.g. to search for the presence of badger hairs / footprints) due to the presence of the fence. If occupied by badger, this burrow likely functions as an outlier sett at most owing to the singular entrance hole and lack of badger evidence in the surrounding area. Nonetheless, as badgers are common and widespread in Scotland, they are likely to be present the KINN study area and forage/commute across the landscape.
- 6.5.140 It is possible badger setts are present under scrub or in woodlands within the XL uprating and reconductoring works study area, but none were recorded during field surveys.

Other Important Mammals

- 6.5.141 The following records of other important mammals were identified during the desk study, provided by Fife Nature Records Centre:
- eight records of brown hare associated with open habitats east and south of the OHL tower works (records were at least 400 m from the Site);
  - seven records of hedgehog mainly south and east of OHL tower works, with one record of roadkill on the A876, approximately 200 m west of the Site; and
  - one record of minke whale from within the River Forth, approximately 1 km south of the Site.
- 6.5.142 During the field survey, four brown hares (a SBL priority species) were incidentally recorded exhibiting courtship behaviour in the central arable where OHL tower works are located. The location of these sightings is shown on Figure 6.5: Important Species Survey Results. Two brown hares were also recorded within the field near Tower XL013 (as depicted by TN5 in BOWS23.097 XL: Route Ecological Constraints Plan and described in the Ecological Constraints Table in Appendix 6.3: ECU – LWUP XL Route Refurbishment Ecological Walkover DRAFT REPORT). Brown hare may occur in agriculture fields across the OHL works study area.
- 6.5.143 No other important mammals or field signs indicative of their presence were incidentally recorded during field survey; however, habitats around the edge of the predominant agricultural fields—specifically rough grassland, scrub, and woodland edges—are suitable to support hedgehog.
- 6.5.144 There is no habitat suitable for marine mammals, mountain hare, or wildcat and these species are considered absent from the OHL works study area. Marine mammals may occasionally venture into the Upper Forth Estuary, downstream of the Canal Burn.

### Birds

- 6.5.145 The desk study identified records of 52 important bird species provided by Fife Nature Records Centre. Of these, the same species identified in relation to KINN (under Birds above) may be present in suitable habitats within the OHL tower works study area.
- 6.5.146 Following consultation with the groundskeeper, it is indicated that barn owls may nest in Old Tulliallan Castle, which is approximately 350 m south of the Site and 400 m south of the closest OHL tower works.
- 6.5.147 Pink-footed goose, curlew and herring gull were the only waterbirds recorded during field surveys. Flocks of pink-footed goose and curlew were observed foraging within the same fields as OHL tower works are proposed at high and low tide; both species are qualifying features of the Firth of Forth SPA, Ramsar site, and SSSI. Curlews were regularly recorded during field surveys, whereas pink-footed geese were only recorded in early 2024.
- 6.5.148 Additionally, two grey partridges were incidentally recorded west and outside of the wintering waterbird survey area in a nearby field. Field survey results are summarised in Table 6-4: Wintering bird survey results and Figure 6.6: Wintering Waterbirds Survey Results shows where target (and incidentally recorded) birds were observed foraging on the ground.

**Table 6-6: Wintering bird survey results**

| Survey month         | Tidal state | Species                    | Number of birds* | Location and proximity to Site                                                                                                                                                       |
|----------------------|-------------|----------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>October 2023</b>  | High        | Curlew                     | 40               | In an adjacent field to the southwest of OHL tower works, where planning for Kincardine Grid Services Complex has been approved.<br>Approximately 40 m west of the OHL tower works.  |
| <b>November 2023</b> | Low         | Curlew                     | 44 + 5           | Both flocks were in fields adjacent to the OHL tower works (one where planning for Kincardine Grid Services Complex has been approved) and another approximately 100 m to the north. |
|                      |             | Herring gull               | 2                | In an arable field, approximately 500 m west of the OHL tower works.                                                                                                                 |
| <b>December 2023</b> | High        | Curlew                     | 10 + 4 + 9       | All flocks were in adjacent fields, west of the OHL tower works.                                                                                                                     |
| <b>January 2024</b>  | Low         | No target species observed |                  |                                                                                                                                                                                      |
| <b>February 2024</b> | High        | Curlew                     | 150 + 12 + 5     | All flocks were in fields west of the OHL tower works. The closest flock was approximately 350 m distant.                                                                            |
|                      |             | Pink-footed goose          | 200              | In an arable field approximately 700 m west of the OHL tower works, on the banks of the Firth of Forth.                                                                              |
| <b>March 2024</b>    | Low         | Pink-footed goose          | 200 + 145        | All birds present in the main arable fields overlapping the OHL tower works.                                                                                                         |

| Survey month | Tidal state | Species | Number of birds* | Location and proximity to Site |
|--------------|-------------|---------|------------------|--------------------------------|
|--------------|-------------|---------|------------------|--------------------------------|

\* Where large flocks occurred, counts are approximate.

Peak numbers of curlew and pink-footed goose observed within the OHL tower works study area during one survey visit was 49 (in November 2023) and 345 (in March 2024) respectively which represents approximately 9% and 3% of the Firth of Forth SPA populations when considering the latest population estimates (Ref 6.19).

#### Great Crested Newt

- 6.5.149 No records of great crested newt were identified during the desk study. The nearest hectad within which great crested newt have been recorded on RecordPool is south of the Upper Forth Estuary (a significant barrier to movement).
- 6.5.150 The desk study identified four waterbodies within the OHL tower works study area. One of these is located within the industrial yard north of the Site and was scoped out of further survey due to it being unsuitable. This waterbody is a large industrial tank at ground level with no means for a newt to access/egress.
- 6.5.151 The results of the HSI assessment and eDNA sampling for the ponds are summarised in Table 6-7. Full details of the HSI assessment and eDNA analysis for each waterbody are provided in Appendix 6.2: Great Crested Newts and the location of each pond is shown on Figure 6.5: Important Species Survey Results. Great crested newts are absent from the OHL tower works study area.

**Table 6-7: Great crested newt HSI assessment and eDNA survey results**

| Pond reference | Description                                                                                                                                                                                        | Relation to Site                                    | HSI Score* | HSI suitability category* | eDNA analysis result** |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------|---------------------------|------------------------|
| KINN01         | SUDS pond with poor water quality and high cover of common reed.                                                                                                                                   | 35 m west of the Site.<br>Connected via Canal Burn. | 0.68       | Average                   | Negative               |
| KINN02         | Large SUDS pond with poor water quality. Open centrally with dense common reed around perimeter transitioning into marsh habitat.                                                                  | Within Site.<br>Upstream of Canal Burn.             | 0.72       | Good                      | Negative               |
| KINN03         | Pond comprising two distinct areas of open water with moderate water quality, bordered by scrub. Southern area is peripherally vegetated with common reed and northern area is covered by bulrush. | 20 m north of the Site.<br>Upstream of Canal Burn.  | 0.73       | Good                      | Negative               |

| Pond reference | Description | Relation to Site | HSI Score* | HSI suitability category* | eDNA analysis result** |
|----------------|-------------|------------------|------------|---------------------------|------------------------|
|----------------|-------------|------------------|------------|---------------------------|------------------------|

\*As calculated/assigned following HSI methodology

\*\*As provided by SureScreen following water sample analysis

- 6.5.152 HSI of three ponds between Reconductoring Towers XL014 and XL017 (Pond 1, Pond 2, and Pond 8) were assessed by Bowland Ecology Ltd. The ponds are all categorised as having average suitability with scores of 0.63, 0.63, and 0.60 respectively. Presence of this species cannot be ruled out from any ponds, and, on a precautionary basis, great crested newts are assumed to breed in these ponds. The location of these ponds is shown in BOWS23.097 XL: Route Ecological Constraints Plan and full details of the HSI is in the Habitat Suitability Index scores for the ponds Table in Appendix 6.3: ECU – LWUP XL Route Refurbishment Ecological Walkover DRAFT REPORT.

#### Other Common Amphibians

- 6.5.153 Records of other amphibians including common toad are available on Record Pool within the hectads that the OHL works study area is situated within. Common amphibians may occur along field margins or within surrounding woodland and rough grassland habitats, particularly in proximity to wetland habitats associated with ditches and ponds but are highly unlikely to be present centrally within the predominant agricultural habitats. Considering the absence of optimal amphibian habitat in the area there is unlikely to be a significant population of common amphibians within the OHL works study area.

#### Reptiles

- 6.5.154 Common lizard is present within the hectads overlapping the OHL works study area, as recorded via Record Pool. However, arable land is highly unfavourable for reptile species; which requires habitat offering foraging, shelter, and basking opportunities, such as mosaics of rough grassland, moorland and scrub with open areas. Although common lizard and slow worm could occur in limited numbers along field edges and in peripheral habitats, the arable fields which dominate the OHL works study area are entirely unsuitable for these species. The greatest suitability for reptiles is associated with woodland habitats around Towers XL018-XL020. Habitats in this area may also be suitable for adder; however, they comprise small patches and are isolated by the surrounding unfavourable habitat of arable fields and forestry sites. Considering this, in combination with a lack of recent records for this species, it is fair to assume that adders are not present within the OHL works study area. Considering the limited availability of suitable habitat and poor connectivity due to enclosure by the A876 and A977, there are unlikely to be significant populations of any reptiles within the OHL works study area. Reptiles may be present in suitable habitats around XL uprating and reconductoring works; however, these extend beyond the XL uprating and reconductoring works study area and only a very small extent could possibly be affected by works.

#### Fish

- 6.5.155 No records of fish were identified during the desk study; however, migrating Atlantic salmon are present within the River Forth and Forth estuary, downstream of the Canal Burn, according to Scotland's NMP. The Canal Burn and unnamed tributary therefore are considered unsuitable for most notable fish species (including Atlantic salmon) for the following considerations:

- there is a high frequency of obstacles to migration (especially the numerous culverts);
- water quality is poor and was observed to be both slightly brackish and with evidence of iron oxide deposits;
- substrate is likely soft which does not offer suitable spawning habitat; and
- there is a lack of connectivity to suitable spawning habitat upstream (if present).

6.5.156 There is, however, limited suitability for these watercourses to support eel *Anguilla anguilla*. Therefore, without targeted survey to confirm presence/absence, eels are assumed to be present on a precautionary basis.

6.5.157 There are no watercourses within the XL uprating and reconductoring works study area.

#### Invertebrates

6.5.158 Two records of cinnabar moth and one record of grey dagger were identified during the desk study. These records were provided by Fife Nature Records and were located south of the OHL tower works near Kincardine. Both species are widespread and common in Scotland.

6.5.159 Cinnabar moths show foraging preference for ragwort as this is where they source the toxins which makes them unpalatable to predators (Ref 6.20). Ragwort does not grow in intensively farmed arable fields since it cannot tolerate regular soil cultivation.

6.5.160 Grey daggers are most associated with broadleaved woodland so may be present around the Proposed Development, particularly to the south. Agricultural habitats are not suitable for grey daggers. Therefore, these important moth species are considered largely absent from the OHL tower works study area; however, it is possible a few individuals may occur in suitable habitats peripherally.

6.5.161 The OHL works are situated predominantly in an area dominated by arable crop which is species-poor and not likely to support any other notable invertebrates. Most peripheral habitats are typical of those in the Eastern Lowlands and are not of particular value to invertebrate assemblages.

#### Non-native Species

6.5.162 No records of non-native flora were identified during the desk study; however, records of grey squirrel are interspersed with records of red squirrel on Saving Scotland's Red Squirrels, particularly around Kincardine town. Also, American mink has been recorded in National Grid References NS98 and NS99 (within which OHL works are largely situated) as part of the NWVDP.

6.5.163 Japanese knotweed was noted in five locations (shown on Figure 6.4: Habitat Survey Results) along the drainage ditch to the south of the habitat survey area during field surveys but this is outside of the OHL tower works study area.

6.5.164 A stand of rhododendron *Rhododendron ponticum* is present in the plantation beside Tower XL018 (TN6 shown in BOWS23.097 XL: Route Ecological Constraints Plan and described in the Ecological Constraints Table in Appendix 6.3: ECU – LWUP XL Route Refurbishment Ecological Walkover DRAFT REPORT).

#### **Scottish Power Distribution Works**

6.5.165 The following assumptions are made regarding the SPD underground cable route alignment:

- works relating to wood pole removal and the temporary connection will be confined to within agricultural fields;
- the underground cable routes will be within agricultural fields/under existing tracks; and
- the underground cable routes will be micro sited to avoid the root protection zones of adjacent trees.

#### Designated Sites

- 6.5.166 As described in detail in relation to KINN and OHL works above, the closest sites designated for nature conservation to SPD works are the Firth of Forth SPA, Ramsar site, and SSSI. These sites are hydrologically connected to the SPD works via **c. 900 m** of the Canal Burn which lies to the north of where the SPD works are located.

#### Habitats

- 6.5.167 As described above, it is assumed that SPD works will not be carried out within any woodland listed on the AWI; however, the eastern underground cable route is on the opposite side of the A977 from an area of LEPO woodland associated with Tulliallan Golf Club.
- 6.5.168 Habitats recorded during field surveys are shown on Figure 6.4: Habitat Survey Results with priority habitats (considered to be important) highlighted where present. It is assumed SPD works will be carried out exclusively within agricultural habitats comprising improved pasture, semi-improved neutral grassland, and cereal crops of limited ecological value.

#### Species

- 6.5.169 Desk study information potentially relevant to SPD works is described in detail for KINN and OHL works above. Evidence and/or sightings of species recorded during field surveys are shown on Figure 6.5: Important Species Survey Results and Figure 6.6: Wintering Waterbirds Survey Results.
- 6.5.170 Habitats within the SPD works study area are likely to support common and widespread bat species. It is possible that rarer species (e.g., noctule and Nathusius' pipistrelle) occur in suitable habitat in the wider area but this is outside the Zol of SPD works. Evidence of otter was recorded along watercourses and around waterbodies within the SPD works study area. Curlew and pink-footed geese were recorded using agricultural fields in the SPD works study area for foraging over the winter.
- 6.5.171 No field surveys were carried out east of the railway line. The unnamed tributary of Canal Burn may support eels and is likely to be used by commuting/foraging otters; however, the surrounding arable fields and culverts upstream limit its suitability for other aquatic and semi-aquatic species. Trees and scrub associated with Tulliallan Golf Course that are well connected to the wider landscape (including Devilla forest to the east) may support species such as bats (including potential for bat roosts in trees), pine marten, and red squirrel. It is also likely that invasive non-native grey squirrel occurs in these trees.

#### **Future Baseline in the Absence of the Proposed Development**

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

- 6.5.173 For the purposes of considering the baseline in the absence of the Proposed Development for this chapter, a point twenty years in the future has been adopted.
- 6.5.174 In the absence of the Proposed Development, agricultural management of the arable fields which cover the majority of land within the Site would be likely to continue. The habitat within the Site would therefore continue to be of relatively low ecological value. The small area of scrub in the west of the Site would likely mature and may marginally improve biodiversity.
- 6.5.175 The rapid expansion of beaver across the Forth and Tay catchments indicates that the local beaver population will increase and individuals may settle in suitable habitat around the Site in future. Similarly, with their continued expansion in Scotland, pine marten density is expected to increase in the Fife region until it reaches carrying capacity.
- 6.5.176 Increasing average temperatures and more frequent/intense extreme weather events (e.g. heatwaves, floods, and droughts) that are projected to occur as a result of climate change may alter vulnerable habitats (e.g. wetlands) and are likely to result in a shift in the distribution of animal and plant species. Such changes are unlikely to be notable within the Application for the following reasons:
- the Proposed Development is situated in central Scotland, away from the extreme edges of many species distributions and unlikely to see a noticeable shift in the short-term; and
  - the vast majority of habitats are highly modified agriculturally managed fields, and although management may change in response to changing climate, the land is likely to remain agricultural and of poor ecological value.
- 6.5.177 Otherwise, the conditions identified by the studies described in this chapter are likely to remain unchanged in the absence of the Proposed Development.

## 6.6 Embedded Mitigation

- 6.6.1 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.
- 6.6.2 The Proposed Development has sought to avoid impacts on ecological features through design in the following ways:
- The Proposed Development is located almost entirely in arable fields which are of very low ecological value. All access track infrastructure follows existing farm tracks or historic access routes, except where it would be constructed within arable fields.
  - All new watercourse crossings and upgrades will be designed following SEPA's information and guidance for crossings on watercourses and lochs (Ref 6.21) to allow passage of animals including fish and otter.
  - The drainage ditch located to the northeast of Hawkhill Road required to be crossed for the SPD Works will be crossed via horizontal direct drilling (HDD) to avoid impacts to this water feature.
  - Widening of Hawkhill Road will be conducted southwards as far as possible, limiting the number of mature trees on the northern boundary of the road needing felled.

- The substation uses Gas Insulated Switchgear (GIS) technology which helps to reduce its overall footprint and minimise habitat loss.

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

- All personnel involved in the construction and operation (and decommissioning) of the Proposed Development will be made aware of the ecological features within the ZoI and the mitigation measures and working procedures that must be adopted. This will be achieved as part of the induction process and through the delivery of Toolbox Talks, where required.
- An Ecological/Environmental Clerk of Works (ECoW/EnvCoW) will be employed for the duration of the construction of the Proposed Development. The remit of the ECoW will include, but may not be limited to:
  - carrying out pre-works checks for protected species and other important ecological features;
  - advising on exact infrastructure placement within micro-siting tolerances;
  - monitoring of, and advising on, storage of overburden to minimise habitat damage;
  - monitoring of any vegetated turves that may be stored for later reinstatement;
  - advising on habitat reinstatement;
  - monitoring of pollution control measures and advising on placement of ditches, settlement ponds, etc. to minimise habitat damage; and,
  - 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.
- A Construction Environmental Management Plan (CEMP) will be prepared and submitted for approval by Fife Council and Clackmannanshire Council, in consultation with SEPA and NatureScot, where necessary, prior to commencement of construction. The CEMP will set out all environmental management measures and the roles and responsibilities of construction personnel.
- Owing to the presence of Japanese knotweed within the Site, a Biosecurity Management Plan will be produced by a suitability qualified ecologist to mitigate risks and prevent spread of this INNS in accordance with legislation. This will include an updated survey to clarify the extent of INNS to be undertaken no more than three months prior to construction commencing. The appointed ECoW will oversee implementation of appropriate mitigation which is likely to include exclusion zones. Reference to the BMP, including associated roles and responsibilities, will be clearly detailed in the CEMP.
- During all phases of the Proposed Development, pollution prevention measures will be adopted, following NetRegs Guidance on Pollution Prevention (GPP) (Ref 6.25), including the following:

- controls and contingency measures will be provided to manage run-off from construction areas and to manage sediment;
  - all oils, lubricants or other chemicals will 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 Site;
  - in order to avoid pollution impacts to soils, vegetation and watercourses/waterbodies during construction, all refuelling and servicing of vehicles and plant will be carried out in a designated area which is bunded, has an impermeable base, and will be situated at least 50m away from any watercourse; and,
  - where works in or on the banks of watercourses are required, appropriate isolation of the working area will be implemented;
- Works near or at any retained native trees or semi-natural woodland will follow guidance in British Standard 5837:2012 Trees in relation to design, demolition and construction – Recommendations (Ref 6.26).
  - Any artificial lighting required for construction works will be directional to avoid or minimise light spill beyond immediate works areas and will be of a sensitive nature, following Guidance Note GN08/23 Bats and Artificial Lighting At Night (Ref 6.27).
  - Site preparation including vegetation clearance will take place, as far as possible, outside the general breeding bird season (March to August, inclusive). Where vegetation must be cleared in the breeding season, the appointed ECoW will carry out nesting bird check(s).
  - Measures to prevent the injury or mortality of animals will be adopted, including:
    - excavations will be provided with a means of escape for animals that may fall in overnight, such as a ramp or battered slope;
    - ECoW will monitor the fencing of working areas to ensure no animals are trapped within;
    - except where required to remain open for passage of water, pipes that animals could enter will be capped overnight; and,
    - plant and machinery will be inspected before use each day to check for the presence of animals which may have taken shelter within or beneath.

## 6.7 Assessment of Effects

### Kincardine North Substation

#### Issues Scoped Out of Further Assessment for Kincardine North Substation

- 6.7.1 As stated under Introduction in Section 6.4: Methods, relevant ecological features are those that are 'important' and have the potential to be significantly affected by KINN (Ref 6.5). In view of the baseline data obtained through desk study and field survey, the features in Table 6-8 have been excluded from further assessment because they will not be significantly affected due to one or more of the following:

- a. available data indicates that they are likely to be absent from the Zol of KINN (i.e. it is clear that no impact from the construction or operation of KINN is possible); and/or
- b. the feature (within the Zol of KINN) is considered to be of less than Local importance (i.e. 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 KINN).

**Table 6-8: Ecological and ornithological features scoped out of further assessment for Kincardine North Substation**

| Feature                                                                                                                | Rationale for exclusion from further assessment in this section                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Terrestrial habitats not identified as being important under Habitats in Section 6.5: Baseline</b>                  | Habitat types which are common and widespread, both locally and nationally, are present within the KINN study area. This includes arable fields which dominate the Site as well as neutral grassland, scrub, and broadleaved woodland which are of low floristic diversity, have Negligible conservation value, and/or are outside KINN's Zol.                                                                                                                                                                                                                            |
| <b>Habitats identified as being important under Habitats in Section 6.5: Baseline but which lie outside KINN's Zol</b> | LEPO woodland and LMDW identified during field survey which is of higher ecological value owing to the presence of ancient woodland indicators will not be directly impacted by KINN. Furthermore, embedded pollution prevention measures mean that there will be no impact from pollution on these woodlands.                                                                                                                                                                                                                                                            |
| <b>Ponds</b>                                                                                                           | There will be no direct impact on any ponds within the KINN study area, and embedded pollution prevention measures mean that there will be no impact from pollution hence they are outside the Zol of KINN.                                                                                                                                                                                                                                                                                                                                                               |
| <b>Watercourses</b>                                                                                                    | <p>The watercourses which run along the north and south of the KINN study area are not considered important habitat since they are highly modified and do not support a diversity of notable habitats / species hence they are of Negligible importance.</p> <p>Furthermore, implementation of standard pollution prevention measures (described in Section 6.6: Embedded Mitigation) mean that there will be no impact from waterborne pollution on these habitats. Culverts will also be designed in adherence with SEPA guidance to avoid impacts on watercourses.</p> |
| <b>Water vole</b>                                                                                                      | Water voles are likely absent from the Zol of KINN. Furthermore, direct impacts on watercourses as result of watercourse crossings affect a very small extent of the available habitat and standard pollution prevention measures (described in Section 6.6: Embedded Mitigation) would be sufficient to avoid pollution impacts.                                                                                                                                                                                                                                         |
| <b>Beaver</b>                                                                                                          | <p>At present it is considered beaver are likely absent from KINN's Zol.</p> <p>Furthermore, direct impacts on watercourses are very limited and standard pollution prevention measures (described in Section 6.6: Embedded Mitigation) would be sufficient to avoid pollution impacts. If beaver were to settle in watercourses in the KINN study area, any possible impact would be minor and appropriately mitigated under licence where this is required.</p>                                                                                                         |
| <b>Badger</b>                                                                                                          | Although badger receive legal protection from harm and disturbance, this is primarily due to persecution of this species, rather than conservation concerns. Badgers are common and widespread through much of mainland                                                                                                                                                                                                                                                                                                                                                   |

| Feature                                                                                                  | Rationale for exclusion from further assessment in this section                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                          | <p>Scotland, with between 10,290 and 15,864 main setts estimated to exist (Ref 6.50). Arable fields are sub-optimal for badger sett creation but there may be opportunities along field edges and in peripheral woodland and scrub habitats.</p> <p>Whilst the KINN study area offers suitable foraging habitat, this is plentiful in the wider area. Therefore, the population of badger which may use the land within and in proximity to KINN is assessed as being less than Local importance.</p> <p>Nonetheless, a licence would be required from NatureScot if a 30 m buffer zone around setts cannot be maintained to ensure legislative compliance.</p>            |
| <b>Brown hare and hedgehog</b>                                                                           | <p>It is likely that hedgehog occurs in areas of suitable habitat within the KINN study area, along field edges and in adjacent woodland and scrub.</p> <p>Observations of brown hare were made in arable fields during field surveys.</p> <p>Both species are relatively common and widespread, and likely occur in alternative habitat that is common in the surrounding landscape and across NHZ16. Therefore, those that occur within the KINN study area are of Negligible conservation value. Furthermore, any potential impacts upon them will be easily mitigated through standard animal protection measures (described in Section 6.6: Embedded Mitigation).</p> |
| <b>Wildcat and mountain hare</b>                                                                         | <p>The KINN study area lies outside the recognised range of wildcat (Ref 6.17), there is no suitable habitat for mountain hare, and no desk study records of these species were identified. It is therefore considered very likely these species are absent from KINN's Zol.</p>                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Non-native animals (e.g. grey squirrel and American mink)</b>                                         | <p>There is no mechanism by which the construction or operation of KINN could facilitate the spread of these non-native animal species, which are already believed from desk study information to be present in the area.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Non-native plants</b>                                                                                 | <p>It is possible that non-native plants present within the KINN study area could be spread as a result of KINN, in the absence of suitable measures. However, the embedded BMP will stipulate mitigation measures to prevent any spread and ensure compliance with legal obligations. Subsequently, KINN will not result in any spread of non-native species.</p>                                                                                                                                                                                                                                                                                                         |
| <b>Wintering birds that are not qualifying features of the Firth of Forth SPA, Ramsar site, and SSSI</b> | <p>Wintering birds, including herring gull recorded during field surveys and fieldfare identified in the desk study, may use habitats within the KINN study area for foraging over the winter. These species are typically wide ranging during the non-breeding period, and there is extensive alternative cropland habitat available in the wider landscape.</p>                                                                                                                                                                                                                                                                                                          |
| <b>Great crested newts</b>                                                                               | <p>Field survey indicates great crested newt is absent from three of the ponds the KINN study area. Although presence/absence was not definitively confirmed at KINN04, the isolation of this pond in the wider environment, combined with the negative result from other ponds, means great crested newt is considered likely absent from the Zol of KINN.</p>                                                                                                                                                                                                                                                                                                            |
| <b>Common reptiles and amphibians</b>                                                                    | <p>Records of only common lizard and common frog were identified by the desk study. Arable fields which dominate the KINN study area do not provide suitable habitat for these species and other suitable habitat is extremely limited within the Site. Therefore, only small populations of these species are</p>                                                                                                                                                                                                                                                                                                                                                         |

| Feature                     | Rationale for exclusion from further assessment in this section                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                             | likely to be present if at all. Considering also that these species are relatively common and widespread, any possible impacts KINN would not threaten their conservation status.                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Fish (excluding eel)</b> | <p>Watercourses within the KINN study area comprise agricultural drainage ditches which are unsuitable for most important fish species, except eel. Any other fish species which may be present are likely to be in small numbers and any possible impacts from KINN would not threaten their conservation status.</p> <p>The Firth of Forth (downstream of KINN) is used by migrating Atlantic salmon, however, standard pollution prevention measures (described in Section 6.6: Embedded Mitigation) mean that there will be no impact from water pollution resulting from KINN.</p> |
| <b>Invertebrates</b>        | <p>Although two notable moth species were identified by the desk study, given the very poor quality and low species diversity of habitats within the KINN study area (mainly arable fields) it is considered very unlikely that many notable invertebrates would be supported. Invertebrates which may occur within the KINN study area are likely to be common and widespread, particularly in similar habitats across the Eastern Lowlands, and any possible impacts from KINN would not threaten their conservation status.</p>                                                      |

#### Importance of Ecological Features within Kincardine North Substation Study Area

- 6.7.2 The assessed importance of those ecological features identified in the baseline conditions, and which have not been scoped out in Table 6-8, is set out in Table 6-9, together with a rationale. Importance has been assessed considering geographic scale, in accordance with CIEEM guidelines (Ref 6.5) and as described in Appendix 6.1: Methodology.

**Table 6-9: Importance of ecological and ornithological features within Kincardine North Substation Study Area**

| Feature                                   | Importance    | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Firth of Forth SPA and Ramsar Site</b> | International | This is a nature conservation site designated at an international level. Note that all Firth of Forth SPA and Ramsar site qualifying/notified bird features are assessed as part of the designated site assemblage only, i.e. and not also as part of the 'wider countryside' population.                                                                                                                                                                                                                                                                                                                     |
| <b>Firth of Forth SSSI</b>                | National      | This is a nature conservation site designated at a national level.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Reedbed</b>                            | County        | Reedbed SBL priority habitat is present in narrow margins within the KINN study area around ponds KINN02 and KINN03. As is the case within NHZ16, reedbeds around SUDS or in other wetlands can provide islands of semi-natural habitat in an otherwise highly modified landscape. However, reedbeds within KINN study area are only marginally greater than 5 m wide hence are on the cusp of qualifying as SBL priority habitat. Furthermore, these habitats are not uncommon and owing to the very small extent present within the KINN study area, it is considered to be, at most, of County importance. |

| Feature                                             | Importance | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Bats</b>                                         | County     | <p>The suitability of habitat within the KINN study area is Low for bats, comprising improved agricultural land, with limited foraging resource and limited linear features for commuting. Better-quality habitats are localised around the periphery of KINN.</p> <p>The assumed roost resource of the KINN study area comprises 43 PRF-M trees and one PRF-I tree which are precautionarily assumed to be used by common and widespread species as well as noctule bats, which are rare in the context of the study area.</p> <p>KINN lies at the very edge of the distribution of noctule so, on a precautionary basis and in line with the CIEEM bat mitigation guidelines (Ref 6.23), bats are considered to be of County importance.</p> |
| <b>Otter</b>                                        | County     | <p>Otter receives legal protection through its listing on Schedule 2 of the Habitats Regulations and Schedule 5 of the WCA. Evidence of otter activity was found along watercourses and the edge of waterbodies within the KINN study area, but the only potential refuge recorded was an assumed layup in the far east. Considering the size of the national population (estimated to be around 8,000 individuals), and their widespread distribution across Scotland, including the Eastern Lowlands, the KINN study area is assumed to support a population of otter of County importance.</p>                                                                                                                                              |
| <b>Pine marten</b>                                  | Local      | <p>Pine marten is protected by Schedule 5 of the WCA. Pine marten may be present in woodland within the KINN study area (two desk study records were identified); however, the arable fields which dominate the area are unsuitable for this species. Furthermore, pine marten is relatively common nationally (Ref 6.29) and in this part of central Scotland (e.g., Ref 6.30). Consequently, the population which occurs within the KINN study area is considered to be Locally important, at most.</p>                                                                                                                                                                                                                                      |
| <b>Red squirrel</b>                                 | Local      | <p>Red squirrel is protected by Schedule 5 of the WCA. However, it is widespread and relatively common in suitable habitat in central Scotland, north of the central belt. The arable fields that dominate the Site are unsuitable for red squirrel; however, red squirrels are likely to be present in woodlands around the perimeter of the KINN study area. The KINN study area is located within the range of both red squirrel and grey squirrel, hence the population is likely to be under greater pressure than those further north. Considering the extent of habitat within the KINN study area relative to that in the wider area, they are considered to be of Local level importance.</p>                                         |
| <b>Breeding birds (including important species)</b> | Local      | <p>The KINN study area offers suitable habitat for some common and important bird species including skylark, grey partridge, yellowhammer, and linnet. However, similar habitat is abundant in the surrounding area and species present are likely to be those which commonly occur within the Eastern Lowlands.</p> <p>As a result, populations of breeding birds within the study area are of Local importance.</p>                                                                                                                                                                                                                                                                                                                          |
| <b>Eel</b>                                          | Local      | <p>The waterbodies within the KINN study area are small and negatively affected by pollution. They are also representative of many other</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Feature | Importance | Rationale                                                                                                                                    |
|---------|------------|----------------------------------------------------------------------------------------------------------------------------------------------|
|         |            | watercourses across the Eastern Lowlands. Any presence of eels is highly likely to be at a low density which are important at a Local scale. |

#### Potential Broad Categories of Construction and/or Operational Impacts

6.7.3 The following broad categories of impact could arise during the construction and/or operation of KINN and are considered, where potentially relevant, in relation to each of the ecological features scoped in to detailed assessment in Table 6-9:

- temporary or permanent habitat loss (e.g. where temporary construction compounds are created, or the substation platform is constructed);
- temporary or permanent changes to hydrological conditions which may affect vegetation and habitats (e.g. where water crossings or drainage measures are installed);
- loss of habitat which supports protected and/or important species;
- creation of barriers to animal movements (e.g. the construction of watercourse crossings could inhibit the movement of fish);
- temporary disturbance and/or displacement of species during construction (e.g. foraging or roosting birds);
- potential for direct mortality of species during construction (e.g. as a result of increased vehicular traffic);
- potential for direct mortality of species during operation (e.g. direct mortality of bats due to collision with substation infrastructure); and,
- potential to spread invasive non-native plant species.

#### Pollution During Construction

6.7.4 Pollution of surface water, groundwater, soils and vegetation will be avoided through adoption of industry-standard good practice mitigation measures at all stages of KINN in order to meet legal and regulatory requirements. These measures are normal practice for development of this type and are considered as embedded.

6.7.5 According to the Institute of Air Quality Management (IAQM) (Ref 6.33) guidance, dust generated by plant and machinery on construction sites can have a 'medium' impact on habitats located at distances 20-50 m from works areas, and that this impact lessens with increasing distance. However, as stated previously, standard pollution prevention techniques will be implemented during the construction of KINN, and this will include dust suppression (for example through wetting of access tracks during periods of dry weather), where necessary. These measures are standard practice for a development of this type and therefore considered to be embedded.

6.7.6 The Design Manual for Roads and Bridges (DMRB) advises that air quality impacts only need to be assessed where a project will 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 during operation (Ref 6.34). As set out in Chapter 11 of this EIAR, the operational phase is unlikely to have a significant effect on local roads, and only occasional operational and maintenance traffic is expected. During construction, the increase in vehicular

movements on all affected link roads generated by the construction of KINN is not predicted to be greater than 70 light vehicle and 378 HDV movements per day at the peak of construction. However, the Proposed Development is not located in or close to an Air Quality Management Area and air quality is generally considered to be good. While there will be an increase in traffic during construction, as well as potential generation of dust during construction this is limited to relatively short periods and will be mitigated through good construction practices as set out in the Schedule of Mitigation in Chapter 14 of this EIAR. The Proposed Development is not considered to result in likely significant effects on air quality and as such, there will be no significant effect on any ecological feature as a result of airborne pollution generated by emissions from construction traffic.

#### Pollution During Operation

- 6.7.7 KINN will not produce any emissions or pollution to air, water, or the ground during operation.
- 6.7.8 Electric and magnetic fields (EMF) are present wherever electricity is used and thus EMF are associated with all electricity transmission infrastructure. Electricity transmission substations, such as KINN, do not produce very large fields themselves (generally less than a microtesla). There are no recognised impacts on wildlife from EMFs (Ref 6.31 and Ref 6.32) therefore, this assessment concludes that there will be no impact from EMF radiation on any ecological features as a result of KINN.
- 6.7.9 No permanent lighting is proposed for the operation phase except for motion-activated security lighting which will be situated centrally, around the substation footprint. Artificial lighting can negatively affect ecological features, particularly through behavioural alteration. However, effects reduce with increased distance from the lighting source. For example, the behaviour of light-sensitive bats can be disrupted within a radius of up to 50 m from the source (Ref 6.35) and the substation footprint is at least 70 m from the field edge where more suitable foraging and commuting habitat is present.
- 6.7.10 It is anticipated security lighting will rarely be triggered during operation. This is because it is not readily accessible by the public since there is perimeter fencing to the north, east and south and a major road to the west. Once triggered, lights will remain illuminated for no more than a few minutes so any impact would be temporary.
- 6.7.11 Considering that the impact of artificial lighting is expected to be highly localized both spatially and temporally, it is concluded that this will not have a significant impact on any ecological features.
- 6.7.12 As discussed in Chapter 11 Construction and Operational Noise, the magnitude of operational noise levels is generally very low and can be easily habituated to. This is considered less impactful than intermittent noise generated by routine farming operations at baseline, which is more likely to be perceived as a threat and cause disturbance. Furthermore, tree and hedgerow planting around the substation footprint will act as a sound barrier, reducing the amount of noise-spill into surrounding habitats.
- 6.7.13 Only in emergency operation where a standby generator must be used would noise increase to a moderate level. Mitigation would be implemented to reduce or shield noise in this scenario and any possible impact on ecological features would be temporary.
- 6.7.14 Considering also the baseline noise levels from the adjacent A876 and active railway, operational noise will not have a significant impact on any ecological features.

### Impacts During Construction

#### Firth of Forth SPA and Ramsar Site

- 6.7.15 Details of the impacts on the Firth of Forth SPA and Ramsar Site are included in Appendix 6.4: Statement to Inform Habitats Regulations Appraisal.
- 6.7.16 In summary the HRA concluded that there would be no significant effects on the SPA or Ramsar site from impacts including habitat loss and disturbance/displacement of qualifying features.

#### Firth of Forth SSSI

- 6.7.17 The Firth of Forth SSSI is largely concurrent with the Firth of Forth SPA and Ramsar site, particularly at its closest point to KINN. Therefore, and although the notified features of the SSSI are not identical to the SPA/Ramsar site, for the same justifications as set out in Appendix 6.4: Statement to Inform Habitats Regulations Appraisal which remain applicable to all of the biological notified features of the SSSI, there will be no significant effects on the Firth of Forth SSSI from KINN during its construction phase and this is Not Significant.

#### Reedbeds

- 6.7.18 Habitats listed on the SBL are considered to be of principal importance for biodiversity by Scottish Ministers. A small extent of Reedbed SBL priority habitat is present within the KINN study area around the perimeter of ponds KINN02 and KINN03; this habitat is considered to be of county level importance. Reedbed habitats can be valuable where they provide patches of semi-natural wetland within larger areas of highly modified, intensively managed and ecologically less diverse farmland (as occurs within and around the Site). Works in proximity to reedbed habitat comprise the construction of a temporary access road (including an extended off slip road) from the A876. No works are required within the reedbed habitat.

#### Habitat Loss

- 6.7.19 No loss of reedbed habitat is anticipated from KINN since the temporary access road will following a previously utilised route and road verge and will remain on topographically higher ground with no need to extend into the basin of the existing SUDS pond (KINN02). No works are proposed in close proximity to KINN03. As a result, there will be No Effect from loss of reedbed which is Not Significant.

#### Spread of INNS

- 6.7.20 Japanese knotweed was identified on both banks of the unnamed watercourses which flows through the south of the KINN study area. Implementation of biosecurity protocols identified in the BMP (produced as part of embedded mitigation) will prevent any spread of INNS, including Japanese knotweed.
- 6.7.21 Though highly unlikely (and illegal), if Japanese knotweed was introduced to an area where reedbeds are present, it may outcompete common reed at the dryer margins of the pond but is unlikely to do so in heavily waterlogged areas (Ref 6.36). The subsequent loss of habitat would therefore be minor.
- 6.7.22 Consequently, spread of INNS is predicted to have Negligible Effect on reedbed priority habitat which is Not Significant.

### Bats

- 6.7.23 The baseline obtained through field surveys is limited owing to changes to the Site boundary (most notably, the addition of Hawkhill Road Access Improvements). Therefore, assumptions have been made to enable a precautionary assessment of the effects on bats from KINN. A baseline of 41 PRF-M trees with suitability to support significant bat roosts (including of rarer species e.g. noctule) along Hawkhill Road is assumed. Habitats within the KINN study area are largely of Low suitability for commuting and foraging bats; however, habitats of higher suitability occur peripherally.

All species of bat that occur in Scotland receive legal protection under the Habitats Regulations. The latest National Bat Monitoring Programme report (Ref 6.37) indicates that populations of common and widespread bat species in Scotland are largely remaining stable, whilst the soprano pipistrelle population has increased across the past five years. No assessment of the population size or trend in Scotland is possible with the data available for noctule and Nathusius' pipistrelle.

### *Loss of Bat Roosts*

- 6.7.24 Tree T01 (shown on Figure 6.5: Important Species Survey Results) is the closest tree with a PRF identified during field survey to KINN; however, it is separated from the nearest component (the proposed temporary access route from the west) by the 2 m wide channel of the Canal Burn. Therefore, KINN will not result in any damage to this tree. The remaining two trees with PRFs identified are located in the north, more than 100 m from works. There will, therefore, be no damage to these trees or their roots during construction of KINN.
- 6.7.25 To enable assessment of the effect of roost loss on bats the following assumptions have been made regarding the impact of Hawkhill Road Access Improvements on trees with PRFs:
- seven trees will be felled as part of vegetation clearance along Hawkhill Road, six of which are assumed to be PRF-M;
  - the two trees recommended for felling for public safety reasons in the Hawkhill Road Tree Survey (Ref 6.12) will be felled, one of which is assumed to be PRF-M;
  - remediation works to lift the crown to 6 m where it over sails Hawkhill Road is assumed to result in the loss of integrity of 26 PRF-Ms; and
  - a further three PRF-Ms will be strategically felled per the recommendations in the Hawkhill Road Tree Survey (Ref 6.12).
- 6.7.26 Subsequently, in terms of roost resource, KINN is assumed on a precautionary basis to result in the loss of 37 PRF-M. In lieu of detailed surveys, it is assumed these PRF-Ms form part of the roost resource used by both common and widespread species and the geographically rarer noctule, including maternity colonies.
- 6.7.27 Bats roosting in trees are understood to exhibit low roost fidelity and frequently switch roosts (e.g. Ref 6.38). Alternative PRFs are highly likely to occur in other similarly aged trees in the surrounding area, including the woodland associated with Norris Knowe and a cluster of notable/ancient trees around Tulliallan Castle to the east. The loss of roosts used by maternity colonies would undoubtedly reduce the survivability and reproductive success of those colonies, particularly in the short term. However, the ability of bats to utilise multiple roost

sites, at least some of which are likely to occur outside the ZoI of KINN, minimises the magnitude and longevity of this effect.

- 6.7.28 In the case that multiple roosts of multiple colonies of common and widespread species (e.g. common pipistrelle and Daubenton's) are lost, this would have a Temporary Adverse Effect of Local Significance which is Not Significant in EIA terms. In the worst-case scenario that multiple roosts used by noctules are lost, this would have a Temporary Adverse Effect of County Significance which is Significant in EIA terms.

*Disturbance of Roosting Bats*

- 6.7.29 There are no trees within 100 m of the substation footprint, hence there will be no disturbance of roosting bats during construction of the primary component of KINN.
- 6.7.30 All other ancillary works are, at least in part, in proximity to trees with identified PRFs and/or trees/wooded areas not surveyed (which may contain trees with PRFs). These ancillary works may cause disturbance; however, it is important to consider the baseline level of disturbance when assessing this impact on bats (Ref 6.23). Currently, agricultural fields are subject to routine farming operations including ploughing and harvesting which involve the use of heavy, noisy machinery on an occasional basis. Furthermore, and particularly relevant to T01, baseline disturbance includes that from vehicular movement along the A876, including large lorries.
- 6.7.31 Works in proximity to trees would involve the use of standard construction machinery, such as excavators and dumper trucks, which would not be dissimilar in their impact from tractors and combine harvesters used for routine farming operations which occur at baseline. Furthermore, any unidentified roosts within woodland associated with Norris Knowe are on the opposite bank of an unnamed tributary of Calan Burn which would dampen any vibrations. Increases to vehicular traffic during construction of KINN will be most notable along the southern access track from Hawkhill, although this too is frequented by large farm vehicles at baseline. Considering the low numbers of vehicle movements anticipated during construction of KINN, and bats' abilities to habituate to vibration and noise levels, construction traffic is unlikely to cause disturbance to bats potentially roosting in these trees.
- 6.7.32 Disturbance to roosting bats as a result of KINN is unlikely to have a significant effect on bats (i.e. is unlikely to alter the conservation status of any bat species) due to:
- the small number of PRFs identified or assumed to be present (which are not assumed to be lost);
  - the large distance between the substation footprint and trees with the potential to have PRFs;
  - the extent of mature woodland between the substation footprint and Hawkhill Road which is likely to contain alternative roost resource and will remain sheltered from any noise and vibration;
  - the type of works in proximity to potential roosts; and,
  - the moderate baseline levels of disturbance.
- 6.7.33 As stated in Section 6.6: Embedded Mitigation, any lighting used for construction works will be directional to avoid light spill onto ecological features. The use of lighting near trees will be

avoided as far as possible and, where needed, will be directed so as not to illuminate any potential roost features. There will thus be no effect from artificial illumination of bat roosts.

- 6.7.34 It is therefore concluded that there will be Negligible Effect on roosting bats from disturbance during the construction phase and this is Not Significant.

*Loss or Obstruction of Commuting/Foraging Habitats*

- 6.7.35 KINN will have a negligible effect on watercourses from the perspective of bat commuting and foraging. New/upgraded water crossings are assumed to extend to a maximum length of 10 m (typically in the order of up to 5-8 m but for the purposes of the assessment a worst case of 10 m has been assumed) which are unlikely to act as a barrier if watercourses are used as a commuting route as bats have been recorded successfully crossing gaps of greater width when following tree lines in the wider landscape.
- 6.7.36 Felling of immature broadleaved trees west of the substation platform is required to facilitate temporary access to the Proposed Development. However, this would be at a very small scale in an already fragmented habitat (less than 350 m<sup>2</sup> of immature willows will be removed). This copse of willows is isolated by the adjacent A876 and large expanse of highly modified agricultural land (which is poor quality for foraging bats), so it is unlikely to be accessed by many bats for foraging and is not an important resource.
- 6.7.37 For similar reasons, the adjacent SUDS pond (KINN02) is unlikely to be an important foraging resource for bats. Considering the isolation of this feature in the landscape, loss of the nearby copse of trees would not disrupt access beyond baseline conditions, where poor connectivity exists. Construction of an additional SUDS feature as part of the site drainage design could in the longer term increase foraging opportunity by supporting invertebrate communities.
- 6.7.38 Therefore, the minimal loss of immature trees and the slight increase in wetland habitat for foraging/commuting bats is considered likely to have Negligible Effect on bats and this is Not Significant.

*Disturbance of commuting/foraging bats*

- 6.7.39 The primary component of KINN (the substation footprint) is situated centrally within an arable field, more than 70 m from the field edges where habitats of greater value for commuting/foraging bats are present. Therefore, the greatest risk of disturbance to commuting/foraging bats arises from vehicular movement and ancillary works (i.e. works associated with access and drainage).
- 6.7.40 During the bat activity season (approximately April to September/October), construction works will predominantly take place during daylight hours (considering standard working hours are 07:00-19:00 and it is largely daylight in central Scotland during this period, certainly between May and August inclusive) with minimal activities required outside standard working hours (see Chapter 4: Description of the Proposed Development). Where works are required around dawn/dusk or during hours of darkness, any lighting used will be directed onto works areas and away from the perimeter of the Site where better habitat for foraging/commuting is located (as detailed in Section 6.6: Embedded Mitigation).
- 6.7.41 Disturbance to foraging or commuting bats as a result of construction activities is therefore unlikely and, even if it were to occur, would impact bats over a very small area relative to comparable habitat present within the wider landscape. Furthermore, the generally low

suitability of habitats means few individuals are likely to be present and at risk of being disturbed.

- 6.7.42 It is therefore concluded that there will be a Negligible Effect on foraging and commuting bats from disturbance during the construction phase and this is Not Significant in EIA terms.

#### Otter

- 6.7.43 Minimal evidence of otter activity was recorded during field surveys with only one potential resting place identified; this assessment assumes this to be a layup. Habitats within the KINN study area that were not surveyed are unlikely to be supportive of holts, though otter are present and active along watercourses around the periphery. It is likely that the watercourses are utilised by otter commuting throughout the wider landscape where there is greater prey resource. Otters receive legal protection under the Habitats Regulations. However, the Scottish otter population is estimated at approximately 8,000 individuals and it is believed that the species may now be nearing carrying capacity (Ref 6.45). Fish represent between 50-95% of the diet of otter (Ref 6.46) though other prey sources can be seasonally important, including spawning amphibians and young waterbirds. Otter territories are generally very large, extending up to 21 km in size for females and 48 km for males (Ref 6.45).

#### *Resting Otter (Loss of Refuges/Disturbance)*

- 6.7.44 One potential resting place (an assumed layup) was recorded at a culvert during field survey more than 200 m from the substation footprint. The nearest works associated with KINN are the construction of a new SUDS feature and landscape planting. No works will directly affect the culvert, hence there will be no loss of this assumed layup feature.
- 6.7.45 The only otter resting place recorded during field surveys is not at risk of disturbance from construction works associated with the substation footprint, permanent access arrangements, or the new SUDS feature as they are more than 30 m away (Ref 6.6). However, resting otter could be disturbed during tree planting (approximately 5 m from the recorded layup at closest). Tree planting will take place during daylight hours, when otters are less likely to use layup features. Layups are typically less important to otter than holts since the restricted cover makes them more vulnerable if resting for long periods. Disturbance for a matter of days to one resting site within an otter's territory would have negligible effect on the individual's ability to survive and certainly no effect on the local population.
- 6.7.46 Sections of watercourse which could not be surveyed are not considered at risk of disturbance owing to the presence of the A876 (to the west of KINN) and railway line and embankment (to the east) which would shield features in the unlikely event they are present, dampening the effects of noise and vibration. The use of artificial lighting during construction will be minimised and, where required, will be directed onto works areas to avoid light spill towards the identified layup (as set out in Section 6.6: Embedded Mitigation).
- 6.7.47 Consequently, construction activities associated with KINN are anticipated to have Negligible Effect on resting otters. Nonetheless, a licence would be required from NatureScot if the layup is confirmed to be a resting place (e.g. via camera trap monitoring) and a 30 m buffer zone cannot be maintained.

#### *Loss of Commuting/Foraging Habitat*

- 6.7.48 Works to two watercourse crossings are required as part of the access from the A876; one upgrade of an existing crossing of an unnamed ditch that connects to the existing SUDS pond

east of the A876, and one new crossing of the Canal Burn. It has been assumed that each watercourse crossing point will extend to a maximum length of 12 m, meaning the total possible loss of watercourse which could be used by foraging otters is 19 m (accounting for the proposed upgrade and new watercourse crossing). This is very small in the context of an otter territory (which, as stated, can extend over tens of kilometres), and will have no material effect on the success of otter foraging, especially considering affected watercourses offer poor suitability for prey species.

- 6.7.49 Watercourse crossings will not create any permanent barrier to movement since the upgraded culvert will be designed to adhere to SEPA guidance and remain passable to otter and other aquatic species. Otter readily use passable culverts and bridge structures (e.g. Ref 6.47).
- 6.7.50 During the construction of watercourse crossings, if works will span multiple days, works areas will be left so as to be passable to otter, e.g. by ensuring there are means to leave and re-enter the watercourse if the channel is diverted. Since otters are highly mobile and capable of crossing terrestrial habitat (e.g. Ref 6.48), this will not reduce available commuting habitat but will temporarily reduce available foraging habitat at a minute scale. Considering the degree of habitat loss combined with low prey availability in affected watercourses and greater prey resource elsewhere, construction and upgrading of watercourse crossings will not affect an otters' ability to forage within its large territory.
- 6.7.51 It is therefore considered that there will be Negligible Effect on otter from the loss of commuting or foraging habitat and this is Not Significant.

#### *Changes to Prey Resource*

- 6.7.52 There will be no likely significant effects as a result of pollution of watercourses during construction due to implementation of standard mitigation measures. During the installation of watercourse crossings, this will include ensuring that works areas are dry (for example by over-pumping or temporarily diverting the watercourse). There will consequently be no impacts on aquatic fauna (potential otter prey) as a result of aquatic pollution.
- 6.7.53 The new watercourse crossing will be designed in line with SEPA guidance to maintain fish passage and the upgraded culvert will be designed to improve/retain passage compared to the existing structure. Movement of aquatic species would, therefore, only be affected temporarily during construction works when drying of the works area is required.
- 6.7.54 Considering the small length of affected watercourse, the risk of fish casualties during construction of watercourse crossings is likely to affect few individuals, if any (see section on Eels below), and loss of a small number of potential prey items would certainly not influence an otters' ability to survive.
- 6.7.55 Construction of a new SUDS feature, if suitable, may support amphibians and, in the longer term, marginally increase the prey resource for otter. This change would have a negligible effect on foraging otter considering the foraging resource which already exists within an individual's territory.
- 6.7.56 Consequently, there would be Negligible Effect on otter from changes to prey resource during construction and this is Not Significant.

#### *Disturbance Whilst Commuting/Foraging*

- 6.7.57 Standard working hours during construction are 07:00-19:00 when it is largely daylight in central Scotland, certainly between May and August inclusive. However, over the autumn and

winter months, up to five and a half standard working hours will be during dawn/dusk/in darkness (when otters are most active). Furthermore, some activities may be required outside these standard working hours (see Chapter 4: Description of the Proposed Development). Any lighting used (including temporary security lighting or where works are required around dawn/dusk or during hours of darkness) will be directed away from watercourses to minimise the potential impact of disturbance on otter (as per Section 6.6: Embedded Mitigation).

6.7.58 The substation footprint is situated centrally within an agricultural field, more than 100 m from the nearest watercourse. Therefore, the greatest risk of disturbance to commuting/foraging otter arises from vehicle movement, ancillary works (works associated with watercourse crossings and construction of adjacent access roads and SUDS features), and landscaping (tree and scrub planting). Otter in the area will have habituated considerably to vehicular traffic owing to the proximity of the A876 and regular farming activity, so disturbance from construction traffic will be limited. If otter commuting and/or foraging around the KINN study area were to be disturbed by on-going works, this is very unlikely to have a significant effect on the local population for the following reasons:

- the area which could possibly be impacted will be very small relative to the size of an otter territory;
- the number of individuals which could possibly be impacted is likely to be very small (one or two individuals plus possibly mobile cubs) considering the territorial nature of otter;
- the watercourses within the KINN study area with potential to be impacted by works do not provide optimal foraging resource or cover, and are highly likely to be of lower value to foraging otter compared to, for example, the Firth of Forth (which is located just over than 200 m from KINN); and
- this impact would be temporary due to standard working hours and the duration of the construction phase.

6.7.59 Nonetheless, positioning of KINN means that disturbance of surrounding watercourses could temporarily disrupt movement between nearby foraging resources (the Firth of Forth and Peppermill Dam). However, this would still have a negligible effect on otters considering the vastness of their territories and that disturbance would be temporary.

6.7.60 Consequently, disturbance from construction activities of the Proposed Development will have a Negligible Effect on commuting/foraging otter which, in the context of this EIA, is Not Significant.

#### *Injury or Mortality*

6.7.61 As described above, works will largely take place in daylight, and therefore mostly outside periods when otters are most active. Vehicular traffic volumes will be low, and all vehicles will be bound by standard construction site safety protocol to travel at low speeds. Considering also the mobility of otter and that otters in the area are used to avoiding vehicles associated with regular farming activities, the probability of otter casualties as a result of vehicle collision during construction is extremely low. Standard measures to protect all animals from harm during construction will be implemented, including providing a means of escape from excavations (see Section 6.6: Embedded Mitigation).

6.7.62 It is therefore concluded that there will be Negligible Effect on otter from injury/mortality and this is Not Significant.

Pine Marten

- 6.7.63 Pine martens are omnivorous and feed on small rodents, birds, beetles, carrion and vegetative matter, including berries. They inhabit woodland areas but will incorporate open habitats including tussocky grassland and scrub within their home range (Ref 6.49). The Scottish pine marten population is estimated by NatureScot (Ref 6.39) as being 3,700 adults and is believed to be increasing. The species range has also increased from the core Highland region and pine martens are now present across much of the country.

*Loss of Foraging/Commuting Habitat*

- 6.7.64 No established woodland would be lost as a result of KINN; although trees are assumed to be felled along Hawkhill Road, the resulting gaps would not reduce the suitability for commuting pine marten, which is poor at baseline compared to the denser woodland south of Hawkhill Road.
- 6.7.65 Less than 350 m<sup>2</sup> of immature willow scrub, one of the few habitats theoretically suitable for use by pine marten within the KINN study area, would be lost. However, the affected patch of scrub is isolated in a largely agricultural landscape and is situated adjacent to the A876, both of which are likely to be avoided by pine marten (Ref 6.40). It is therefore highly unlikely pine marten utilises this small patch of immature woodland.
- 6.7.66 Subsequently, there is considered to be No Effect on pine marten from habitat loss.

*Destruction/Disturbance of Dens*

- 6.7.67 The six mature trees which are assumed to be felled along Hawkhill Road occur in a line between the existing road and an arable field so are unlikely to be used by pine marten even if features suitable for use as aerial dens are present. No optimal habitat for pine marten den establishment will be directly affected by KINN, hence there is no risk of a pine marten den being damaged or destroyed during construction activities associated with the Proposed Development.
- 6.7.68 As the woodland in the south of the KINN study area was not comprehensively surveyed, there is potential for it to contain pine marten den sites. Historically pine marten natal dens were associated with arboreal cavities; however, owing to the lack of mature woodland in Scotland a range of den types are now utilised, including bird nests and squirrel dreys (Ref 6.41). In lieu of comprehensive survey, this assessment assumes pine marten dens are present on a precautionary basis. Considering the territorial nature of pine marten, and their typical home range, KINN is likely to disturb, at most, one pair from their respective dens (including the possibility of a natal den).
- 6.7.69 The closest construction works to this woodland are construction of a SUDS feature and access track, whilst the substation footprint is more than 150 m from the woodland edge. Tree planting will also take place along the edge of this woodland; however, the nature of this activity is unlikely to disturb resting pine marten considering baseline conditions. Whilst vehicle movements have the potential to cause disturbance, any pine martens denning nearby would already be relatively tolerant at baseline due to regular farming activities which take place within the arable fields and proximity to the A876/A977.
- 6.7.70 Therefore, the greatest risk of disturbance of pine marten dens relates to construction of the south-western access road and the SUDS feature. The works to construct this SUDS would be

short-term in nature, and much less than the overall construction programme. Any possible disturbance would therefore be temporary, and over a short period of time.

- 6.7.71 Pine martens use multiple den sites, so temporary displacement from a non-natal den would have negligible effect. In the event of the worst possible outcome, disturbance during construction could result in a single female failing to reproduce one year (for example, by abandoning young in the natal den). However, the distribution of pine marten is expanding throughout the Eastern Lowlands (Ref 6.30) and this is likely to be reversible at a local population scale.
- 6.7.72 On balance, and notwithstanding legal obligations regarding pine marten which can be addressed through pre-construction surveys, it is concluded that possible disturbance of a single natal den will have a Negligible Effect on pine marten which is Not Significant in the context of this EIA. Nonetheless, a licence would be required from NatureScot where a 30 m or 100 m buffer zone around non-breeding or breeding dens cannot be maintained.

*Disturbance Whilst Commuting/Foraging*

- 6.7.73 Standard working hours during construction are 07:00-19:00 when it will be largely daylight in central Scotland, certainly between May and August inclusive. However, over the autumn and winter months, up to five and a half standard working hours will be during dawn/dusk/in darkness (when pine martens are most active). Some activities may be required outside these standard working hours (see Chapter 4: Project Description); however, these are likely to be primarily within the substation footprint which is more than 100 m from the woodland edge. Where works are required around dawn/dusk or during hours of darkness, any lighting used will be directed away from woodland edges to minimise the potential impact of disturbance on pine marten (as per Section 6.6: Embedded Mitigation). Any temporary security lighting will also be directed away from woodland edges.
- 6.7.74 Disturbance of commuting/foraging pine marten will therefore largely be avoided, especially as pine marten are unlikely to venture into arable habitats (Ref 6.40). In the unlikely event that a foraging or commuting individual is disturbed during construction activities, this is likely to cause minimal impact since there is ample habitat more suited to pine marten available southeast which would remain undisturbed. Furthermore, the response of commuting/foraging pine marten to disturbance from construction activities in proximity to woodland habitats can be expected to be similar to their response to regular farming activities which occur at baseline. Construction of the south-western access road and the southernmost SUDS feature, which are closest to suitable pine marten habitat, will be completed in a relatively short period of time, and considerably less than the overall four to five-year construction programme. Any possible disturbance would therefore be temporary, over the short-term.
- 6.7.75 It is therefore considered that there will be Negligible Effect on commuting/foraging pine marten from disturbance during construction.

*Injury or Mortality*

- 6.7.76 It is considered extremely unlikely there would be any pine marten casualties during construction for the following reasons:
- as described in the paragraphs above, construction work will occur mostly outside periods when pine martens are most active;

- vehicular traffic volumes will be low, and all vehicles will be bound by standard construction site safety protocol to travel at low speeds;
- it is likely few individuals are present in the KINN study area, if any;
- pine marten are a highly vigilant and motile species;
- pine marten typically avoid open agricultural fields (Ref 6.41);
- any individuals in the area would be accustomed to avoiding vehicles associated with regular farming activities; and
- standard measures to protect all animals from harm during construction will be implemented, including providing a means of escape from excavations, etc. (see Section 6.6: Embedded Mitigation).

6.7.77 On the basis of the above, it is predicted that there will be No Effect on pine marten from injury or mortality during construction of the Proposed Development, and this is Not Significant.

#### Red Squirrel

6.7.78 Red squirrels are arboreal and rely on trees and woodlands to survive. They primarily eat seeds, but nuts, fungi, shoots and fruits can supplement their diet seasonally. Scotland supports approximately 80% of the British red squirrel population, estimated as being 287,000 (Ref 6.42) but is thought to be declining (Ref 6.43) owing to pressures from disease associated with invasive non-native grey squirrels.

#### *Loss of Commuting/Foraging Habitat*

6.7.79 Red squirrels are likely present within woodlands in the wider KINN study area but this will not be lost as a result of KINN. The only habitat suitable for use by red squirrel that is assumed to be impacted by KINN is a line of trees along Hawkhill Road. This assessment assumes six trees will be felled from this line which would not alter the suitability of this tree line for foraging/commuting beyond baseline. Therefore, there will be No Effect from loss of commuting / foraging habitat on red squirrel.

#### *Destruction of Dreys*

6.7.80 Red squirrels typically build dreys in woodlands and use corridor features (such as lines of trees) to commute in the wider landscape. Therefore, tree felling and remedial works along Hawkhill Road is not anticipated to damage any red squirrel dreys.

#### *Disturbance Whilst Resting/Breeding*

6.7.81 It is possible that squirrel dreys are present in the woodland south of the substation footprint. The maximum disturbance distance considered for breeding dreys is 50 m (Ref 6.6), so whilst disturbance of red squirrel dreys could theoretically occur as a result of construction activity, the area prone to such disturbance will be small. The only construction activities within 50 m of the adjacent woodland are the construction of the SUDS feature and the south-westerly access road. Construction of these components will be completed in a relatively short period of time and disturbance would be temporary. There will also be minimal vehicular traffic passing the woodland; however, red squirrels within the surrounding woodlands will be habituated to noise and vibration from heavy machinery since regular farming activities occur within baseline conditions. Tree planting will take place along the woodland edge; however, the nature of this activity is unlikely to disturb red squirrel considering baseline conditions.

Furthermore, red squirrels use multiple dreys within their home range and are frequently observed moving kits from one to another.

- 6.7.82 Consequently, displacement from a drey due to disturbance from construction activities would have Negligible Effect on red squirrel. Nonetheless, a licence would be required from NatureScot where a 5 m buffer zone around non-breeding or 50 m buffer zone or breeding dreys cannot be maintained.

*Injury or Mortality*

- 6.7.83 As red squirrels are arboreal and less likely to travel on the ground into open areas of unsuitable habitat as cropland, they are at low risk of traffic collision. Movement of construction vehicles along tracks will also be infrequent and slow-moving, and standard measures to protect all animals from harm during construction will be implemented, including providing a means of escape from excavations, etc. (see Section 6.6: Embedded Mitigation).
- 6.7.84 It is therefore concluded that there will be No Effect on red squirrel from injury or mortality during the construction phase, and this is Not Significant.

Breeding Birds

*Loss of Nesting Habitat*

- 6.7.85 The KINN study area predominantly offers suitable habitat for ground nesting birds. Based on the baseline information, skylark and grey partridge are considered to be important species that are most likely to nest in open agricultural habitats or field margins.
- 6.7.86 KINN would result in the permanent loss of up to 31 ha of this habitat. Grey partridge densities vary from 1.3 to 18.4 pairs per km<sup>2</sup> with high densities occurring where favourable habitat management practices are implemented. Based on a density of 0.5 skylark pairs per ha (Ref 6.51) and 18.4 grey partridge territories per km<sup>2</sup>, this could equate to the loss of up to 15 skylark territories and six grey partridge territories. This is highly likely to be an overestimate given the detrimental impacts of intensive farming practices, though remains a negligible fraction of the UK populations (estimated to be 1.6 million skylark territories and 37 thousand grey partridge territories in 2016 (Ref 6.52)). Furthermore, agricultural fields akin to those within the Site are abundant in the surrounding area, particularly to the north and west, meaning alternative breeding habitat is plentiful.
- 6.7.87 The Site also offers suitable habitat for scrub nesting species such as yellowhammer. Up to 350 m<sup>2</sup> of willow scrub will be cleared to enable the construction of an access road from the west of the Site. Whilst theoretically suitable, this patch of scrub is unlikely to be an important nesting resource since:
- it is an extremely small patch of immature scrub;
  - the scrub is relatively isolated from other wooded habitats; and
  - nesting birds would be highly disturbed by the adjacent A876.
- 6.7.88 Given the availability of better-quality alternative habitat in the landscape surrounding the KINN study area, which is more extensive and better connected, the minor loss of isolated scrub habitat is considered insignificant.
- 6.7.89 There will be no direct loss of any woodlands, so woodland nesting birds will not be affected by habitat loss.

6.7.90 It is therefore concluded that permanent loss of nesting habitat will have Negligible Effect on local bird populations which is Not Significant.

6.7.91 Regardless of the above, active nests of all wild birds are protected under the WCA. Therefore, site preparation including vegetation clearance will be planned to take place, as far as possible, outside the general breeding bird season (March to August, inclusive). Where vegetation must be cleared in the breeding season, the appointed ECoW (as described in Section 6.6: Embedded Mitigation) will carry out nesting bird checks and establish any exclusion zones as required.

*Disturbance while Nesting*

6.7.92 Woodlands in the periphery of the KINN study area have the potential to support nesting birds, including barn owl which may nest in a nearby castle which is more than 200 m from the nearest works and 460 m south of the substation footprint. Baseline levels of disturbance originating from routine farming operations (including ploughing and harvesting) and traffic along the A876 mean some level of habituation can be expected from birds nesting in this area. Also, considering that the substation footprint is located centrally within a large arable field, the risk of disturbing nesting birds within the woodlands is minimal. Works nearest to woodland habitat, comprise construction of a SUDS feature and access roads, and tree planting associated with landscaping. These are minor works and will be completed on a far shorter time scale than the KINN schedule. Furthermore, the woodland habitat extends for approximately 700 m, providing ample suitable habitat away from disturbance during construction.

6.7.93 It is therefore concluded that disturbance of nesting birds within surrounding woodland habitats will have Negligible Effect which is Not Significant.

Eels

6.7.94 Owing to the habitats present, the only important fish species which may be present in watercourses within the KINN study area is eel.

*Injury or Mortality*

6.7.95 In-channel works are required for the upgrade of one existing watercourse crossing and the construction of one new watercourse crossing. These works will last a fraction of the overall KINN schedule and will involve temporarily drying up to a maximum of 24 m of watercourse (though this is likely to be closer to 16 m). It is possible for injury or mortality to occur during construction works; however, works are highly localised and are likely to affect few individuals, if any. Furthermore, eels are capable of living and navigating out of water which reduces their risk of mortality during the cabling works.

6.7.96 Considering the extent of similar watercourses in the surrounding landscape, the chances of eel being present in the extremely small stretch of watercourse affected by KINN is minimal. Furthermore, injury or mortality of few individuals is unlikely to have a significant effect on the local eel population which occurs at higher densities elsewhere in the River Forth catchment (Ref 6.53).

6.7.97 It is therefore concluded that there will be Negligible Effect on eels from injury or mortality as a result of the Proposed Development and this is Not Significant.

### *Barriers to Movement*

- 6.7.98 The new watercourse crossing will be designed in line with SEPA guidance to allow fish passage and the upgraded culvert will be designed to improve/retain passage compared to the existing structure. Therefore, any impact from blocking movement would only occur when the crossings are under construction.
- 6.7.99 As works will be short-term, there will be Negligible Effect on eel from preventing movement up-/downstream temporarily, and this is Not Significant.

### Impacts from Maintenance During the Operation Phase

- 6.7.100 Since the Proposed Development will be operated remotely, visits by people and vehicles will only be for maintenance activities as required. This is unlikely to need more than a small team; however, should more extensive, unplanned works be required this would involve more staff and a longer duration of works. Therefore, operational impacts would only arise in the event that larger maintenance works are required, and it is anticipated this would occur very infrequently, if at all. Depending on the works required, possible impacts may include those identified for construction of KINN above, but at a lesser magnitude in terms of spatial scale (assuming maintenance is localised) and temporal scale (assuming works are short-term and temporary).
- 6.7.101 The only construction impact found to have a significant effect was loss of bat roosts. Tree felling is not anticipated to be necessary to facilitate emergency works; therefore, it is concluded that maintenance work during the operational phase would have No Significant Effect on any ecological features.

### **Overhead Line Works (XL/ZCN/ZCS Uprating and Turn-ins)**

#### Issues Scoped Out of Further Assessment for Overhead Line Works

- 6.7.102 As stated under Introduction in Section 6.4: Methods, relevant ecological features are those that are 'important' and have the potential to be significantly affected by the OHL works (Ref 6.5). In view of the baseline data obtained through desk study and field survey, the features in Table 6-10 have been excluded from further assessment because they will not be significantly affected due to one or more of the following:
- available data indicates that they are likely to be absent from the Zol of OHL works (i.e. it is clear that no impact from the construction or operation of OHL works is possible); and/or
  - the feature (within the Zol of OHL works) is considered to be of less than Local importance (i.e. 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 OHL works).

**Table 6-10: Ecological and ornithological features scoped out of further assessment for Overhead Line Works**

| Feature                                             | Rationale for exclusion from further assessment in this section                                                                                            |
|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Terrestrial habitats not identified as being</b> | Habitat types which are common and widespread, both locally and nationally, are present within the OHL works study area. This includes arable fields which |

| Feature                                                  | Rationale for exclusion from further assessment in this section                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>important under Habitats in Section 6.5: Baseline</b> | dominate the area as well as neutral grassland, scrub, and broadleaved woodland which are of low floristic diversity, have limited conservation value, and/or are outside the Zol of the OHL works.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Reedbeds</b>                                          | There is no possible impact on Reedbeds priority habitat since there will be no loss as a result of OHL works, embedded pollution prevention measures will prevent any pollution impact, and these habitats are not considered groundwater dependent, so there will be no indirect impact from changes to groundwater flows. Therefore, reedbeds are outside the Zol of OHL works.                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Ponds</b>                                             | There will be no direct impact on any ponds within the OHL works study area, and embedded pollution prevention measures mean that there will be no impact from pollution hence ponds are outside the Zol of OHL works.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Watercourses</b>                                      | The watercourses which are present within the OHL works study area are not considered important habitats, since they are highly modified and do not support a diversity of notable habitats / species. No in-channel works are proposed during OHL works and implementation of standard pollution prevention measures (described in Section 6.6: Embedded Mitigation) mean that there will be no impact from waterborne pollution on these habitats. Watercourses are, therefore, outside the Zol of OHL works.                                                                                                                                                                                                                                    |
| <b>Water vole</b>                                        | No desk study records of water vole were identified, and field survey results indicate they are likely absent from the OHL works study area. Furthermore, there would be no direct impacts on watercourses and standard pollution prevention measures (described in Section 6.6: Embedded Mitigation) would be sufficient to avoid pollution impacts. Water voles are not present within the Zol of the OHL works.                                                                                                                                                                                                                                                                                                                                 |
| <b>Beaver</b>                                            | <p>Watercourses within the OHL works study area have very soft substrate and are generally not suitable for establishing beaver refuges. Furthermore, signs of beaver activity recorded during surveys was very old and comprised only minimal foraging evidence. Therefore, at present it is considered beaver are likely absent from the Zol of the OHL works.</p> <p>Also, there would be no direct impacts on watercourses and standard pollution prevention measures (described in Section 6.6: Embedded Mitigation) would be sufficient to avoid pollution impacts. If beaver were to settle in watercourses within the study area, any possible impact would be minor and appropriately mitigated under licence where this is required.</p> |
| <b>Pine marten</b>                                       | Pine marten is protected by Schedule 5 of the WCA and may be present in woodlands within the OHL works study area (two desk study records were identified). However, the agricultural fields within which the majority of the OHL works are situated are unsuitable for this species; the extent of suitable habitat within the study area is extremely small (smaller than that for KINN) and pine marten is relatively common nationally (e.g., Ref 6.29) and in this part of central Scotland (e.g., Ref 6.30). Consequently, this species is considered to be of less than Local importance.                                                                                                                                                   |
| <b>Red squirrel</b>                                      | Red squirrel is protected by Schedule 5 of the WCA. However, it is widespread and relatively common in suitable habitat in central Scotland, north of the central belt. The predominant agricultural fields are unsuitable for red                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Feature                          | Rationale for exclusion from further assessment in this section                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                  | <p>squirrel. Though they may be present in surrounding woodland habitats, there is only a very small and localised extent of suitable woodland habitat within the OHL works study area, most of which is managed under an existing OHL, hence red squirrel within the Zol of OHL works are considered to be of less than Local importance.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Brown hare and hedgehog</b>   | <p>It is likely that hedgehog occurs in areas of suitable habitat within the OHL works study area, along field edges and in adjacent woodland and scrub. Observations of brown hare were made in arable fields during field surveys. Both species are relatively common and widespread, and any potential impacts upon them will be easily mitigated through standard animal protection measures (described in Section 6.6: Embedded Mitigation). Furthermore, alternative habitat in the form of agricultural fields is common in the surrounding landscape and across NHZ16.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Wildcat and mountain hare</b> | <p>The OHL works study area lies outside the recognised range of wildcat (Ref 6.17); there is no suitable habitat for mountain hare; and no desk study records of these species were identified. It is therefore considered very likely these species are absent.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Badger</b>                    | <p>Badger receives legal protection because of its susceptibility to human persecution, not because of any conservation concern. It is a common and widespread species across lowland Scotland. Arable fields are sub-optimal for badger sett creation but there may be opportunities along field edges and in peripheral woodland and scrub habitats, of which there is only a very small extent within the OHL works study area.</p> <p>Whilst the study area offers suitable foraging habitat, this is plentiful in the wider area, particularly around field edges and within grasslands. Therefore, the population of badger which may use the land within and in proximity to the OHL works is assessed as being less than Local importance.</p> <p>Nonetheless, mitigation measures to ensure legislative compliance are included in Section 6.8: Additional Mitigation.</p>                                                                                                                                                                                                                                    |
| <b>Breeding birds</b>            | <p>Habitats within the OHL works study area are generally of relatively low value to breeding birds. Habitats typically comprise arable fields, field margins, and line of trees/woodland patches.</p> <p>Two of the XL uprating and reconductoring works towers, Towers XL018 and XL019, are located within an area of marsh/marshy grassland with scattered trees (directly adjoining arable fields). While the potential breeding bird assemblage could include species of conservation concern, including red listed BoCC, all these species are common and widespread in the local area and wider Scotland central belt.</p> <p>Barn owl, a schedule 1 species was returned from the NBN search and could potentially breed within farms buildings adjacent to access routes for the XL uprating and reconductoring works. Access routes in these areas, however, would typically comprise existing hard standing tracks with negligible disturbance effects above the baseline of an active farm complex. It is therefore considered that the population of breeding birds is of less than Local importance.</p> |

| Feature                                                                         | Rationale for exclusion from further assessment in this section                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                 | <p>Additionally, the nests and young of breeding birds would be protected, included from abandonment of parents due to disturbance, by adherence to embedded mitigation in relation to breeding birds (Section 6.6: Embedded Mitigation).</p>                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Wintering birds (not associated with the Firth of Forth SPA/Ramsar site)</b> | <p>Habitats within the OHL works study area have the potential to support a variety of common and widespread wintering bird species. There are no large waterbodies or wetlands that could support large congregations of wintering waterbirds. The majority of the waterbird species that could potentially use habitats on or adjacent to site are also qualifying features of the Firth of Forth SPA/Ramsar site so are not considered here. It is therefore considered that the population of other wintering birds is of less than Local importance.</p>                                                                                                  |
| <b>Non-native animals (e.g. grey squirrel and American mink)</b>                | <p>There is no mechanism by which the construction or operation of the OHL works could facilitate the spread of these non-native animal species, which are already believed from desk study information to be present in the area.</p>                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Non-native plants</b>                                                        | <p>It is possible that non-native plants present within the OHL works study area could be spread as a result of the OHL works, in the absence of suitable measures. However, the embedded BMP will stipulate mitigation measures to prevent any spread and ensure compliance with legal obligations. Subsequently, OHL works will not result in any spread of non-native species.</p>                                                                                                                                                                                                                                                                          |
| <b>Common reptiles and amphibians</b>                                           | <p>Records of only common lizard and common frog were identified by the desk study. Arable fields which dominate the OHL works study area do not provide suitable habitat for these species and other suitable habitat is extremely limited. Therefore, only small populations of these species are likely to be present if at all. Considering also that these species are relatively common and widespread, any possible impacts from OHL works would not threaten their conservation status.</p>                                                                                                                                                            |
| <b>Fish</b>                                                                     | <p>Watercourses within the OHL works study area comprise agricultural drainage ditches which are unsuitable for most important fish species, except eel. Any other fish species which may be present are likely to be in small numbers and any possible impacts from OHL works would not threaten their conservation status. There would be no direct impacts on watercourses and standard pollution prevention measures (described in Section 6.6: Embedded Mitigation) will prevent any indirect impact from water pollution on the Canal Burn and subsequently the Firth of Forth (downstream of the Site), which is used by migrating Atlantic salmon.</p> |
| <b>Invertebrates</b>                                                            | <p>Although two notable moth species were identified by the desk study, given the very poor quality and low species diversity of habitats within the Site (mainly arable fields) it is considered very unlikely that habitats within the OHL works study area would support many notable invertebrates. Invertebrates which may occur are likely to be common and widespread, particularly in similar habitats across the Eastern Lowlands, and any possible impacts from the OHL works would not threaten their conservation status.</p>                                                                                                                      |

#### Importance of Ecological Features within the Overhead Line Works Study Area

- 6.7.103 The assessed importance of those ecological features identified in the baseline conditions, and which have not been scoped out under Features Scoped out of Further Assessment above,

is set out in Table 6-11, together with a rationale. Importance has been assessed considering geographic scale, in accordance with CIEEM guidelines (Ref 6.5) and as described in Appendix 6.1: Methodology.

**Table 6-11: Importance of ecological and ornithological features within the Overhead Line Works Study Area**

| Feature                                               | Importance    | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Firth of Forth SPA and Ramsar Site</b>             | International | This is a nature conservation site designated at an international level.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Firth of Forth SSSI</b>                            | National      | This is a nature conservation site designated at a national level.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Long-established Woodland of Plantation Origin</b> | County        | Long-established Woodland of Plantation Origin is not as ecologically valuable as true ancient woodland, but this categorisation does indicate a level of continuous woodland cover which may have allowed for good quality woodland ground flora to persist. Although there is a moderate density of Long-established Woodland of Plantation Origin parcels within the 1 km study area, a far greater extent is present across the Eastern Lowlands, so those within the OHL work study area are considered to be of County level importance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Lowland Mixed Deciduous Woodland</b>               | Local         | The LMDW SBL priority habitat is not an example considered to be of particularly high ecological value and is present as a narrow strip along a railway. It is commonly found in the wider area but is limited within the OHL works study area and is therefore considered to be Locally important.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Bats</b>                                           | Local         | <p>Bats receive legal protection through their listing on Schedule 2 of the Habitats Regulations. The suitability of habitat within the OHL works study area is Low for bats, comprising improved agricultural land, with limited linear features for commuting/foraging. The OHL study area primarily includes open crop field, which presents low invertebrate density and therefore very limited opportunity for bat foraging.</p> <p>The assumed roost resource of the OHL works study area comprises one PRF-M tree that is potentially suitable to support a significant roost type (e.g. maternity). This is assumed to be used by a maternity colony of a common and widespread bat species.</p> <p>The OHL works are at the very edge of noctule and Nathusius' pipistrelle distribution in Scotland, and these are rarer species within the context of the study area. However, there is no suitable roost resource within the Zol for these species and there is only a small extent of better-quality foraging/commuting habitat. Therefore, on balance, bats are considered to be of Local importance.</p> |
| <b>Otter</b>                                          | County        | Otter receives legal protection through its listing on Schedule 2 of the Habitats Regulations. Evidence of otter activity was found along watercourses and around the edge of waterbodies, but the only potential refuge recorded was a layup outside of the OHL tower works study area. The Canal Burn is relatively small and,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Feature                   | Importance | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |            | owing to the territorial nature of otter and poor suitability for prey species, likely supports a low density of otters, probably on an occasional basis to commute and forage. Considering the size of the national population (estimated to be around 8,000 individuals), and the widespread distribution across Scotland, including the Eastern Lowlands, otters within the OHL tower works study area are considered to be of County importance.<br><br>There is no suitable habitat for otters within the XL uprating and reconductoring works study area and they are considered absent. |
| <b>Great crested newt</b> | Regional   | Great crested newts are considered absent from the study area of OHL tower works but on a precautionary basis are assumed to breed in ponds within the study area of XL uprating and reconductoring works. Although there are only three ponds, great crested newts are rare across the Eastern Lowlands, so any possible population that may occur is considered to be Regionally important.                                                                                                                                                                                                  |

#### Potential Broad Categories of Construction and/or Operational Impacts

6.7.104 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 6-11:

- temporary or permanent habitat loss (e.g. where new towers are installed and at working areas);
- temporary or permanent changes to hydrological conditions which may affect vegetation and habitats (e.g. groundworks for building the foundations of new towers may alter groundwater levels);
- loss of habitat which supports protected and/or important species;
- temporary or permanent disturbance and/or displacement of species during construction (e.g. birds foraging or roosting in nearby habitats); and
- potential for direct mortality of species during construction (e.g. as a result of increased vehicular traffic).

#### Impacts During Construction

##### Firth of Forth SPA and Ramsar Site

6.7.105 An assessment of likely significant effects on the Firth of Forth SPA and Ramsar Site is completed in Appendix 6.4: Statement to Inform Habitats Regulations Appraisal. The HRA concluded that there would be negligible effects on qualifying features as a result of habitat loss and disturbance/displacement during construction of the OHL works.

##### Firth of Forth SSSI

6.7.106 The Firth of Forth SSSI is largely concurrent with the Firth of Forth SPA and Ramsar site, particularly at its closest point to the Site. Therefore, and although the notified features of the SSSI are not identical to the SPA/Ramsar site, for the same justifications as set out in Appendix 6.4: Statement to Inform Habitats Regulations Appraisal which remain applicable to all of the

biological notified features of the SSSI, there will be no significant effects on the Firth of Forth SSSI from the OHL works during the construction phase and this is Not Significant.

Long-established Woodland of Plantation Origin

- 6.7.107 Approximately 0.5 ha of habitat will be temporarily lost within land designated as Long-established Woodland of Plantation Origin associated with working areas (assumed to be 50x50 m) around Reconductoring Towers XL018 and XL019. However, any trees that are within the development footprint are immature and self-seeded, not of ancient woodland quality. Following reconductoring, should it be undertaken, land will be reinstated within the tower working areas, however due to safety issues associated with trees in close proximity to overhead lines, no trees will be replanted within this exact area. Notwithstanding, habitat creation as set out within Section 6.8 Additional Mitigation will provide overall enhancements by expanding existing mature woodland across the Site.
- 6.7.108 The current corridor width through trees for the existing OHLs is sufficient for operation at 400kV, therefore no additional felling is required.
- 6.7.109 Consequently, there will be Negligible Effect on Long-established Woodland of Plantation Origin as a result of the OHL works, and this is Not Significant.

Lowland Mixed Deciduous Woodland

- 6.7.110 The proposed alignment for XL route in association with OHL tower works extends over the southern the edge of the area of LMDW. Clear felling is not required at this location; however, construction will entail vegetation management and lopping of trees directly under the alignment for the length of the woodland (which at this location is approximately 17 m). Therefore, a small amount of loss or damage to LMDW will occur during construction.
- 6.7.111 Given that any habitat loss or damage to trees will be minimal, the area impacted is not considered to be of particularly high ecological value (in comparison to other LMDW), and that the habitat is reasonably common in the wider area, vegetation management would have Negligible Effect on LMDW which is Not Significant.

Bats

- 6.7.112 There is one PRF-M tree within the OHL works study area (T02). A temporary mast is proposed in proximity to T02 which is assumed to need felled as a result. No other trees are at risk of felling/damage from OHL works. As a precaution, this assessment assumes this PRF is used by a maternity colony of a common and widespread species.
- 6.7.113 One additional PRF-I tree and two mature trees with potential to support roosting bats, but that require assessment to confirm, are present along the proposed access routes to Towers XL013 and XL017. It is assumed that none of these trees would be lost as a result of the OHL works and that measures would be taken to avoid damage to the roots (e.g. the use of trackway for access).
- 6.7.114 Loss of one roost in an otherwise poor location is highly unlikely to have a lasting effect on the local bat population. Especially as this is likely one of several roosts used by the colony, if at all (many bat species utilise multiple roost sites, especially when roosting in trees). In the worst-case scenario that the feature is used repeatedly by a maternity colony of a common and widespread species, this would have, at most, a Temporary Adverse Effect of Local Significance, which is Not Significant in the context of this EIA.

6.7.115 Possible disturbance during construction mainly arises from noise since artificial lighting will be directed away from sensitive ecological features (as described in Section 6.6: Embedded Mitigation). Considering the scale and nature of OHL works, noise and vibration during construction is unlikely to be that different from agricultural machinery used at baseline so it is anticipated there would be Negligible Effect from disturbance on roosting bats.

6.7.116 Similarly, works are concentrated within agricultural fields that are unlikely to be used by commuting/foraging bats. The more suitable habitats in the periphery of the OHL tower works study area will not be substantially altered from baseline since the OHL corridor is already maintained for the existing XL, ZCN, and ZCS routes. As most commuting/foraging pathways would remain intact, without disruption, any possible impact on foraging/commuting bats would have a Negligible Effect.

#### Otter

6.7.117 Otter activity was recorded along watercourses during field surveys but there is no suitability for otter refuges within the OHL works study area. Construction would largely be during daylight hours when otters are less active, hence the risk of disturbance is minimal and would certainly not affect any individual's ability to survive, considering also that better quality habitat with good prey resource availability is present up- and downstream of OHL tower works. Ensuring any artificial lighting is directed away from watercourses (per Section 6.6: Embedded Mitigation) limits any possible disruption to commuting routes.

6.7.118 Similarly, the risk of collision with construction traffic is minor, since there are no in-channel works and otter that utilise watercourses around the OHL works study area would be used to navigating a landscape with a large volume of fast-moving traffic (from the A879 and A977 under which the watercourses are culverted) and large farming machinery. Considering also the embedded measures to prevent the injury or mortality of animals and there is nothing (e.g. prey resource) to tempt an otter into the works area that comprises an unsuitable arable field at baseline.

6.7.119 Embedded pollution prevention controls are sufficient to ensure that there is no adverse impact on the quality of watercourses that are apparently polluted at baseline.

6.7.120 Consequently, the OHL tower works would have a Negligible Effect on otter.

#### Great Crested Newt

6.7.121 Great crested newts are considered absent from the OHL tower works study area, hence there is no pathway for impact from OHL tower works. Owing to a lack of field data, the three ponds within 250 m of XL uprating and reconductoring works are assumed to each support a population of breeding great crested newts. None of the ponds will be directly impacted during construction, and embedded pollution prevention controls are sufficient to ensure that there is no impact on water quality (note also that the southernmost ponds appear to be polluted at baseline).

6.7.122 XL uprating and reconductoring works comprise reconductoring of existing towers, requiring minimal machinery, only a small works area around the tower base, and temporary access via Trackway panels. Reconductoring Towers within 250 m of these ponds are XL015 and XL016; both of which are situated centrally within agricultural fields (either arable or shortly grazed improved pasture). These habitats are unsuitable for great crested newt due to the lack of cover from predators. More suitable habitat is present adjacent to the ponds and away from the

Reconductoring Towers. Therefore, it is highly unlikely any newts would be at risk of injury or mortality during construction.

- 6.7.123 Subsequently, the OHL works would have Negligible Effect on great crested newt. Nonetheless, to ensure compliance with relevant legislation, survey should be carried out to confirm presence/absence of great crested newts in these ponds prior to construction and, following review of the latest access plans, a licence may be required from NatureScot to permit works within 250 m.

#### Impacts During Operation

- 6.7.124 The XL, ZCN, and ZCS routes are present at baseline, so operation of the OHL works would be largely unchanged. The OHL works will not produce any emissions or pollution to air, water, or the ground during operation. No permanent lighting is proposed during operation of the OHL works and operational noise is expected to be similar to baseline operation of the existing overhead lines.
- 6.7.125 The Proposed ZCN and ZCS Route Upgrades could potentially result in an increase in bird mortality due to collision with the operational OHL infrastructure. This includes the new OHL tie-ins to KINN and the temporary diversions of the existing OHL. These proposed works, however, are located in an area crossed by three existing high voltage transmission lines. The tie-ins from these OHL would be short in lengths (approximately 200 m) and the temporary diversions would be situated directly adjacent to the existing OHL (adjacent sections of which would be removed, followed by temporary diversion). As such the Proposed ZCN and ZCS Route Upgrades would slightly modify the configuration of the existing OHLs but not introduce novel structures into the environment. Birds using the area, therefore, would be expected to be habituated to the presence of OHL in the landscape. Based on these factors it is not anticipated that the Proposed ZCN and ZCS Route Upgrades would increase the risk of bird collision, with respect to the baseline. Based on these factors it is not anticipated that the OHL tower works would increase the risk of collision, with respect to the baseline and would have No Effect.
- 6.7.126 It is therefore concluded that operation of the OHL works would have No Effect on ecological features, and this is Not Significant.

### **Scottish Power Distribution Works**

#### Issues Scoped Out of Further Assessment for Scottish Power Distribution Works

- 6.7.127 As stated under Introduction in Section 6.4: Methods, relevant ecological features are those that are 'important' and have the potential to be significantly affected by the OHL works (Ref 6.5). In view of the baseline data obtained through desk study and field survey, the features in Table 6-12 have been excluded from further assessment because they will not be significantly affected due to one or more of the following:
- available data indicates that they are likely to be absent from the Zol of SPD works (i.e. it is clear that no impact from the construction or operation of SPD works is possible); and/or
  - the feature (within the Zol of SPD works) is considered to be of less than Local importance (i.e. 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 SPD works).

**Table 6-12: Ecological and ornithological features scoped out of further assessment for Scottish Power Distribution Works**

| Feature                          | Rationale for exclusion from further assessment in this section                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Terrestrial habitats</b>      | <p>Based on the preliminary design, SPD works are assumed to take place exclusively within agricultural habitats which are common and widespread, both locally and nationally, and are of Negligible ecological value.</p> <p>The small scale of works, avoidance of root protection zones, and implementation of standard pollution prevention measures (described in Section 6.6: Embedded Mitigation) mean that there will be no impacts on surrounding habitats that may be more valuable (including LEPO woodland).</p>                                                                                       |
| <b>Watercourses</b>              | <p>The watercourses present within the SPD works study area are not considered important habitats, since they are highly modified and do not support a diversity of notable habitats / species. No in-channel works are proposed during SPD works and implementation of standard pollution prevention measures (described in Section 6.6: Embedded Mitigation) mean that there will be no impact from waterborne pollution on these habitats. Watercourse are, therefore, outside the Zol of SPD works.</p>                                                                                                        |
| <b>Water vole and beaver</b>     | <p>Water vole and beaver are considered absent from the Zol of SPD works.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Brown hare and hedgehog</b>   | <p>It is likely that hedgehog occurs in areas of suitable habitat within the SPD works study area; however, both species are relatively common and widespread, and any potential impacts upon them will be minor and easily mitigated through standard animal protection measures (described in Section 6.6: Embedded Mitigation). Furthermore, alternative habitat in the form of agricultural fields is common in the surrounding landscape and across NHZ16. Any brown hare or hedgehog that occur within the Zol of SPD works are of less than Local importance.</p>                                           |
| <b>Wildcat and mountain hare</b> | <p>Wildcat and brown hare are considered absent from the Zol of SPD works.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Badger</b>                    | <p>Badger receives legal protection because of its susceptibility to human persecution, not because of any conservation concern. It is a common and widespread species across lowland Scotland.</p> <p>Whilst the SPD works study area offers suitable habitat for foraging and possible sett establishment, this is plentiful in the wider area. The population of badger which may use the land within the Zol of SPD works is assessed as being of less than Local importance.</p> <p>Nonetheless, mitigation measures to ensure legislative compliance are included in Section 6.8: Additional Mitigation.</p> |
| <b>Breeding birds</b>            | <p>Habitats within the SPD works study area are generally of relatively low value to breeding birds. Habitats typically comprise arable fields, field margins, and line of trees/woodland patches.</p> <p>Barn owl, a Schedule 1 species is reported to breed within Tulliallan Castle; however, works are relatively minor and the surrounding woodland would screen the reported nest from any possible disturbance hence they are outside the Zol of SPD works. It is therefore considered that the population of breeding birds within the Zol is of less than Local importance.</p>                           |

| Feature                                                                         | Rationale for exclusion from further assessment in this section                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                 | Additionally, the nests and young of breeding birds would be protected, included from abandonment of parents due to disturbance, by adherence to embedded mitigation in relation to breeding birds (Section 6.6: Embedded Mitigation).                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Wintering birds (not associated with the Firth of Forth SPA/Ramsar site)</b> | Habitats within the SPD works study area have the potential to support a variety of common and widespread wintering bird species. There are no large waterbodies or wetlands that could support large congregations of wintering waterbirds. The majority of the waterbird species that could potentially use habitats on or adjacent to site are also qualifying features of the Firth of Forth SPA/Ramsar site so are not considered here. It is therefore considered that the population of other wintering birds is of less than Local importance.                                                                                                       |
| <b>Non-native animals (e.g. grey squirrel and American mink)</b>                | There is no mechanism by which the construction or operation of the SPD works could facilitate the spread of these non-native animal species, which are already believed from desk study information to be present in the area.                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Non-native plants</b>                                                        | It is possible that non-native plants present within the SPD works study area could be spread as a result of the OHL works, in the absence of suitable measures. However, the embedded BMP will stipulate mitigation measures to prevent any spread and ensure compliance with legal obligations. Subsequently, OHL works will not result in any spread of non-native species.                                                                                                                                                                                                                                                                               |
| <b>Great crested newt</b>                                                       | Great crested newts are considered absent from the Zol of SPD works.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Common reptiles and amphibians</b>                                           | Records of only common lizard and common frog were identified by the desk study. Arable fields which dominate the SPD works study area do not provide suitable habitat for these species and other suitable habitat is extremely limited. Therefore, only small populations of these species are likely to be present if at all. Considering also that these species are relatively common and widespread, any possible impacts from SPD works would not threaten their conservation status, hence they are considered to be of less than Local importance.                                                                                                  |
| <b>Fish</b>                                                                     | Watercourses within the SPD works study area comprise agricultural drainage ditches which are unsuitable for most important fish species, except eel. Any other fish species which may be present are likely to be in small numbers and any possible impacts from SPD works would not threaten their conservation status. There would be no direct impacts on watercourses and standard pollution prevention measures (described in Section 6.6: Embedded Mitigation) will prevent any indirect impact from water pollution on the Canal Burn and subsequently the Firth of Forth (downstream of the SPD works), which is used by migrating Atlantic salmon. |
| <b>Invertebrates</b>                                                            | Although two notable moth species were identified by the desk study, given the very poor quality and low species diversity of habitats within SPD works study area (mainly arable fields) it is considered very unlikely that many notable invertebrates would be supported. Invertebrates which may occur are likely to be common and widespread, particularly in similar habitats across the Eastern Lowlands, and any possible impacts from the SPD works would not threaten their conservation status.                                                                                                                                                   |

Impacts During Construction

6.7.128 An assessment of effects from construction of the SPD work is provided in Table 6-13.

**Table 6-13: Assessment of effects from impacts during construction of SPD works.**

| Feature                                   | Importance                                                                                                                                                                                                                                                                                                    | Impact                                     | Effect                | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Firth of Forth SPA and Ramsar Site</b> | International - This is a nature conservation site designated at an international level.                                                                                                                                                                                                                      | Habitat loss and disturbance/displacement. | No Significant Effect | The rationale for assessment is set out in Appendix 6.4: Statement to Inform Habitats Regulations Appraisal.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Firth of Forth SSSI</b>                | National - This is a nature conservation site designated at a national level.                                                                                                                                                                                                                                 | Habitat loss and disturbance/displacement. | No Significant Effect | The same rationale as is set out in Appendix 6.4: Statement to Inform Habitats Regulations Appraisal for the Firth of Forth SPA and Ramsar site.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Bats</b>                               | County - In lieu of detailed survey, it is possible a significant roost of geographically rarer bat species is present within the Zol of SPD works.<br><br>Geographically rarer bat species may also forage (particularly in woodland habitat) within the Zol. Bats are considered important at County level. | Destruction/damage to roosts               | No Effect             | It is assumed that SPD works will not result in the destruction or damage to any PRFs since works are confined to within crop fields where no PRFs were recorded during field surveys and on the opposite bank of an unnamed tributary of the Canal Burn from woodland associated with Norris Knowe that may contain trees with PRFs but was not surveyed. Furthermore, the section of works from Broomknowe Farm to Tulliallan Poultry Farm will be carried out along the road/road verge with no tree removal and therefore no damage or destruction to any potential roosts.                                                                                                                               |
|                                           |                                                                                                                                                                                                                                                                                                               | Disturbance of roosting bats               | Negligible Effect     | SPD works are minor and will be carried out over a short period. Although detailed design is not known, it is assumed that the underground cable route be confined to agricultural fields and roads/road verges from Broomknowe Farm to Tulliallan Poultry Farm. At baseline, these areas will be subject to heavy farming vehicles and road traffic, as well as frequent recreational activities (golfers) in the east. Disturbance to roosting bats from SPD works is therefore unlikely even if present within the Zol. If bats were disturbed, this impact would be temporary over a short-term, and alternative roost resource that is likely to exist in the surrounding trees would remain unaffected. |
|                                           |                                                                                                                                                                                                                                                                                                               | Disturbing whilst commuting/foraging       | Negligible Effect     | SPD works would largely take place during daylight hours. Owing to the small scale of these works, any possible disturbance to commuting/foraging bats would be highly localised and alternative commuting routes/foraging habitat would remain undisturbed in the wider area.                                                                                                                                                                                                                                                                                                                                                                                                                                |

| Feature            | Importance                                                                                                                                                                                                                                                               | Impact                                    | Effect            | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Otter</b>       | County - Owing to the large territories of otters, those which are likely to occur along watercourses within the Zol of SPD works are considered important within the County context.                                                                                    | Disturbance whilst commuting/<br>foraging | Negligible Effect | SPD works are minor and will be carried out over a short period (a fraction of the KINN schedule). Any possible impact would be temporary and would affect a very small and poor-quality proportion of any otter's territory. Furthermore, works will largely be carried out during daylight hours, and any construction lighting would be directional to avoid light spill onto suitable otter habitat.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Pine marten</b> | Local - Suitable habitat for pine martens is very limited within the Zol of SPD works and, considering the amount of suitable habitat present locally (primarily associated with Devilla Forest) any pine marten that occur within the Zol are of Local importance only. | Disturbance whilst resting                | Negligible Effect | <p>It is possible that pine marten dens are present in the woodlands associated with Norris Knowe. SPD works are minor and will be carried out over a short period (a fraction of the KINN schedule). Any possible impact would be temporary and affect a very small proportion of any pine marten's territory. The Zol is also restricted to woodland edges where natal dens are less likely to occur. Pine martens are known to use multiple den sites and suitable alternative habitat in the wider area that would remain undisturbed is plentiful (e.g. Devilla Forest). At baseline, any dens present within Norris Knowes would be habituated to moderate levels of disturbance from farming activities.</p> <p>In the event of the worst possible outcome, disturbance during construction could result in a single female failing to reproduce one year (for example, by abandoning young in the natal den). However, the distribution of pine marten is expanding throughout the Eastern Lowlands (Ref 6.22) and this may be reversible at a local population level.</p> |
|                    |                                                                                                                                                                                                                                                                          | Disturbance whilst commuting/<br>foraging | Negligible Effect | <p>SPD works are minor and will be carried out over a short period (a fraction of the KINN schedule) and mostly during daylight hours when pine martens are least active. Any possible impact would be temporary and affect a small proportion of any pine martens territory. Suitable alternative habitat in the wider area that would remain undisturbed is plentiful (e.g. Devilla Forest). Any construction lighting would be directional to avoid light spill onto suitable habitats and further reduce the risk of disturbance.</p> <p>Nonetheless, mitigation measures to ensure legislative compliance are included in Section 6.8: Additional Mitigation.</p>                                                                                                                                                                                                                                                                                                                                                                                                             |

| Feature             | Importance                                                                                                                                                                                                                                                                | Impact                                    | Effect            | Rationale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Red squirrel</b> | Local - Suitable habitat for red squirrel is very limited within the ZoI of SPD works and, considering the amount of suitable habitat present locally (primarily associated with Devilla Forest) any red squirrel that occur within the ZoI are of Local importance only. | Disturbance whilst resting                | Negligible Effect | <p>It is possible that red squirrel dreys are present in the woodlands associated with Norris Knowe. SPD works are minor and will be carried out over a short period (a fraction of the KINN schedule), therefore any possible impact would be temporary. The maximum disturbance distance considered for breeding dreys is 50 m (Ref 6.6), so whilst disturbance of red squirrel dreys could theoretically occur as a result of construction activity, the area prone to such disturbance will be very small. The ZoI of SPD works is also restricted to woodland edges where breeding dreys are less likely to occur due to predation vulnerability. Red squirrels use multiple dreys within their home range and are frequently observed moving kits from one to another. Suitable alternative habitat in the wider area that would remain undisturbed is plentiful (e.g. Devilla Forest). At baseline any dreys present within Norris Knowe would be habituated to moderate levels of disturbance from farming activities.</p> <p>Nonetheless, mitigation measures to ensure legislative compliance are included in Section 6.8: Additional Mitigation.</p> |
|                     |                                                                                                                                                                                                                                                                           | Disturbance whilst commuting/<br>foraging | Negligible Effect | <p>SPD works are minor and will be carried out over a short period (a fraction of the KINN schedule). Any possible impact would be temporary and affect a small proportion of the habitat available to red squirrels.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

#### Impacts During Operation

- 6.7.129 The SPD works will not produce any emissions or pollution to air, water, or the ground during operation. No permanent lighting is proposed during operation of the SPD works.
- 6.7.130 Removal of the wood poles removes an element of collision risk to aerial species (e.g. birds) however, in the context of larger OHLs which are present in the area and the re-alignments of the OHL works, this would have a Negligible Beneficial Effect.

### **6.8 Additional Mitigation**

- 6.8.1 Specific mitigation measures will be implemented to minimise the adverse effects on ecological features identified in this chapter. In some cases, measures will be implemented where these can be readily achieved even where the effects have been assessed as Not Significant in EIA terms.
- 6.8.2 Furthermore, in certain instances, measures will be required to ensure compliance with relevant wildlife legislation, even when an effect which is not significant in EIA terms on a relevant species was concluded. Some of these measures are considered as embedded but are repeated here in greater detail for clarity.

#### **Habitat Retention/Reinstatement**

- 6.8.3 The temporary access route from the west will be micro-sited to ensure there is no loss of reedbed SBL priority habitat. The area to avoid will be demarcated by the appointed ECoW using, for example, brightly coloured setting out flags and/or posts and rope.
- 6.8.4 All habitats affected by construction of the temporary access road, excluding arable fields and willow scrub, will be reinstated post-works.
- 6.8.5 These measures will be detailed clearly in the CEMP.

#### **Habitat Creation and Landscaping**

- 6.8.6 Tree, scrub, and hedgerow planting will be carried out as part of the landscape plan (portrayed in Figure 7.5 within Chapter 7). This will offset minor loss of immature scrub and enhance the overall biodiversity value of the Site (as described in Section 6.11: Biodiversity Enhancement).

#### Woodland, Tree and Scrub Planting

- 6.8.7 More than 5 ha of broadleaved woodland and dense scrub will be planted in a number of locations on the margins of the KINN Site, expanding the existing mature woodland to the south. Planting will be planned to achieve a complex vertical structure with a graded woodland edge which transitions into scrub. Woodlands will be designed to integrate with existing species assemblages present around the Site, using native species of as local provenance as possible (Ref 6.54), and certainly no INNS<sup>4</sup>.
- 6.8.8 Consequently, trees planted in the southern areas will mostly comprise birch and willow and will aim to resemble the canopy of the adjacent LMDW. In the north, the existing woodland block is dominated by ash; however, due to the prevalence of ash dieback in Scotland, it is not recommended that ash trees are planted within the Site. Where trees are planted adjacent to waterbodies (such as the unnamed burn that flows along the southern border), suitable riparian species will be used. These will comprise locally native willows (including rarer

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<sup>4</sup> Any species listed in Annex B of the Developing with Nature Guidance (Ref 6.55).

species such as tea-leaved willow *Salix phylicifolia*, dark-leaved willow *Salix myrsinifolia*, and purple willow *Salix purpurea* where possible) and common alder *Alnus glutinosa*.

6.8.9 Additional suitable tree and scrub species which will be used across the Site include:

- aspen *Populus tremula* (a priority species in Fife LBAP);
- blackthorn *Prunus spinosa*;
- elder *Sambucus nigra*;
- hairy dog rose *Rosa caesia* and/or soft downy rose *Rosa mollis* (if neither species can be sourced dog rose *Rosa canina* is also suitable);
- hawthorn;
- pedunculate oak and/or sessile oak *Quercus petraea*;
- rowan; and,
- wych elm.

#### Hedgerow Creation

6.8.10 Continuous species-rich hedgerow will be created in a number of locations on the margins of the KINN Site. Hedgerows will contain at least five native scrub species of as local provenance as possible, and certainly no INNS<sup>4</sup>. Suitable species listed for use in woodlands above are also suitable for use in hedgerows.

#### Grassland Creation

6.8.11 The remainder of the KINN Site not used for the permanent components of the Proposed Development will be sown to form neutral grassland using an appropriate seed mix containing native species and certainly not containing any INNS<sup>4</sup> (e.g. Scotia Seeds MG5 Meadow Mix). Owing to the enrichment of soil through agricultural activities, a species-rich meadow is unattainable.

### **Species-specific Mitigation Measures**

#### Bats

6.8.12 This impact assessment is carried out using assumptions in lieu of detailed survey. In reality, the impact and subsequent effects are most likely to be far smaller, but this assessment presents a reasonable worst-case scenario.

6.8.13 To inform mitigation and ensure legal compliance, appropriate survey for bats following guidance produced by the Bat Conservation Trust (BCT) (Ref 6.18) will be carried out on all trees that will be impacted by the Proposed Development (through felling, lopping, or works within the root protection area). Survey may be required throughout the bat active season (May to September). Appropriate mitigation will be implemented according to survey results to mitigate against the loss of confirmed roosts as well as potential roost resource. Mitigation will align with CIEEM guidance (Ref 6.23); e.g., if a confirmed noctule roost will be lost during construction, this will be compensated for with a like-for-like replacement (or better) prior to the roost being removed. Results of appropriate survey and subsequent proposed mitigation will be detailed in a Species Protection Plan that will be submitted to the relevant authorities for approval prior to construction commencing.

- 6.8.14 No other specific mitigation is required for bats, with all other impacts expected to have negligible effect.

Otter

- 6.8.15 The assumed layup will be monitored for use, although it is beyond 30 m of most works except tree planting when it is at risk of disturbance (Ref 6.6). A licence will be sought from NatureScot to enable tree planting within 30 m of the layup, if it is confirmed to be used for resting purposes and at risk of being affected; to be determined through additional monitoring.
- 6.8.16 All watercourse crossings will be constructed in line with SEPA guidance to maintain passage of otter and fish under most conditions. The final design details of watercourse crossings will be provided prior to commencement of works to SEPA for appropriate consultation.
- 6.8.17 Works within 30 m of watercourses (e.g. works associated with watercourse crossings, construction of adjacent access roads and SUDS features, or erecting and dismantling of certain temporary masts) will take place during daylight hours only (no in-channel works will be carried out between 1 hour before sunset and 1 hour after sunrise).
- 6.8.18 No other specific mitigation is required for otter, with all impacts expected to have negligible effect on this species.

Pine Marten and Red Squirrel

- 6.8.19 If any pine marten dens or red squirrel dreys are identified within distances where they are vulnerable to disturbance from construction works (Ref 6.6) during embedded pre-construction surveys, these must be carried out under licence to permit the potential disturbance of that ecological feature.
- 6.8.20 No other specific mitigation is required for pine marten and red squirrel, with all impacts expected to have negligible effect on these species.

Badger

- 6.8.21 The suspected badger sett will be monitored for use, though this is beyond the distance at which disturbance as a result of works activities is likely to occur and not likely to be subject to impacts, except in relation to tree planting.
- 6.8.22 If the sett becomes active, or if other active setts are identified during embedded pre-construction surveys, a licence will be sought from NatureScot to enable works within 30 m.
- 6.8.23 No other specific mitigation is required for badger, with all impacts expected to have negligible effect on this species.

Birds

- 6.8.24 No specific mitigation is required for birds, with no impacts expected to have a significant effect on this group.
- 6.8.25 However, site preparation including vegetation clearance will take place, as far as possible, outside the general breeding bird season (March to August, inclusive). Where vegetation must be cleared in the breeding season, the appointed ECoW will carry out nesting bird check(s) (as described in Section 6.6: Embedded Mitigation) in advance of works and establish any exclusion zones as required.

#### Great crested newt

- 6.8.26 eDNA surveys of Ponds 1, 2 and 8 will be carried out in the suitable survey window (mid-April-June) to confirm if great crested newts are present here prior to works commencing. If great crested newts are found to breed in any of these ponds, further mitigation is likely to be necessary. Although the risk of committing an offence is relatively low, the proximity to ponds to works justifies appropriate mitigation; more so if the baseline conditions change (e.g. short, grazed livestock pasture is left fallow). Mitigation may include seasonal restrictions (i.e. carrying out XL uprating and reconductoring works at Reconductoring Towers XL015 and XL016 during the hibernation period) or the use of exclusion fencing (note a derogation licence may be required depending on the mitigation implemented). Specific mitigation will be detailed in a method statement, or other suitable document, should this be required.

#### Eel

- 6.8.27 eDNA survey will be carried out to confirm the presence/absence of eel in the Canal Burn in advance of works commencing. If present the following additional mitigation will be implemented:
- In-channel works will be scheduled to avoid crucial fish spawning/migration windows depending on what species are identified through eDNA (i.e. August-October and April-June, inclusive for eels).
  - Regardless of timings of works, a qualified aquatic ecologist will be employed to carry out fish rescue when the works areas along watercourses are initially dried. This will involve relocating eels from the from the works areas prior to drying and preventing them from re-entering until works are complete and the flow is returned. This will prevent mortality during construction.
- 6.8.28 No other specific mitigation is required for eel, with all impacts expected to have negligible effect on this species.
- 6.8.29 However, per Embedded Mitigation in Section 6.6: Embedded Mitigation, all watercourse crossings will be constructed in line with SEPA guidance to maintain passage for otter and fish under most conditions. The final design details of watercourse crossings will be provided prior to commencement of works to SEPA.

#### **Update Surveys for Protected Species and Species Protection Plan**

- 6.8.30 Currently, NatureScot considers pre-application survey data for relevant protected species present within the Zol of the Proposed Development to be out-of-date after two years/two survey seasons (Ref 6.6). Therefore, surveys to update the baseline would need considered if the planning application is delayed beyond the 2026 field season.
- 6.8.31 If required, update surveys will cover protected species known (or assumed) to occur in the vicinity of proposed works, or for which there is a reasonable possibility of such species moving into this vicinity. This will comprise surveys for otter, water vole, beaver, red squirrel, pine marten, and badger. In addition, a GLTA of any trees which may be directly impacted (i.e. subject to lopping or felling) or located within 30 m of works with potential to cause disturbance to roosting bats, will also be conducted. These surveys will follow standard guidance and will take place within the survey buffers typically required by NatureScot (Ref 6.6).

- 6.8.32 As described above, even where effects on protected species are predicted to be Not Significant, the refuges of these species, and often the animals themselves, are nevertheless subject to legal protection regardless of the importance of individual refuges or populations. As prescribed in Section 6.6: Embedded Mitigation, pre-commencement surveys for bats<sup>5</sup>, otter, water vole, beaver, red squirrel, pine marten, badger, and great crested newt will be carried out as necessary to ensure compliance with legislation. Most of these surveys will be carried out no longer than three months prior to commencement of works, except for seasonally constrained surveys (e.g. great crested newt and water vole).
- 6.8.33 The results of these surveys will be detailed in a Species Protection Plan (SPP), which will also include the results of the surveys described in this chapter. The SPP will be submitted to the appointed construction contractor, Fife Council and Clackmannanshire Council. The SPP will provide detailed information on the measures which must be adopted during construction works to comply with relevant legislation and which are described in the remainder of this section.

## 6.9 Residual Effects

- 6.9.1 For the purposes of this assessment, only effects which are judged as being Regionally, Nationally, or Internationally Significant (according to the CIEEM method for Ecological Impact Assessment) were considered to be Significant in EIA terminology. On this basis, the only significant effect predicted in the absence of any mitigation is a Temporary Adverse Effect of County Significance on bats from the loss of roost resource resulting from KINN. This assessment was carried out precautionarily, and the effect is to be mitigated appropriately following comprehensive survey (described in **Error! Reference source not found.** above). Fulfilment of legal obligations in relation to bats will ensure that the Proposed Development has a Negligible Residual Effect.
- 6.9.2 All other impacts on ecological features were assessed as having no significant impact. Nonetheless, measures to further reduce adverse effects have been included where they can be readily achieved even where the effects have been assessed as Not Significant in EIA terms, as best practice. Furthermore, in certain instances, measures will be required to ensure compliance with relevant wildlife legislation, even when an effect which is not significant in EIA terms on a relevant species was concluded
- 6.9.3 Subsequently, all other residual effects are, at most, Negligible (during both construction and operation) and are Not Significant in EIA terms.
- 6.9.4 Habitat creation through landscaping (woodland, scrub, hedgerows, and grassland) will have a beneficial effect (Not Significant) on the following ecological features:
- bats;
  - pine marten;
  - red squirrel;
  - badger; and
  - nesting birds.

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<sup>5</sup> Depending on the timing of further survey described in **Error! Reference source not found.** above, pre-construction surveys may not be necessary for bats.

## 6.10 Combined Effects

### Designated Sites

- 6.10.1 An assessment of combined effects on the Firth of Forth SPA and Ramsar site is made in Appendix 6.4: Statement to Inform Habitats Regulations Appraisal. This assessment is also relevant to the Firth of Forth SSSI since the sites are largely concurrent.

### Habitats

- 6.10.2 The effects from habitat loss from each component of the Proposed Development would not combine to elevate significance. Habitats scoped into assessment (e.g. LEPO woodland, LMDW, and reedbeds) would be impacted by only one component of the Proposed Development and this has been considered in detail above to be Not Significant.

### Species

- 6.10.3 Species scoped into assessment which may be impacted by multiple components of the Proposed Development are bats, otter, pine marten, and red squirrel. All other species are either scoped out of assessment (e.g. breeding birds) or would only be impacted by one component (e.g. great crested newt).

#### Bats

- 6.10.4 Both KINN and the OHL works are assumed, on a precautionary basis, to result in the loss of roost sites used by maternity colonies of rarer bat species (e.g. noctule). The combined impact of the two components is assumed to be the loss of 38 PRF-M with suitability to support significant bat roosts, including potentially rarer species (i.e. noctule). The potential impact from works along Hawkhill Road contributes significantly more and the addition of one PRF-M (that is not suitable for use by noctule owing to the type of features present) does not increase the assessed effect in a worst-case scenario. As discussed in Section 6.9: Residual Effects, fulfilment of legal obligations in relation to bats will ensure that the Proposed Development has a Negligible Residual Effect.
- 6.10.5 Bats, either roosting or commuting/foraging, may be disturbed during construction of KINN and SPD works. Considering baseline conditions in relation to passing vehicular traffic and use of large fanning machinery and the alternative commuting routes and foraging habitats that would remain undisturbed, the combined impact of both components would not increase the effect on bats. Therefore, the combined impact of disturbance on roosting and foraging/commuting bats would have a Negligible Effect.

#### Otter

- 6.10.6 Otter using the potential resting site (assumed layup) would only be at risk of disturbance during tree planting which was considered to be Not Significant. No other works are in proximity to the potential resting site to create a combined effect.
- 6.10.7 Commuting/foraging otter may be disturbed during construction of KINN (associated works only, not construction of the substation footprint), OHL works, and SPD works. Nonetheless, potential disturbance would still be temporary over a short-term. Effects would remain over a relatively minor spatial scale, relative to the abundance of similar functioning habitat in the wider surroundings and there would be no obstruction to movement. All works in proximity to waterbodies would also be carried out in daylight as far as possible, limiting potential

displacement/ disturbance of typical behaviours. Any combined effects on commuting/ foraging habitat availability and behaviour would remain Negligible and Not Significant.

#### Pine marten

- 6.10.8 There is potential for both KINN and SPD works to disturb pine marten dens (if present within the woodlands associated with Norris Knowes). The risk is relatively low, however, since works in proximity to these woodlands are relatively minor and there is a baseline level of disturbance from recreational activities and farm machinery. Although the worst-case combined effect could displace pine martens from den sites for longer, this would still be temporary and the extent of woodland at risk of disturbance is very small in comparison to their typical territory range and the extent of alternative available habitat (e.g. Devilla Forest). There would almost certainly be no detrimental impact on the local population as a result of the Proposed Development, hence the combined effect remains Negligible and Not Significant.
- 6.10.9 Both KINN and SPD works could disturb commuting/foraging pine marten. However, as the majority of works are to be undertaken during daytime, and very limited works would take place outside of standard working hours leaving time each night for pine martens to move freely in the area. Any combined effects on commuting/ foraging habitat availability and behaviour would remain Negligible and Not Significant.

#### Red squirrel

- 6.10.10 Both KINN and SPD works may disturb red squirrel dreys and/or foraging/commuting red squirrels, if present in woodland associated with Norris Knowe as is assumed by this assessment. However, works in proximity to woodlands and tree lines are short-term and relatively minor (e.g., cable trenching and road widening) and there is a baseline level of disturbance e.g., from farm machinery. Any combined effects on dreys and commuting/ foraging habitat availability and behaviour would remain Negligible and Not Significant.

## 6.11 Biodiversity Enhancement

- 6.11.1 In compliance with the requirements of Policy 3 of NPF4, Scottish Power Transmission (SPT) is committed to delivering a range of measures which are positive for biodiversity as part of the Proposed Development. These measures will be set out in fuller detail following granting of planning permission in a Landscape and Biodiversity Strategy (LBS). The LBS will take a synergistic approach to minimising the permanent ecological and landscape effects of the Proposed Development whilst also seeking to enhance the biodiversity value of the Site. It will be submitted to Fife Council and Clackmannanshire Council for approval, in consultation with NatureScot, prior to the commencement of any construction activities associated with the Proposed Development. The LBS will include all habitat creation summarised under Habitat Creation and Landscaping in Section 6.8: Additional Mitigation as well as the following additional measures and will detail a monitoring programme to ensure the desired outcomes are achieved.

#### **SuDS Design**

- 6.11.2 The SuDS pond will be designed to appear and function as naturally as possible in line with guidance (Ref 6.56). Where possible, this will include the following measures to benefit biodiversity:
- The features will remain permanently wet;

- Edges will be appropriately sloped (gradually declining to provide different water levels). Where possible, the SuDS pond will be constructed to have a variety of different depths, with banks of varying steepness, to provide structural diversity;
- Marginal areas which are seasonally inundated will be seeded with an appropriate wetland herb seed mix containing native species and certainly not containing any INNS5 (e.g. Scotia Seeds7 Pond Edge Mix graded into Wet Meadow Mix).

#### **Other Measures**

- 6.11.3 Brash from woody vegetation clearance (e.g. scrub removal to facilitate the western access or lopping to clear access routes) will be retained within the Site and arranged into log piles at woodland edges.

#### **Benefits for Biodiversity**

- 6.11.4 Implementing the above habitat creation, SUDS pond design and deadwood provision will greatly improve biodiversity within the Site; especially considering baseline conditions largely comprise highly modified arable fields.
- 6.11.5 Woodland, scrub, and grassland habitats are generally of higher ecological value than arable fields, owing to the greater diversity of plant species which occur. Creation of more diverse habitats within the Site fulfils FIFEplan Policy 13: Natural Environment and Access by enhancing natural heritage.
- 6.11.6 Woodland and scrub (including hedgerows) also provide food and shelter for a range of wildlife which likely occur in the general area, including bats and red squirrel which are both priority species in the Fife LBAP. Furthermore, riparian woodland can increase the value of watercourses by providing shade which helps to regulate water temperature and provide shelter for faunal species that may utilise the watercourses. Integrating rarer willow and rose species (which are native to this region) has the added benefit of reinforcing the national populations and further increasing diversity.
- 6.11.7 Neutral grasslands, as will be created within the Site, support a greater diversity of wildlife than arable habitats and may support invertebrates, small mammals, and birds of prey. Rough grassland can also support ground nesting birds such as skylark and grey partridge which are priority species associated with the lowlands.
- 6.11.8 Nature-friendly SUDS pond design provides conditions suitable for more diverse habitats and will support a greater invertebrate assemblage, subsequently increasing the foraging resource for species such as bats and birds. Furthermore, ponds are a priority habitat in the Fife LBAP.
- 6.11.9 Utilising brash from essential vegetation clearance to provide deadwood within the Site will offer opportunities for food and shelter to a range of wildlife. They are of particular importance to hedgehog, reptiles and amphibians for hibernation, as well as many invertebrate species.
- 6.11.10 The spatial arrangement of woodlands, scrub, and hedgerows within the Site improves connectivity with similar habitats in the wider landscape. Also, the mosaic of open grassland, increased tree/scrub cover, and new/improved waterbodies provides synergistic benefits by providing varying habitat types suitable for different behaviours and life stages.
- 6.11.11 Although the above measures will not be implemented at a scale sufficient to have a beneficial effect of Local Significance, at a Site level, these enhancements will have a permanent beneficial effect.

## 6.12 Monitoring

- 6.12.1 In cases where mitigation measures are well-established, routinely implemented, and have a proven track record of effectiveness, ongoing monitoring is generally not required (Ref 6.5). Therefore, no monitoring is considered necessary for the majority of mitigation measures set out in Section 6.6: Embedded Mitigation and Section 6.8: Additional Mitigation.
- 6.12.2 However, an LBS will be prepared that details a monitoring programme of biodiversity enhancement actions (including habitat creation and landscaping) to ensure the desired outcomes are achieved for both biodiversity and landscaping.

## 6.13 Cumulative Assessment

### **Intra-Project Effects**

- 6.13.1 For an intra-project effect to occur a receptor must be affected by more than one type of effect. For the purpose of this assessment these are referred to as 'shared receptors'. Shared receptors experiencing two or more types of effect with a significance of effect greater than negligible, have the potential to experience a significant intra-project effect. As there are no residual effects on ecological features greater than Negligible, this would not contribute to any intra-project effects.

### **Inter-Project Effects**

#### Overview

- 6.13.2 Inter-cumulative (in-combination) effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location (Ref 6.5). As noted in Section 6.9: Residual Effects, no significant residual effects are predicted from the Proposed Development.
- 6.13.3 Where there is no possibility of an effect (as opposed to a small but insignificant effect), there is no pathway for the Proposed Development to combine with other committed developments to create new effects or elevate their significance.
- 6.13.4 Similarly, for all impacts for which it was concluded that there would be Negligible Effect, it is considered that the effect of that impact from the Proposed Development in isolation will be so minimal that it is highly unlikely that there is any possibility of significant cumulative effects arising from the combined impact(s) of other identified projects (see Table 2-3).
- 6.13.5 It is also reasonable to assume that other committed developments will implement industry standard best practices (e.g., pollution prevention controls) during their construction and comply with policy and legal obligations.
- 6.13.6 All residual effects from the Proposed Development on important ecological features would be, at most, Negligible. Following implementation of measures to enable best practice and compliance, the Proposed Development is unlikely to act cumulatively with other committed developments (concurrently or sequentially) to give rise to significant adverse effects on ecological features.
- 6.13.7 Note that a separate in-combination assessment on qualifying features of the Firth of Forth SPA and Ramsar site is provided in Appendix 6.4: Statement to Inform Habitats Regulations Appraisal.

## 6.14 Summary and Conclusions

- 6.14.1 The Proposed Development is largely sited within arable fields of low ecological value, with design measures in place to minimize habitat loss and avoid sensitive areas. The assessment of effects required a precautionary approach in lieu of detailed baseline information due to limitations associated with field survey. Ecological impacts are considered to have, at most, a Negligible Effect on most features, with the exception of a temporary adverse effect on bats due to the assumed loss of roosts, which will be mitigated through further surveys and licensing. Limited and temporary impacts on woodland, otter, pine marten, and red squirrel will be mitigated through careful planning and timing of works. Additional biodiversity enhancements, such as woodland, scrub, and grassland creation, are planned to improve site value for wildlife. The Proposed Development is not predicted to have any significant residual effects on ecological features.

**Table 6-14. Summary of construction effects on ecological features**

| Ecological feature                        | Ecological importance | Description of impact <sup>6</sup>                               | Effect                                          | Mitigation                                                                                                                                                                                                                                                                                                 | Residual effect        | Significance    |
|-------------------------------------------|-----------------------|------------------------------------------------------------------|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------|
| <b>Kincardine North Substation</b>        |                       |                                                                  |                                                 |                                                                                                                                                                                                                                                                                                            |                        |                 |
| <b>Firth of Forth SPA and Ramsar Site</b> | International         | Habitat loss and disturbance/displacement of qualifying features | No significant effects                          | None                                                                                                                                                                                                                                                                                                       | No significant effects | Not Significant |
| <b>Firth of Forth SSSI</b>                | National              | Habitat loss and disturbance/displacement of qualifying features | No significant effects                          | None                                                                                                                                                                                                                                                                                                       | No significant effects | Not Significant |
| <b>Reedbed priority habitat</b>           | County                | Habitat loss                                                     | No Effect                                       | No mitigation required.                                                                                                                                                                                                                                                                                    | No Effect              | Not Significant |
|                                           |                       | Spread of INNS                                                   | Negligible Effect                               | Embedded measures identified by BMP.                                                                                                                                                                                                                                                                       | Negligible Effect      | Not Significant |
| <b>Bats</b>                               | County                | Assumed loss of bat roosts                                       | Temporary Adverse Effect of County Significance | Comprehensive survey of all trees that would be impacted by KINN to identify roost resource and confirm presence of any bat roosts. Compensation of any lost PRFs (e.g. by placing an artificial bat box) and appropriate mitigation in line with any required derogation licence if roosts are confirmed. | Negligible Effect      | Not Significant |
|                                           |                       | Disturbance of roosting bats                                     | Negligible Effect                               | Embedded lighting design and working hours.                                                                                                                                                                                                                                                                | Negligible Effect      | Not Significant |
|                                           |                       | Loss or obstruction of commuting/foraging habitat                | Negligible Effect                               | Tree and scrub planting and creation of a new SUDS feature increases habitat suitability for bats.                                                                                                                                                                                                         | Negligible Effect      | Not Significant |

<sup>6</sup> Impacts arise during construction unless otherwise specified.

| Ecological feature  | Ecological importance | Description of impact <sup>6</sup>          | Effect            | Mitigation                                                                                                                                                                                                                         | Residual effect   | Significance    |
|---------------------|-----------------------|---------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------|
| <b>Otters</b>       | County                | Disturbance of commuting/foraging bats      | Negligible Effect | Embedded lighting design and working hours.                                                                                                                                                                                        | Negligible Effect | Not Significant |
|                     |                       | Resting otter (loss of refuges/disturbance) | Negligible Effect | Monitor potential otter resting place. Maintain a 30 m buffer around this where possible and obtain a derogation licence where not possible (if necessary).                                                                        | Negligible Effect | Not Significant |
|                     |                       | Loss of commuting/foraging habitat          | Negligible Effect | Embedded passable design of new watercourse crossing.                                                                                                                                                                              | Negligible Effect | Not Significant |
|                     |                       | Changes to prey resource                    | Negligible Effect | Embedded passable design of new watercourse crossing.                                                                                                                                                                              | Negligible Effect | Not Significant |
|                     |                       | Disturbance whilst commuting/foraging       | Negligible Effect | Embedded lighting design and working hours.<br>Works within 30 m of watercourses will take place during daylight.                                                                                                                  | Negligible Effect | Not Significant |
|                     |                       | Injury or mortality                         | Negligible Effect | Embedded working hours and low vehicle speeds.                                                                                                                                                                                     | Negligible Effect | Not Significant |
| <b>Pine martens</b> | Local                 | Habitat loss                                | No Effect         | Tree and scrub planting and rough grassland creation will improve habitat suitability for pine marten within the Site.                                                                                                             | Negligible Effect | Not Significant |
|                     |                       | Destruction/disturbance of dens             | Negligible Effect | Maintain a 30 m buffer around dens (100 m if used for breeding) where possible and obtain a derogation licence where not possible.<br>Construction of south-westernmost access road will be carried out between June and February. | Negligible Effect | Not Significant |

| Ecological feature    | Ecological importance | Description of impact <sup>6</sup>    | Effect            | Mitigation                                                                                                                                                                                  | Residual effect                                                                    | Significance    |
|-----------------------|-----------------------|---------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------|
| <b>Red squirrels</b>  | Local                 | Disturbance whilst commuting/foraging | Negligible Effect | Embedded lighting design and working hours.                                                                                                                                                 | Negligible Effect                                                                  | Not Significant |
|                       |                       | Injury or mortality                   | No Effect         | Embedded working hours and low vehicle speeds.                                                                                                                                              | No Effect                                                                          | Not Significant |
|                       |                       | Habitat loss                          | No Effect         | Tree planting will increase available habitat suitable for red squirrel within the Site.                                                                                                    | Negligible Effect<br>(Permanent Beneficial Effect of less than Local Significance) | Not Significant |
|                       |                       | Disturbance whilst resting/breeding   | Negligible Effect | Maintain a 5 m buffer around dreys (50 m if used for breeding) where possible and obtain a derogation licence where not possible.                                                           | No Effect                                                                          | Not Significant |
|                       |                       | Injury or mortality                   | No Effect         | Embedded low vehicle speeds.                                                                                                                                                                | No Effect                                                                          | Not Significant |
| <b>Breeding Birds</b> | Local                 | Loss of nesting habitat               | Negligible Effect | Tree planting and scrub/hedgerow creation increases habitat suitable for tree nesting birds.<br><br>Rough grassland creation offers suitable nesting habitat for some ground nesting birds. | Negligible Effect                                                                  | Not Significant |
|                       |                       | Disturbance while nesting             | Negligible Effect | Site preparation will not take place during breeding season (March to August, inclusive) where possible. Exclusion zones around active nests will be demarcated where not possible.         | Negligible Effect                                                                  | Not Significant |

| Ecological feature                             | Ecological importance | Description of impact <sup>6</sup>        | Effect                                         | Mitigation                                                                                    | Residual effect        | Significance    |
|------------------------------------------------|-----------------------|-------------------------------------------|------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------|-----------------|
| Eels                                           | Local                 | Injury or mortality                       | Negligible Effect                              | eDNA survey and fish rescue if eels are present.                                              | No Effect.             | Not Significant |
|                                                |                       | Barrier to movement                       | Negligible Effect                              | In-channel works which block fish passage will be minimised during autumn as far as possible. | Negligible Effect.     | Not Significant |
|                                                |                       | Pollution                                 | Negligible Effect                              | Embedded standard pollution controls.                                                         | Negligible Effect.     | Not Significant |
| Overhead Line Works                            |                       |                                           |                                                |                                                                                               |                        |                 |
| Firth of Forth SPA and Ramsar Site             | International         | Habitat loss and disturbance/displacement | No significant effects                         | None.                                                                                         | No significant effects | Not Significant |
| Firth of Forth SSSI                            | National              | Habitat loss and disturbance/displacement | No significant effects                         | None.                                                                                         | No significant effects | Not Significant |
| Long-established Woodland of Plantation Origin | Local                 | Temporary habitat loss                    | Negligible Effect                              | No mitigation required.                                                                       | No Effect.             | Not Significant |
| Lowland Mixed Deciduous Woodland               | Local                 | Habitat damage                            | Negligible Effect                              | No mitigation required.                                                                       | No Effect.             | Not Significant |
| Bats                                           | Local                 | Assumed loss of maternity roost           | Temporary Adverse Effect of Local Significance | Compensation of lost roost resource.                                                          | Negligible Effect.     | Not Significant |

| Ecological feature                        | Ecological importance | Description of impact <sup>6</sup>        | Effect                 | Mitigation                                                                                                        | Residual effect        | Significance    |
|-------------------------------------------|-----------------------|-------------------------------------------|------------------------|-------------------------------------------------------------------------------------------------------------------|------------------------|-----------------|
| <b>Otter</b>                              | County                | Disturbance from noise/vibration          | No Effect              | No mitigation required.                                                                                           | No Effect.             | Not Significant |
|                                           |                       | Disturbance whilst commuting/foraging     | Negligible Effect      | Time restrictions on works near waterbodies.                                                                      | No Effect              | Not Significant |
|                                           |                       | Injury/mortality                          | No Effect              | Embedded good practices.                                                                                          | No Effect              | Not Significant |
| <b>Great crested newt</b>                 | Regional              | Injury/mortality                          | No Effect              | Embedded measures for legal compliance.                                                                           | No Effect              | Not Significant |
| <b>Scottish Power Distribution Works</b>  |                       |                                           |                        |                                                                                                                   |                        |                 |
| <b>Firth of Forth SPA and Ramsar Site</b> | International         | Habitat loss and disturbance/displacement | No significant effects | None.                                                                                                             | No significant effects | Not Significant |
| <b>Firth of Forth SSSI</b>                | National              | Habitat loss and disturbance/displacement | No significant effects | None.                                                                                                             | No significant effects | Not Significant |
| <b>Bats</b>                               | Local                 | Destruction/damage to roosts              | No Effect              | None.                                                                                                             | No Effect              | Not Significant |
|                                           |                       | Disturbance of roosting bats              | Negligible Effect      | Embedded lighting design and working hours.                                                                       | Negligible Effect      | Not Significant |
|                                           |                       | Disturbing whilst commuting/foraging      | Negligible Effect      | Embedded lighting design and working hours.                                                                       | Negligible Effect      | Not Significant |
| <b>Otter</b>                              | County                | Disturbance whilst commuting/foraging     | Negligible Effect      | Embedded lighting design and working hours.<br>Works within 30 m of watercourses will take place during daylight. | Negligible Effect      | Not Significant |
| <b>Pine marten</b>                        | Local                 | Disturbance whilst resting                | Negligible Effect      | Maintain a 30 m buffer around dens (100 m if used for breeding) where possible and                                | Negligible Effect      | Not Significant |

| Ecological feature | Ecological importance | Description of impact <sup>6</sup>    | Effect            | Mitigation                                                                                                                        | Residual effect   | Significance    |
|--------------------|-----------------------|---------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------|
| Red squirrel       | Local                 |                                       |                   | obtain a derogation licence where not possible.                                                                                   |                   |                 |
|                    |                       | Disturbance whilst commuting/foraging | Negligible Effect | Embedded lighting design and working hours.                                                                                       | Negligible Effect | Not Significant |
|                    |                       | Disturbance whilst resting            | Negligible Effect | Maintain a 5 m buffer around dreys (50 m if used for breeding) where possible and obtain a derogation licence where not possible. | Negligible Effect | Not Significant |
|                    |                       | Disturbance whilst commuting/foraging | Negligible Effect | None.                                                                                                                             | Negligible Effect | Not Significant |

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