

**Hurlie 400kV Substation
Environmental Impact Assessment (EIA)
Volume 4 | Appendix 10.3**

Protected Species Survey Report

November 2024



CONTENTS

| | |
|---|-----------|
| LIST OF ABBREVIATIONS | 3 |
| 1. INTRODUCTION | 4 |
| 1.1 The Proposals | 4 |
| 1.2 Requirement for the Report | 4 |
| 1.3 Terminology and Survey Area | 4 |
| 2. METHODS | 5 |
| 2.1 Scope | 5 |
| 2.2 Constraints and Limitations | 11 |
| 3. BASELINE CONDITIONS | 13 |
| 3.1 Desk Study | 13 |
| 3.2 Field Data | 13 |
| 4. INTERPRETATION | 17 |
| 4.1 Bats | 17 |
| 4.2 Otter | 17 |
| 4.3 Wildcat | 17 |
| 4.4 Badger | 17 |
| 4.5 Water Vole | 17 |
| 4.6 Red Squirrel | 17 |
| 4.7 Pine Marten | 17 |
| 4.8 Common Species of Amphibians and Reptiles | 17 |
| ANNEX 10.3.1 – PHOTOGRAPHS | 18 |

LIST OF ABBREVIATIONS

EIA: Environmental Impact Assessment
EclA: Ecological Impact Assessment
ESA: Ecological Survey Area
GIS: Geographical Information System
LBAP: Local Biodiversity Action Plan
SEPA: Scottish Environment Protection Agency
BRP: Bat Roost Potential
BCT: Bat Conservation Trust
PRF: Potential Roost Feature
PRF-I: Potential Roost Feature – Individual
PRF-M: Potential Roost Feature – Multiple

1. INTRODUCTION

1.1 The Proposals

- 1.1.1 This appendix presents the methods and results of the protected species surveys undertaken to inform the Ecological Impact Assessment (EclA) of the Hurlie 400 kV Substation hereafter referred to as the Proposed Development.
- 1.1.2 The appendix should be read in conjunction with **Chapter 10: Ecology and Biodiversity** and **Chapter 3: Description of the Proposed Development (Volume 2)** of the **EIA Report** for full details of the Proposed Development.
- 1.1.3 This appendix is supported by the following figures:
- **Figure 10.1.1:** The Proposed Development and Survey Area;
 - **Figure 10.1.2:** Designated Sites within 10 km and 5 km of the Proposed Development;
 - **Figure 10.2.1:** Habitat Survey Results;
 - **Figure 10.2.2:** National Vegetation Classification Survey;
 - **Figure 10.3.1:** Protected Species Survey Results; and
 - **Figure 10.3.2:** Bat Survey Results.
- 1.1.4 This appendix supports the EclA in addition to **Appendix 10.1: Desk Study and Legal Context**, and **Appendix 10.2 Habitats and Vegetation Survey Results**.

1.2 Requirement for the Report

- 1.2.1 LUC was commissioned by the Applicant to undertake protected species surveys to inform the Ecological Impact Assessment (EclA), which is presented in Chapter 10: Ecology and Biodiversity.

1.3 Terminology and Survey Area

- 1.3.1 The following terminology will be used throughout this report:
- **Site:** all land within the planning application (red line) boundary (**Figure 1.1: Site Location**);
 - **Proposed Development:** The infrastructure including the platform, bays, control buildings, access tracks, drainage and landscape features and temporary construction compounds (see Section 3.3 in **Chapter 3: Description of the Proposed Development**);
 - **Substation Site:** The main part of the Site within which the proposed substation will be constructed, including the substation platform, drainage and landscape features, construction compounds, set-down, equipment and materials storage, and internal access;
 - **Access Track:** The existing track from Slug Road to the north and from Hill of Quithel to the southwest; and
 - **Ecology Survey Area (ESA):** The area within the red-line boundary, plus relevant buffers (up to 250 m around the Substation Site, and up to 50 m from the Access Track) where access was granted in which all ecology surveys were undertaken in line with good practice guidelines for all ecological features surveyed (see **Figure 10.1.1: The Proposed Development and Ecology Survey Area**).

2. METHODS

2.1 Scope

Desk Study

2.1.1 A desk study was undertaken to inform the protected species surveys. An account of the methods adopted, and results, is provided in **Appendix 10.1**, which also sets out the legislative provisions afforded to protected species. As such, the Desk Study is not discussed further in this Appendix.

Field Surveys

2.1.2 Informed by the habitats present within the ESA (refer to **Appendix 10.2: Habitats and Vegetation Survey Report**) and the Scoping Report¹, surveys for the following species were undertaken within the ESA:

- Bats;
- Otter;
- Wildcat;
- Badger;
- Water vole;
- Red squirrel; and
- Pine marten.

2.1.3 Reference should be made to **Chapter 11: Ornithology** for details of ornithological surveys and assessments.

2.1.4 Protected species surveys were undertaken in August 2023 and April 2024. Surveys were completed during accepted survey seasons², in appropriate weather conditions, and by experienced field ecologists.

2.1.5 All survey data was collected on GIS-enabled field tablets to increase accuracy and facilitate robust interpretation. Where field evidence was recorded, photographs were taken. Photographs can be found within **Annex 10.3.1** of this Appendix.

2.1.6 Surveys sought to identify suitable habitat for and, where appropriate, direct evidence of, protected species. Suitable habitat was considered to include opportunities to shelter, rest, forage and commute. All surveys followed good practice methods as detailed below.

2.1.7 Further details relating to specific survey methods are provided in **Paragraphs 2.1.8 to 2.1.37** below.

Bat Survey Methodology

2.1.8 An assessment for Bat Roost Potential (BRP) was undertaken on trees within the ESA, following assessment criteria set out in best practice guidance available at the time³. This assessment enabled the identification of features which may be directly impacted by the Proposed Development (e.g., as a result of vegetation removal to facilitate construction or operation). The BRP surveys aimed to identify roosting features, and record evidence of bat presence (such as droppings) where encountered. The criteria used to categorise BRP are summarised in **Table 2.1** below. The table summarises what surveys, if, any, are required for each category.

¹ SSEN Transmission August 2024)

² LUC (2018) Ecological Survey Calendar [online]. Available at: https://landuse.co.uk/wp-content/uploads/2018/03/LUC_EcologySurveyCalendar.pdf [Accessed March 2024]

³ Collins, J (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed). The Bat Conservation Trust, London. Available online: https://cdn.bats.org.uk/uploads/pdf/Resources/Bat_Survey_Guidelines_2016_NON_PRINTABLE.pdf?v=1542281971 [Accessed March 2024]

Table 2.1: Bat Roost Potential Categories (BCT Guidelines 3rd edition)

| BRP Category | Roosting Habitat Features | Commuting and Habitat Features | Survey Requirements |
|--------------|--|---|--|
| Negligible | Negligible habitat features likely to support roosting, commuting or foraging bats. | | No surveys required. |
| Low | Structures in this category offer one or more potential roost sites for individual, opportunistically roosting bats. These sites do not offer the space, shelter or appropriate conditions to support large numbers of bats or maternity roosts. Trees in this category include those of sufficient size and age to support suitable roosting features, but none are visible from the ground. | Habitat on and around the Site could be used by a small number of commuting bats. This category includes densely urbanised landscapes, or linear vegetation features poorly connected to the wider landscape (e.g. gappy hedges in an agricultural context). | One dusk or dawn survey between May and August required for structures. No surveys required for trees. |
| Moderate | Structures and trees in this category offer one or more roost site that, due to their space, shelter or conditions, offer roosting potential for a range of species. Roosts may be more permanent, rather than opportunistic. Small maternity roosts of common species may form in one of these roost sites | Habitat on and around the Site is well-connected to wider continuous habitat and offers commuting and foraging habitat to a larger number of bats across a number of species. (e.g. tree lines or linked gardens in the urban context, or continuous hedge/ tree lines and watercourses in an agricultural setting). | Two dusk and one dawn surveys required for both structures and trees between May and September with at least one conducted between May and August. Tree-climbing may be an appropriate alternative to dusk and dawn surveys. |
| High | Structures and trees in this category have one or more potential roost sites that are suitable for large number of bats. Roosts are likely to be permanent and include maternity roosts. Potential roost sites exist for a wide range of species or species of particular conservation interest | Habitat on and around the Site is diverse, continuous and linked to extensive suitable habitat. This category includes well- vegetated rivers, streams, hedgerows and woodland edge. Habitat is sufficiently diverse to offer opportunities to a wide range of species or those of particular conservation interest. | Three surveys, including both dusk and dawn surveys for both structures and trees between May and September with at least two conducted between May and August. Tree-climbing may be an appropriate alternative to dusk and dawn surveys. |

2.1.9 Since conducting the BRP surveys, a 4th edition of the standard guidance⁴ prepared by the BCT has been released. Changes have been made regarding the categorisation of trees which affects the corresponding survey requirements. **Table 2.2** below provides a description of the categories as provided in the BCT Guidelines 3rd edition, the BCT Guidelines 4th edition, and a conversion column allowing translation between the two systems.

Table 2.2: Bat Roost Potential Category Conversion Table between BCT Guidelines 3rd and 4th editions

| BRP Category, 3 rd edition | BRP Category, 4 th edition | Conversion Description |
|---------------------------------------|---------------------------------------|--|
| Negligible | Negligible | As defined in Table 2.1 above. |
| Low | PRF-I | Trees in this category have one Potential Roost Feature (PRF) suitable only for individual bats or a very small number of bats, either due to size or lack of suitable surrounding habitats. |
| Moderate | Either PRF-I or PFR-M | Trees in this category must be individually re-assessed based on the survey information collected as they may fit into either PRF-I or PRF-M |

⁴ Collins, J., (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition), The Bat Conservation Trust, London. Available online: <https://cdn.bats.org.uk/uploads/pdf/Resources/For-professionals/Bat-Survey-Guidelines-23-FINAL> Accessed October 2024

| BRP Category, 3 rd edition | BRP Category, 4 th edition | Conversion Description |
|---------------------------------------|---------------------------------------|--|
| High | PRF-M | Trees in this category have one or more PRFs suitable for multiple bats and may therefore be used by a maternity colony. |

Ground-level Static Bat Surveys

- 2.1.10 To further assess the presence of bats within the ESA, four ground-level automated detectors were deployed within blocks of woodland within the ESA for at least two weeks in each of spring (April – May), and autumn (mid-August – October). Standard guidance requires static bat detectors to be deployed during the summer season (June – mid-August); however, access was denied (see **Limitations**).
- 2.1.11 Ground-level automated detectors were deployed between 24th April and 14th May 2024, and between 8th and 22nd October 2024. The locations of the ground-level automated detectors are provided in **Figure 10.2.3 Protected Species Survey Results**.
- 2.1.12 To allow for temporal comparison, where possible, detectors were deployed at the same locations during spring and autumn season; however minor changes to the placement of the detectors may have occurred as a result of different surveyors undertaking the deployment each season.
- 2.1.13 All detectors were programmed to start recording 30 minutes before sunset and stop recording 30 minutes after sunrise.
- 2.1.14 Bat passes from the ground-level automated detectors was analysed using Kaleidoscope Pro software. Data was analysed using the auto ID feature and manual verification by suitably experienced ecologists. Basic statistical analysis was conducted using Microsoft Excel to understand how bats are using the ESA.

Otter Survey Methodology

- 2.1.15 An otter survey was undertaken on all watercourses located within the ESA in accordance with recognised best practice⁵. Ecologists searched for evidence of suitable habitat for, and direct evidence of, otter. Watercourses were categorised into four suitability classifications based on a variety of characteristics including wet width, water depth, suitable foraging resources, suitable resting sites, and connectivity to suitable habitats. Descriptions of suitability categories are provided in **Table 2.3** below.

Table 2.3: Watercourse Suitability for Otter

| Suitability | Description |
|-------------|--|
| Optimal | Typically larger, main watercourses (at least 1m in wet width). These watercourses contain flow at all times of year (not just in spate) and will support foraging resources (such as amphibians and fish). Rocky banksides or vegetation overhangs will provide suitable resting places, and large boulders will provide ideal sprinting sites. |
| Sub-optimal | Generally a substantial watercourse, greater than 0.5m in width. These watercourses will comprise stone and rock substrate, with occasional boulders. There may be limited resting opportunities, however vegetation overhangs, and occasional rocky crevices may be present. |
| Suitable | These watercourses may be sporadically used by otter, with connectivity to optimal or sub-optimal watercourses. These watercourses themselves will typically be no wider than 0.5m, with a relatively shallow flow of water. Substrate may comprise stone and earth, and banksides may comprise grassland. |
| Unsuitable | Generally a narrow channel, which may contain very little water. The channel may be very densely vegetated with limited suitability to support otter foraging resources. |

- 2.1.16 Where watercourses were considered suitable to support otter, these were surveyed in detail to locate field signs.
- 2.1.17 Field signs searched for include:

⁵ NatureScot (2016) Protected Species: Otters. Available online: <https://www.nature.scot/professional-advice/protected-areas-and-species/protected-species/protected-species-z-guide/protected-species-otters> [Accessed March 2024]

- Resting sites;
- Spraint (including age and description: fresh, recent, old);
- Prints, tracks, slides and runs; and
- Feeding remains.

2.1.18 Where resting sites were recorded, these were assessed for their potential to be used as a breeding or natal site. Resting sites were classified in accordance with descriptions detailed in **Table 2.4** below.

Table 2.4: Otter Resting Site Classification

| Resting Site Type | Description |
|-------------------|---|
| Natal Holt | A discreet holt site that is used by a bitch to birth cubs, where they will normally remain for up to three months, before being moved to a secondary holt. These sites are seldom located during surveys, and they are rarely recorded without the aid of camera traps. It is generally accepted that most natal holts will contain bedding material and sprainting activity is minimal whilst occupied. |
| Holt | A cavity or hole on or adjacent to a watercourse. It may be in the ground, under tree roots, within rocks or caves; where it cannot be readily observed. If a holt is confirmed as active it usually contains field evidence such as spraint. |
| Hover | A bolt hole or ledge that provides temporary cover or a place to eat prey. It is not fully enclosed, and the back of the feature can normally be observed. There may be spraints, footprints and feeding evidence present. |
| Couch | An above-ground shelter normally used for lying-up and grooming. They may take the form of a depression in tall vegetation or may be covered in a vegetated grass 'roof'. |
| Breeding Site | An area of land in which otters breed. The site may be large, and it is usually more important to protect this site than an individual natal holt. |

2.1.19 The assessment of resting site status was determined by the quality of the feature and the ability to provide key requirements for otters. This included cover and seclusion for an individual to sleep or rest, the provision of nursery or breeding habitat (including the potential for natal holts), the supply of critical factors such as feeding resources (ponds, lochs and water features) freshwater for cleaning and drinking, and the provision of suitable seclusion away from disturbance.

2.1.20 This assessment was subjective and corroborated by the abundance of field evidence located in, or around, the features. Diagnostic evidence such as spraints, urination "green" spots, spraint mounds, sign heaps, grooming hollows, footprints, paths and slides, was interpreted to determine the status of the feature.

2.1.21 Where spraint was recorded, it was allocated an age class in accordance with the following descriptions:

Fresh: The spraint is still very moist and pungent and was likely to have been deposited within the last few hours or days.

- **Recent:** The spraint has become decayed but retains consistency and some odour. It is dry and colour is more faded. It is likely to have been deposited within the last week or two.
- **Old:** The spraint is desiccated and powdery having lost its shape and most odours. Usually remains are still evident and identifiable, usually by the abundance of fish-bone or scales. It is likely to have been deposited approximately a month ago (sometimes longer).

Wildcat Survey Methodology

2.1.22 Surveys sought to identify suitable habitat for, and direct evidence of, wildcat. Suitable wildcat habitat is considered to be woodland edge, or areas of woodland, scrub and rough grassland or moorland, far from human disturbance⁶. Where suitable habitat was identified, direct evidence was searched for, including:

- Potential den sites which could include rocky cairns, boulders, tree hollows, under root plates and in dense gorse;
- Tracks, prints and paths;
- Scratch posts;
- Urine sprays on boulders or tree trunks;
- Hair and prey remains; and
- Scats.

2.1.23 Wildcat dens are defined as any place in which a wildcat could rest, while breeding dens are those in which a wildcat could breed. Current legislation states that obstructing a wildcat den or to otherwise prevent their use is illegal, as is deliberate or reckless damage or destruction of a den. One wildcat may use several resting dens within their territory.

Badger Survey Methodology

2.1.24 Surveys sought to identify suitable habitat for, and direct evidence of, badger in line with current best practice survey methods⁷. Suitable habitat is considered to be sheltered areas with free-draining soils; normally woodland, scrub or mosaics that incorporate these habitat types. Where suitable habitat was identified, direct evidence was searched for, including:

- Badger setts;
- Tracks, prints and paths including scratched logs and fallen wood;
- Guard hair;
- Latrines and dung pits categorised as fresh, recent or old;
- Snuffle holes (i.e. surface foraging); and
- Feeding remains.

2.1.25 Badger setts were defined by the descriptions in **Table 2.5** below.

Table 2.5: Badger Sett Descriptions

| Sett Type | Description |
|------------|---|
| Main | These usually have a large number of entrances with large spoil heaps. The sett generally looks well used. They may have well used paths to and from the sett and between sett entrances. |
| Annexe | These usually have a large number of entrances with large spoil heaps. The sett generally looks well used and is connected to the main sett by clear tracks and paths. |
| Subsidiary | These setts often only have a few entrances and are located at least 50m from a main sett. They are not continuously active and evidence may be limited. |
| Outlier | These setts may have only one or two entrances with little spoil. Used sporadically, these setts often show little signs of use. |

⁶ NatureScot (2014) Guidance – Wildcat Survey Methods. Available online: <https://www.nature.scot/doc/guidance-wildcat-survey-methods#:~:text=Wildcats%20tend%20to%20occupy%20the,agriculture%2C%20industrialised%20and%20urban%20areas>. (Accessed April 2024)

⁷ Scottish Badgers (2018) Surveying for Badgers; Good Practice Guidelines. Available online: https://www.scottishbadgers.org.uk/wp-content/uploads/2020/12/Surveying-for-Badgers-Good-Practice-Guidelines_V1-2020-2455979.pdf

- 2.1.26 When setts were identified, the total number of entrances was recorded, and the above-ground area occupied by the sett mapped. Each entrance was inspected for evidence.
- 2.1.27 According to current legislative provisions, 'badger setts' are legally defined as such when they show multiple 'signs of current use'. Signs of current use include:
- Well used sett entrances which are smooth, well-worn and lacking vegetation;
 - Fresh or maintained spoil heaps i.e. lacking vegetation growth;
 - Fresh or maintained tracks and paths in and around the sett;
 - Accumulations of bedding material in sett entrances or spoil heaps;
 - Guard hair in sett entrance or spoil heap;
 - Fresh prints on tracks, paths, spoil heaps and sett entrances; and
 - Feeding remains.
- 2.1.28 Following an investigation of each sett and its entrances, surveyors determined the 'active use' status of the sett. Based on evidence and professional judgement, setts were considered to be one of the following:
- Well-used;
 - Partially used, i.e. only some entrances show signs of current use; or
 - Disused where evidence suggests that the sett has not been used recently and/or has been abandoned.
- 2.1.29 It should be noted that badgers use a number of setts across their territorial area. It is common that smaller, outlier setts may not be used for prolonged periods of time and, as such, field evidence may be lacking. Applying the precautionary principle, setts are only classified as 'disused' if they show structural decay that would prevent badgers from entering and sheltering in them without significant excavation

Water Vole Survey Methodology

- 2.1.30 The water vole survey aimed to assess the suitability for all watercourses within the ESA to support populations of water vole in accordance with recognised best practice⁹. Ecologists searched for evidence of suitable habitat for, and direct evidence of, water vole in line with current best practice guidelines⁸.
- 2.1.31 Watercourses were classified for their suitability to support water vole depending on a variety of characteristics including bankside composition, substrate, water flow rate and bankside vegetation. Descriptions of watercourse suitability categories are detailed in **Table 2.6** below.

Table 2.6: Watercourse Suitability for Water Vole

| Suitability | Description |
|-------------|---|
| Optimal | These watercourses will typically have a very slow flow rate and will comprise peaty bankside and substrate. Banksides will also comprise tussocky vegetation, including rushes (a common food source of water vole). The watercourses will generally be deep to enable predatory escape. |
| Sub-optimal | Typically, these watercourses will have a relatively slow flow rate. Banksides may be peaty however may not be very steep therefore not allowing burrows to account for varying water levels. Rushes will be present, providing foraging resource. |
| Suitable | Banksides may comprise earth allowing for some burrowing. Herbaceous vegetation will generally be lacking, and invertebrates, amphibians and fish will be sparse. Flow rate will be slow to moderate; however, watercourse may comprise rocky substrate. |
| Unsuitable | Watercourses will comprise rock and stone substrate and banksides. The flow rate will be moderate or fast flowing and rushes will be absent from bankside vegetation. Watercourses may also be heavily poached by livestock. |

⁸ Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016) The Water Vole Mitigation Handbook (Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. Mammal Society, London

2.1.32 Where watercourses were considered suitable, these were surveyed with the aim of identifying and recording presence of water vole.

2.1.33 Field signs searched for included:

- Burrows and tunnel systems;
- Runs, tracks and slides;
- Latrines with droppings categorised as fresh, recent or old;
- Feeding stations and remains; and
- Physical sightings.

Red Squirrel Survey Methodology

2.1.34 A red squirrel survey was undertaken in accordance with best practice guidelines^{9,10}, and aimed to assess suitability of habitats within the ESA for red squirrel. Suitable habitat includes cone-bearing coniferous plantation woodland located on free-draining soils, with good connectivity to other woodland habitats. Where suitable red squirrel habitat was recorded, searches for foraged cones, dreys and tracks/prints were undertaken.

Pine Marten Survey Methodology

2.1.35 A pine marten survey was undertaken in all habitats within the ESA in accordance with best practice guidelines^{11,12}. The survey aimed to assess habitats within the ESA for their suitability to support the species, while searching for indicative field signs such as feeding remains, scat, footprints, and dens.

2.1.36 The survey was undertaken using a systematic approach, where possible. Suitable habitats were surveyed for evidence of pine marten by walking linear routes. Transects generally followed defined wayleaves, firebreaks and access tracks as these are frequently used by pine marten and therefore where indicative field signs are most commonly found.

Other Observations

2.1.37 While surveys for other species were not specifically undertaken, incidental observations of other species were made, particularly where legislation protections were relevant. For example, ad-hoc sightings of reptiles were noted on GIS-enabled field tablets.

2.2 Constraints and Limitations

2.2.1 Surveys in 2023 and 2024 were completed during the optimal surveys season for protected and notable species. Weather conditions were optimal, with sunny and dry conditions. Therefore, the data gathered is considered robust for the purposes of informing the EIA Report.

2.2.2 The timeframe in which a survey is undertaken provides a snapshot of the floral and faunal species present within the survey area. While surveys provide an overview of the habitats and species present, they cannot be used to determine long-term trends in species and habitat populations or behaviours. Ecological surveys are limited by a variety of factors which affect the presence of flora and fauna such as season, migration patterns and species behaviour. Evidence of species is not always discovered during the survey. This does not mean that a species is absent.

⁹ Gurnell, J., Lurz, P., McDonald, R. and Pepper, H. (2009) Practical Techniques for Surveying and Monitoring Squirrels. Forestry Commission [online]. Available at: <https://www.forestresearch.gov.uk/documents/666/fcpn011.pdf> [Accessed March 2024]

¹⁰ NatureScot (n.d.) Protected Species Advice for Developers: Red Squirrel [online]. Available at: <https://www.nature.scot/sites/default/files/2018-09/Species%20Planning%20Advice%20-%20red%20squirrel.pdf> [Accessed March 2024]

¹¹ Cresswell, W.J., Birks, J.D.S., Dean, M., Pacheco, M., Trehella, W.J., Wells, D. and Wray, S. (2012) UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation. The Mammal Society, Southampton.

¹² NatureScot (n.d.) Protected Species Advice for Developers: Pine Marten [online]. Available at: <https://www.nature.scot/sites/default/files/2018-09/Species%20Planning%20Advice%20-%20pine%20marten.pdf> [Accessed September 2024]

- 2.2.3 The surveys aimed to avoid periods directly following heavy rainfall, particularly for otter and water vole. This was to minimise the risk of surveying areas where evidence had been washed away and to reduce the health and safety risk of these surveys.
- 2.2.4 The static detector survey aimed to collect additional information regarding the bat species that are making use of the habitats within the Substation Site. However, the habitat suitability of the Substation Site was noted to be low due to the dominance of commercial conifer plantation and very limited roosting potential. Access to the Site was restricted between 20th June and 16th September 2024; as such, the summer deployment of ground-level static bat detectors could not go ahead. Further, technical difficulties were encountered with two of the four static detectors deployed during the autumn survey period where each recorded for only two or three days rather than two weeks. Guidelines⁴ acknowledge that bat activity surveys may not be required in low suitability habitat, further the bat activity index (BAI) calculations were adjusted to acknowledge the detector failures. It is therefore considered that, while a full dataset has not been collected across all seasons, the data is sufficient to assess the species present and levels of activity within the Substation Site.
- 2.2.5 All other field surveys were completed in August 2023 and April 2024 and were not affected by the subsequent access restrictions.
- 2.2.6 No direct access was taken to the existing Fetteresso Substation on health and safety grounds, but as this is a functioning substation it is known to be of very limited potential for protected and notable species; therefore, lack of access is not considered to limit the survey results.
- 2.2.7 On balance, these limitations are not considered to be a constraint to the conclusions of this report.

3. BASELINE CONDITIONS

3.1 Desk Study

- 3.1.1 A desk study was undertaken to inform protected species surveys. An account of the method adopted, and findings, is provided in **Appendix 10.1: Desk Study and Legal Context**.
- 3.1.2 The desk study identified that three species of bat (soprano pipistrelle, common pipistrelle and Daubenton's bat) were present within the Site. In addition, pine marten, red squirrel, badger, and common lizard were recorded within the Site, and otter records were scattered along the Cowie Water either side of the Access Track. Records of red squirrel were common in the surrounding area, particularly to the north and east of the Site. A small number of records of wildcat, water vole and mountain hare were noted in the wider landscape outwith the Site.

3.2 Field Data

Habitats Overview

- 3.2.1 The ESA supports a variety of different habitat types, which have a varying degree of suitability for protected species.
- 3.2.2 The ESA is generally a mosaic of coniferous plantation woodland, with wind-thrown areas, felled areas and areas where natural regeneration is occurring. Two areas of Upland Heathland dominated by heather and other low-lying vegetation were identified in the north and centre of the Substation Site, and an area of Upland flushes, fens and swamps dominated by soft rush was also identified within the centre of the Substation Site.
- 3.2.3 Watercourses within the Site include the Cowie Water and several tributaries crossed by the Access Track, the upper reaches of the Burn of Elfhill in the southwest of the Substation Site, the upper reaches of the Burn of Baulks in the east of the Substation Site, and the Burn of Day in the centre of the Substation Site. The source of the Burn of Day is within the centre of the Substation Site and it flows to the east and out of the Site. The damp area around the Burn of Day is referred to as Hurlie Bog. Further extents of damp habitat are present in the centre of the Substation Site, where wet heath and scattered rushes were recorded among extents of restocked plantation.
- 3.2.4 The Access Track to the Substation Site follows an existing forestry track from the A957 Slug Road to the north, and from the public road network from Hill of Quithel to the southwest. Named watercourses cross under the existing track within the Site via either box or pipe culverts: the upper reaches of the Burn of Elfhill in the southwest; the Cowie Water, West Dumer Burn, East Dumer Burn and Irish Burn in the west; and the Black Burn in the north. In addition, the existing track crosses the Burn of Day in the centre of the Substation Site via a pipe culvert.
- 3.2.5 There are no buildings within the Site, although the existing Fetteresso Substation is immediately southwest. Part of the Access Track forms the southern boundary of the existing Fetteresso Substation, thereby surrounding it but excluding it from the Site. The existing Fetteresso Substation is therefore within the ESA but was not subject to survey.
- 3.2.6 For detailed descriptions of the habitats present within the Proposed Development, please see **Appendix 10.2** and **Figures 10.2.1 Habitat Survey Results and 10.2.2 National Vegetation Classification Survey**.

Habitat Suitability and Evidence

Bats

- 3.2.7 Surveys identified limited habitat within the ESA with the potential to support bats roosting, foraging or commuting. No individual trees were considered to have bat roost potential, and the majority of woodland was Sitka spruce plantation with negligible suitability for bats as illustrated in Photos 1, 2, 5-8 and 10 in **Annex 10.3.1**.
- 3.2.8 Two small areas of plantation woodland within the northeast of the Substation Site were considered to offer low suitability for roosting bats. One of these woodlands was a thinned Scots pine plantation with mature Scots pine and Sitka spruce regeneration. The other woodland comprised of larch and Sitka spruce regeneration.
- 3.2.9 A third woodland in the centre of the Substation Site is considered to provide low suitability for roosting bats. It was dominated by Sitka spruce, with occasional planted alder trees.

- 3.2.10 One incidental sighting of a bat flying during the daytime was recorded during surveys in April 2024. This is likely to have been a pipistrelle based on the size and behaviour of the individual bat.
- 3.2.11 None of the watercourse crossings were assessed to provide bat roost potential due to a lack of suitable potential roost features provided by the pipe and box culverts as illustrated in Photo 7 in **Annex 10.3.1**.
- 3.2.12 A total of 281 hours of data was recorded during the ground-level static bat detector surveys (approximately 168 hours in spring and 113 hours in autumn) which identified a total of 587 calls across the spring and autumn survey periods. No weather station was deployed with the detectors but data downloaded from SEPA's nearest weather station¹³, Cleuchhead approximately 3.2 km southwest of the Substation Site, suggested that it rained on approximately half the nights when ground-level static bat detectors were deployed in spring, with an average of 3.4mm per night, and that it rained on all but three nights during the autumn bat deployment period with an average of 5.8mm per night.
- 3.2.13 The following species were recorded during the static detector surveys:
- Soprano pipistrelle (*Pipistrellus pygmaeus*);
 - Common pipistrelle (*Pipistrellus pipistrellus*);
 - Nathusius pipistrelle (*Pipistrellus nathusii*);
 - Unidentified pipistrelle (*Pipistrellus* spp.);
 - Brown long-eared bat (*Plecotus auritus*);
 - Noctule (*Nyctalus noctula*); and
 - Unidentified myotis (*Myotis* spp.).
- 3.2.14 To allow for a comprehensive and comparative assessment, all bats are referred to in terms of their genus (*Pipistrellus* spp., *Plecotus* spp., *Nyctalus* spp. and *Myotis* spp.).
- 3.2.15 *Pipistrellus* spp. were the most commonly recorded genus during the surveys accounting for 88.4% of the total bat passes recorded across both seasons and all detectors, while *Myotis* spp. accounted for 10.9% of calls and *Nyctalus* spp. and *Plecotus* spp. each accounted for 0.3% of calls. The Bat Activity Index (BAI) for each genus at each location across each season are presented in **Table 2.6** below.

Table 2.6: BAI to 2 d.p. according to Genus per Detector Across Survey Seasons and Totals per Detector or Genus

| Detector Number | BAI per Survey Season | | Total BAI |
|---------------------|-----------------------|--------|-------------|
| | Spring | Autumn | |
| D1 | | | 0.58 |
| <i>Pipistrellus</i> | 0.21 | 0.07 | |
| <i>Myotis</i> | 0.23 | 0.00 | |
| <i>Nyctalus</i> | 0.00 | 0.01 | |
| <i>Plecotus</i> | 0.00 | 0.00 | |
| D2 | | | 0.50 |
| <i>Pipistrellus</i> | 0.40 | 0.11 | |
| <i>Myotis</i> | 0.06 | 0.04 | |
| <i>Nyctalus</i> | 0.00 | 0.00 | |
| <i>Plecotus</i> | 0.00 | 0.00 | |
| D3 | | | 1.16 |
| <i>Pipistrellus</i> | 1.03 | 0.04 | |

¹³ SEPA (2024) SEPA Water Level Data. Available online: <https://www2.sepa.org.uk/waterlevels/default.aspx?sm=t>. Accessed October 2024.

| Detector Number | BAI per Survey Season | | Total BAI |
|----------------------|-----------------------|--------|-------------|
| | Spring | Autumn | |
| <i>Myotis</i> | 0.05 | 0.00 | |
| <i>Nyctalus</i> | 0.00 | 0.00 | |
| <i>Plecotus</i> | 0.00 | 0.01 | |
| D4 | | | 1.34 |
| <i>Pipistrellus</i> | 1.30 | 0.05 | |
| <i>Myotis</i> | 0.02 | 0.00 | |
| <i>Nyctalus</i> | 0.00 | 0.00 | |
| <i>Plecotus</i> | 0.00 | 0.00 | |
| All detectors | | | 3.63 |
| <i>Pipistrellus</i> | 2.95 | 0.22 | |
| <i>Myotis</i> | 0.36 | 0.08 | |
| <i>Nyctalus</i> | 0.00 | 0.01 | |
| <i>Plecotus</i> | 0.00 | 0.01 | |

- 3.2.16 The BAI calculations were adjusted to account for the failure of two of the four static bat detectors deployed in autumn. Instead of relating calculations on the average number of hours recorded, the number of calls recorded by each detector was analysed against the number of hours recorded by that particular detector.
- 3.2.17 The BAI results concluded that activity was higher in spring even accounting for the detector failures which occurred in the autumn survey season, with the vast majority of calls recorded by detectors 3 and 4 in the spring survey season. Both of these detectors are located in the north of the Site, and the level of activity recorded may have been a result of one or a few individuals foraging around the detector sites for a consistent period of time.
- 3.2.18 Overall, activity levels within the Site are considered to be very low in relation to *Myotis*, *Nyctalus* and *Plecotus* spp. and low to moderate for *Pipistrellus* spp.

Otter

- 3.2.19 Surveys identified limited habitat within the ESA with the potential to support otter. The Burn of Day is located within the Substation Site and was considered to offer low suitability for commuting and foraging otter and no suitability for resting sites (refer to Photo 8 in **Annex 10.3.1**). This watercourse links directly to the Cowie Water, which itself offers optimal commuting and foraging potential for otter, approximately 1 km north of the Substation Site; the Cowie Water is located approximately 2 km from the Site via the aquatic environment. Other watercourses within the Substation Site were not considered suitable for commuting or foraging otter due to their small size and shade by coniferous plantation woodland. The higher reaches of the Cowie Water, including several tributaries, are crossed by the Access Track. The Cowie Water offers optimal habitat potential for otter in its upper reaches, although many of the tributaries are smaller and therefore suboptimal.
- 3.2.20 One old spraint was identified on the Cowie Burn, under the existing forestry track within the Access Track during the 2024 surveys. No evidence of otter was identified during surveys of the ESA in 2023. No resting sites were identified during any survey.

Wildcat

- 3.2.21 Surveys identified limited habitat within the ESA with the potential to support wildcat. The conifer plantations varied in age structure and may therefore provide some suitable habitat for foraging and commuting wildcat, but no potential den sites were identified, nor evidence of their presence within the ESA. In addition, the nearest known population of wildcat is some 40 km northwest of the Site. Wildcat are therefore considered unlikely to be utilising the ESA.

Badger

- 3.2.22 Surveys identified limited habitat within the ESA with the potential to support badger. Dense forestry and wet habitats within the ESA illustrated in Photos 5-8 in **Annex 10.3.1** offer very limited habitat suitable for sett excavation and foraging. While the drier, more open habitats may be suitable for commuting and foraging badger with very limited opportunities for sett excavation, much of the ESA is considered to be unsuitable as the majority is either dense commercial plantation woodland or wet habitats.
- 3.2.23 No evidence of badger was identified during surveys in 2023 nor 2024.

Water Vole

- 3.2.24 Surveys identified limited habitat within the ESA with the potential to support water vole. One watercourse, the Burn of Day, was located within the Substation Site which was considered suitable for water vole in short sections where the watercourse was not shaded by commercial forestry and where it formed a channel with suitable bank habitats for water vole. However, these areas were few and separated by more extensive unsuitable habitat illustrated in Photo 8 in **Annex 10.3.1**, therefore limiting the overall suitability of the watercourse for water vole. Other watercourses were considered not suitable for water vole due to overshadowing, rocky or overhanging banks as shown in Photos 2, 3 and 7 in **Annex 10.3.1**. No evidence of water vole was identified during surveys in 2023 or 2024.

Red Squirrel

- 3.2.25 Surveys identified limited habitat present within the ESA with the potential to support red squirrel. Red squirrel prefer natural and native woodlands with a variety of tree species, rather than monocultures of non-native conifers, such as those that dominate the ESA.
- 3.2.26 No evidence of red squirrel was identified during surveys in 2023. Surveys in 2024 identified one feeding station within the west of the Access Track, but did not identify any evidence of red squirrel within the Substation Site.

Pine Marten

- 3.2.27 Surveys identified limited habitat present within the ESA with the potential to support pine marten. The ESA is dominated by commercial forestry, and while the trees are of varied ages (refer to Photos 5-8) which is likely to provide some structural diversity of resources for pine marten, the species prefers natural and native woodlands where there is a higher likelihood of denning sites.
- 3.2.28 No evidence of pine marten was identified during surveys in 2023, while one scat was identified east of the Access Track during the 2024 surveys, refer to Photo 4 in **Annex 10.3.1**.

Other Observations

- 3.2.29 Deer droppings were identified within the north of the Substation Site during the 2023 surveys and a common lizard was identified within the southwest of the Substation Site during the 2024 surveys.

4. INTERPRETATION

4.1 Bats

4.1.1 No habitat with the potential to support roosting bats was identified within the ESA. The static bat detectors identified bats utilising the Substation Site during the spring and autumn survey periods with pipistrelle bats most numerous and two species of bat (brown long-eared bat and Noctule) recorded only during the autumn survey period. Individual bats could make use of the linear features such as forestry rides, paths and watercourse within the ESA for commuting and foraging. The ESA is therefore unlikely to support viable populations of bats, nor life history stages of any bat species.

4.2 Otter

4.2.1 Evidence of otter was identified on the Cowie Burn under the Access Track, and watercourses within the ESA were generally considered to be suitable for foraging and commuting otter. No evidence of resting sites was identified, and the ESA is considered unlikely to form a core part of an otter's territory.

4.3 Wildcat

4.3.1 No evidence of wildcat was identified within the ESA and although habitats offered some opportunities for foraging and commuting wildcat, no potential den sites were identified. Further, the nearest known population of wildcat is some 40 km northwest of the ESA. The ESA is considered unlikely to support wildcat.

4.4 Badger

4.4.1 Surveys identified no evidence of badger within the ESA, though some suitable habitat was identified for foraging and commuting badger. If badger is present within the area, the species is likely to use the ESA in a transient manner due to the habitats present within the ESA being predominantly coniferous plantation woodland.

4.5 Water Vole

4.5.1 No evidence of water vole was identified within the ESA and only small sections of one watercourse were considered to provide suitable habitat, therefore it is considered unlikely that the ESA supports a viable population of water vole.

4.6 Red Squirrel

4.6.1 Evidence of red squirrel was identified in one location within the Access Track, while habitats were broadly considered to offer limited potential to red squirrel. Thus, it is included that red squirrel are present within the ESA, but in very low numbers and the Site is unlikely to form a core territory for local populations.

4.7 Pine Marten

4.7.1 One pine marten scat was identified within the ESA, although no potential den sites were recorded. Habitats were considered to provide limited suitability for pine marten. Overall, it is considered that the ESA is unlikely to support viable populations of pine marten, nor form a core territory for local populations.

4.8 Common Species of Amphibians and Reptiles

4.8.1 Other species such as common species of amphibians and reptiles are likely to be present within the ESA at low densities. The commercial forestry habitats that dominate the ESA have limited suitability for these species. Open habitats such as heathland and wetland habitats offer greater suitability.

ANNEX 10.3.1 – PHOTOGRAPHS

Table 10.3.1: Photographs

Photographs of the Site



Photo 1: Bat roost potential was identified as low and negligible throughout the site.



Photo 2: Some watercourses provide suitable habitat for otter.



Photo 3: Otter evidence was identified under the bridge over Cowie Burn.



Photo 4: Pine marten signs were noted within the Access Track ESA.

Photographs of the Site



Photo 5: Waterbodies and wet habitats may provide suitable habitat for common species of amphibians.



Photo 6: Typical example of coniferous woodland habitat within the Site which has limited potential for protected species.



Photo 7: Example of the typical pipe culverts and watercourses present within the Site



Photo 8: Burn of Day within the centre of the Substation Site, illustrating the lack of suitability for water vole.

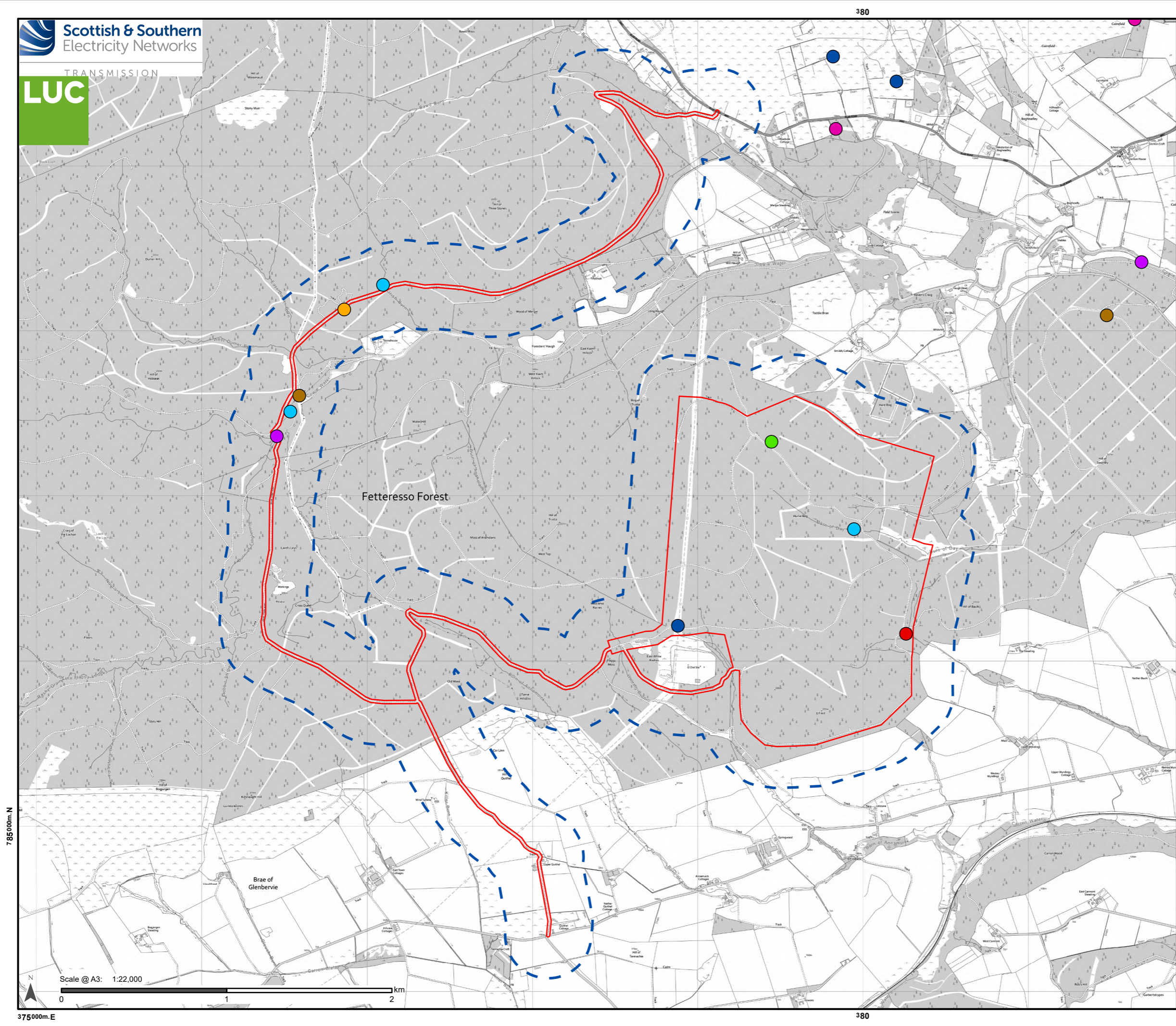
Photographs of the Site



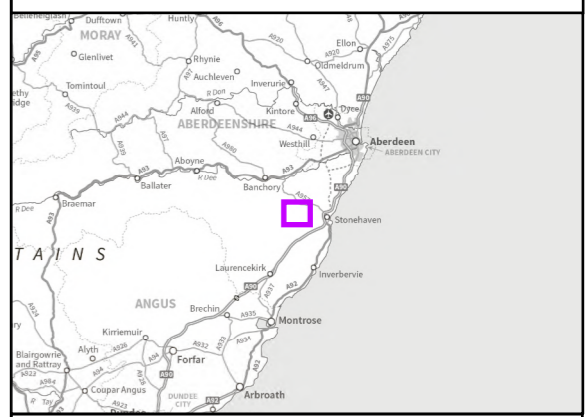
Photo 9: Red squirrel feeding station within the Access Track ESA



Photo 10: Static bat detector deployed on a fallen tree



- Hurlie red line boundary
- Survey area (250m buffer from red line boundary)
- Birds
- Otter
- Pipistrelle bat
- Red deer
- Pine marten
- Red squirrel
- Reptile
- Water vole



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Project No: LT486
Project: Hurlie 400 kV Substation

Title:
Protected Species Survey Results

Drawn by: IB Date: 20/11/2024

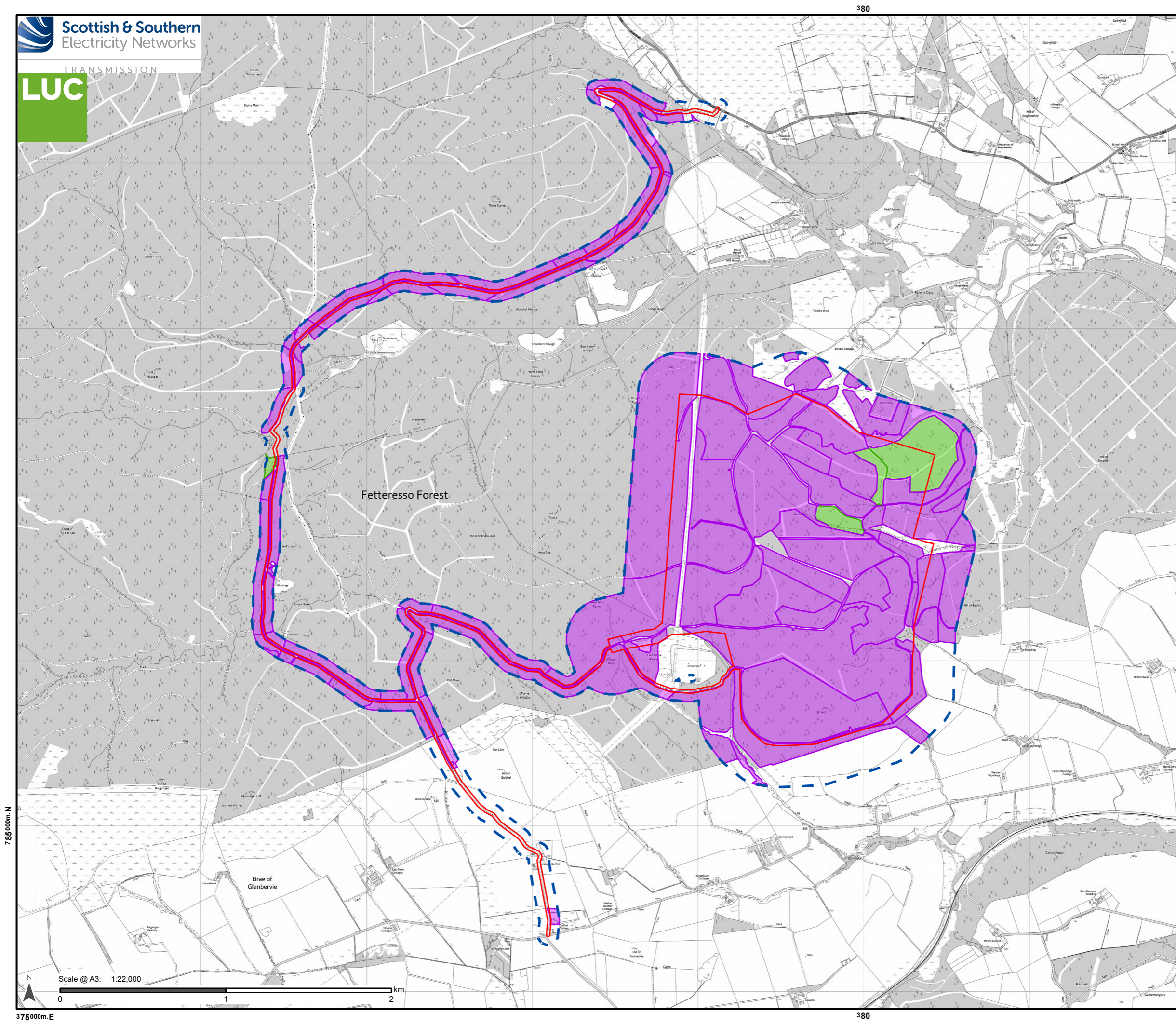
Figure: 10.3.1

785000m.N

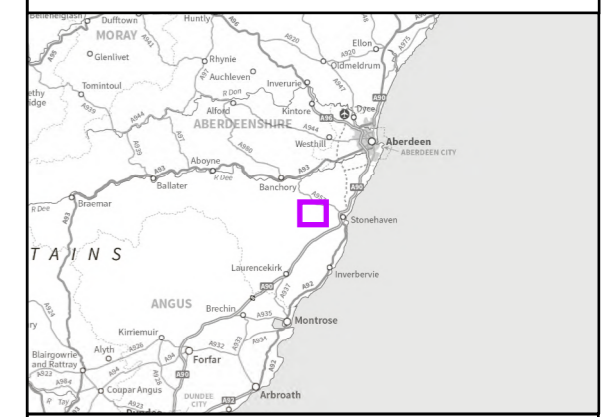
Scale @ A3: 1:22,000
0 1 2 km

375000m.E

380



- Hurlie red line boundary
- Survey area (250m from red line boundary and 50m from access track)
- Bat Roost Suitability - woodland**
- Low
- Negligible



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Project: Hurlie 400 kV Substation

Title:
Bat Survey Results

Drawn by: IB Date: 20/11/2024

Figure: 10.3.2