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5. ECOLOGY

5.1 Executive Summary

5.1.1 This Chapter details the assessment undertaken for the Elchies (Rothes III) Grid Connection, comprising approximately 24.3 km of 132 kV overhead line (OHL) between a location close to the Rothes III on-site substation and Blackhillock substation near Keith, referred to as the 'Proposed Development'.

5.1.2 Desk and field surveys were undertaken for identified ecological receptors including sites designated for nature conservation interests (both statutory and non-statutory), habitats and vegetation, and protected species according to best practice methodologies. An assessment of the potential effects of the Proposed Development on valued ecological receptors, along with suggested mitigation measures to avoid or reduce any potential effects is presented in this Chapter.

5.1.3 One site designated for nature conservation, the River Spey Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI) was identified within close proximity to the Proposed Development. The River Spey SAC / SSSI is designated for supporting internationally important populations Atlantic salmon (*Salmo salar*), freshwater pearl mussel (*Margaritifera margaritifera*), otter (*Lutra lutra*) and sea lamprey (*Petromyzon marinus*).

5.1.4 Habitats identified during the assessment were those of Regional (Medium) to Less than Local (Very Low) ecological value, including those identified as potential Groundwater Dependent Terrestrial Ecosystems (GWDTE). Protected species signs found during surveys included those of badger, otter, pine marten, red squirrel, otter and structures with potential to support roosting bats.

5.1.5 Mitigation measures which are embedded into the design of the Proposed Development include the adoption of the Applicant's detailed General Environmental Management Plans (GEMPs) (**Appendix 3.1)** and Species Protection Plans (SPPs) (**Appendix 3.2)**. Also, the development and adoption of a site-specific Construction Environmental Management Plan (CEMP) and the appointment of a suitably qualified and experienced Environmental Clerk of Works (ECoW) to ensure the Proposed Development is constructed in accordance with best practice methodologies.

5.1.6 This assessment concludes that there will be no likely significant effects on any valued ecological receptors identified within the proximity of the Proposed Development.

5.2 Introduction

5.2.1 This Chapter evaluates the importance of the nature conservation interests (non-avian) and the potential effects likely as a result of the Proposed Development. This Chapter outlines the methodologies used to assess potential effects on internationally and nationally protected habitats, flora and fauna (non-avian) both within the footprint of the Proposed Development and the surrounding area. It presents an assessment of the significance of potential impacts on sensitive ecological receptors, along with suggested mitigation measures to avoid or reduce the effects, and an assessment of likely residual effects of the Proposed Development after mitigation measures have been implemented.

5.2.2 This assessment has been prepared by suitably qualified ecologists with relevant accreditations (MCIEEM) of Blairbeg Consulting Ltd.

5.3 Scope of Appraisal

5.3.1 This assessment is based on the description of the proposal as detailed in **Chapter 3: The Proposed Development** and shown on **Figure 3.1**. The Proposed Development consists of approximately 24.3 km of 132 kV OHL commencing approximately 450 m south-east of Rothes III Wind Farm on-site substation and terminating approximately 900 m to the north-west of Blackhillock substation. At either end of the OHL, there will be a sealing end structure to transfer the OHL connection into UGC. To facilitate construction, upgrades to existing access tracks and existing access points, the construction of new access routes will be required. Felling will be required in areas of woodland and commercial forestry for the safe operation of the OHL and to facilitate the construction of access tracks.

5.3.2 A 100 m LoD (i.e. 50 m either side of the OHL alignment) is sought to allow for micro-siting allowances during construction, as shown on **Figure 3.1**. A 30 m LoD is sought for the construction of new access tracks (also shown on **Figure 3.1)**.

5.3.3 The Study Area for this assessment covers approximately 1326 hectares (ha) along a 500 m wide corridor, incorporating all accessible land within 250 m of the centre line of the proposed OHL alignment, with slight increases in width where new access tracks associated with the Proposed Development are planned. Having regard to the LoD, to account for micro-siting allowances, this results in a minimum survey buffer of 200 m from proposed infrastructure, with the exception of some areas around proposed new permanent access tracks, which were defined following the completion of surveys, where the survey buffer is reduced to 100 m.

5.3.4 The connection into Rothes III Wind Farm on-site substation and Blackhillock substation would be formed by UGC and would be undertaken under the Applicant's Permitted Development rights. The potential effects of the UGC sections are considered within **Appendix 1.1.**

5.4 Consultation

5.4.1 The screening opinion received from the ECU in July 2022 determined that the Proposed Development does not constitute EIA development and therefore does not require a full EIA assessment. **Table 5.1** below summarises the key points relevant to ecology raised through the screening process and also responses received from SEPA and NatureScot following consultation undertaken at the alignment selection stage.

Table 5.1: Summary of Consultation

Consultee	Consultee Response	Applicant Action
Energy Consents Unit (ECU)	As the overhead line crosses the River Spey and its flood plain, there may be some impact, and care needs to be taken about the construction phase, haul roads, temporary construction compounds within flood risk areas. Beyond the construction phase, there should be little impact on riparian areas from the overhead lines. It is not anticipated that any major watercourses would affected by the two sections of undergrounded cable at either end of the proposed development. The route selection has sought to avoid as many environmental designations where it crosses the River Spey, there will interaction with SSSI and SAC designations. The use of overhead lines will see no direct impacts on the river and is anticipated that best practice in terms of construction of any nearby wooden poles will have to be adopted during any construction phase.	This Chapter identifies all designated sites within the vicinity of the Proposed Development. Habitats and protected species found within the Study Area for the site, which comprise the baseline ecological information, are detailed in **Section 5.6**. Sensitive ecological receptors are identified and potential impacts arising from the Proposed Development upon these receptors are evaluated in **Section 5.7**. Embedded mitigation measures designed to minimise any effects of the Proposed Development on the identified sensitive ecological receptors are detailed in **Section 5.7**, with any further recommended mitigation included in **Section 5.8**. Information to inform a HRA for the River Spey SAC is provided in **Appendix 5.3.**
		Protected species surveys have been undertaken in accordance with current guidance. Findings are summarised within **Section 5.6**. Detailed methodologies are provided in **Appendix 5.1,** with any sensitive records included in **Appendix 5.2B (Confidential)**.
		Phase 1 Habitat surveys and targeted NVC surveys have been undertaken, with methodology detailed in **Section 5.5** and results discussed in **Section 5.6**. **Chapter 9: Forestry** details woodland removal and the associated effects and mitigation.
Scottish Environmental Protection Agency (SEPA)	Areas where deep peat and GWDTEs are present should be avoided. If this is not possible and justification has been provided, appropriate mitigation measures should be put in place to protect these habitats.	Phase 1 Habitat surveys and targeted NVC surveys have been undertaken to identify areas of GWDTE habitats. Where areas of GWDTE habitats considered to have high groundwater dependency were identified, the route of the Proposed Development has been altered to avoid disturbance to these habitats. **Section 5.7** provides an assessment on the likely effects of the Proposed Development on GWDTE habitats, alongside mitigation measures to avoid and reduce potential effects. Peat depth and management information is included in **Chapter 7: Geology, Hydrology and Hydrogeology.**
NatureScot	The preferred route crosses the River Spey and a large portion of the route is within the river's catchment with potential to impact on tributaries and wetlands linked to the river system. The River Spey is a SSSI and SAC. The tributaries, the Burn of Rothes, Back Burn, Broad Burn and Burn of	Due to the proximity of the Proposed Development to the River Spey SAC and SSSI there is potential for effects through direct disturbance of qualifying features or through run-off affecting water quality during the construction phase. **Section 5.7** discusses the potential effects of the Proposed Development on the River Spey SAC and

Consultee	Consultee Response	Applicant Action
	Mulben, are partially included within the boundary of the SAC. In most cases it should be possible, with considerate planning and mitigation, to avoid impacting on the watercourses and wetlands linked to the Spey and therefore avoiding harm or damage to the qualifying features of the SAC/SSSI. It is likely that a suite of best practice and pollution prevention measures would be sufficient to offer enough protection but there may be locations along the route where the soil conditions of slope stability add an increased risk of erosion that may require specific measures to manage that risk.	SSSI alongside planning and mitigation measures to avoid any adverse effects on the designated site. Mitigation measures detail the safeguards set out in the Applicant's GEMPs, SPPs and an outline CEMP which will include detailed information on water quality management. This assessment does not identify any likely significant effects on the River Spey SAC and SSSI. Information to inform a HRA for the River Spey SAC is provided in **Appendix 5.3.**

5.5 Methodology

Desk Study

5.5.1 A desk study was undertaken to collate available ecological information in relation to the Proposed Development and surrounding area. This comprised a search of publicly available online datasets and desk study resources for information on statutory and non-statutory designated sites, the presence of native woodland habitat and the distribution of species and habitats of conservation concern:

- Joint Nature Conservation (JNCC) website (https://www.jncc.gov.uk/);
- NatureScot Site Link website (https://sitelink.nature.scot/home);
- NatureScot Natural Spaces datasets (https://www.gateway.nature.scot/natural-spaces/datasets);
- Habitat Map of Scotland (HabMos) website (https://www.nature.scot/landscapes-and-habitats/);
- Native Woodland Survey of Scotland data (https://forestry.gov.scot/support-regulations/scottish-forestry-map-viewer);
- Carbon and Peatland Map of Scotland (https://map.environment.gov.scot/soils_maps/);
- Open source data from the National Biodiversity Network (https://nbnatlas.org/);
- Large-scale 1:10,000 Ordnance Survey (OS) maps in conjunction with colour 1:25,000 OS maps;
- North East Scotland Biodiversity Partnership (NESP) (https://www.nesbiodiversity.org.uk); and
- Scottish Biodiversity List (SBL) (https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy-and-cop-15/scottish-biodiversity-list)

5.5.2 Further information on the nature conservation features that have the potential to be affected by the Proposed Development was obtained through searches of relevant published literature (i.e. relevant guidance documents and scientific papers).

Field Survey

5.5.3 All field survey methods used to inform this chapter are detailed within **Appendix 5.1: Field Survey Methodology.**

5.5.4 Fieldwork was undertaken between July and September in 2021, with additional surveys being undertaken in July 2022 following further refinement of the preferred alignment. Surveys were undertaken within accessible areas of the Study Area following the NVC scheme[1] using standard methods[2] and incorporating Phase 1 Habitat Survey Characterisation.

[1] Rodwell, J.S. (Ed) et al. (1991 – 2000) British Plant Communities (5 Volumes). Cambridge University Press, Cambridge

[2] Rodwell, J.S. (2006) NVC Users' Handbook. ISBN 978 1 86107 574 1.

Habitats were mapped using the Phase 1 Habitat Classification[3], with habitat boundaries and classification being recorded onto 1:10,000 scale OS maps. Any wetland habitats were evaluated in terms of their potential to be groundwater dependent terrestrial ecosystems (GWDTEs). This was done based on the hydrogeological setting of each habitat community identified, with reference to SEPA guidance[4,5], modified from the UK Technical Advisory Group (UKTAG) list of NVC communities and associated groundwater dependency scores. Non-native and / or invasive terrestrial plants and algae were also recorded.

5.5.5 Protected species surveys were undertaken in accordance with best practice methodologies as described in **Appendix 5.1: Field Survey Methodology** and involved searching for signs of species including otter (*Lutra lutra*), pine marten (*Martes martes*), features that could support roosting bats, badger (*Meles meles*), and red squirrel (*Sciurus vulgaris*). Surveys were not specifically undertaken for water vole (*Arvicola amphibius*), beaver (*Castor fiber*) and Scottish wildcat (*Felis silvestris*), but any incidental records or signs of other protected species were recorded in accordance with best practice. Surveys for protected species were carried out within a 100 m survey corridor around the centre line of the proposed OHL alignment (i.e. 50 m survey corridor from the centreline) and included a further survey corridor of 30 m for bats and red squirrel, 100 m for badger and pine marten, and 200 m for otter, where suitable habitat was present.

Assessment of Effects

5.5.6 The assessment of the significance of predicted impacts on ecological receptors has been undertaken in accordance with the current guidance detailed by the CIEEM[6] and is based on the value of a receptor and the nature and magnitude of the effect that the Proposed Development will have on it. Effects on biodiversity may be direct (e.g. habitat loss), or indirect (e.g. noise disturbance) on receptors located within or out with the Study Area.

Valuing Ecological Receptors

5.5.7 It is impractical for an assessment to consider every species and habitat that may be affected, instead it should focus on valued ecological receptors (VERs). CIEEM guidelines state that detailed assessment is not required for ecological features that are sufficiently widespread, unthreatened, resilient to project impacts and will remain viable and sustainable.

5.5.8 The value of an ecological receptor is based on the sensitivity of a receptor on the basis of the geographical context described in **Table 5.2** below.

5.5.9 The value of species' populations and habitats is assessed with reference to a combination of factors, such as level of protection, rarity, conservation status, population trends and the quality/extent of the receptor within the Study Area alongside professional judgement. Both species' populations and habitats have been valued using the following scale: International, National, Regional, Local, Less than local. The approach taken in this assessment is that a species' population that is considered to be of Medium or greater importance in biodiversity conservation terms is considered to be a VER. It is not considered that the Proposed Development will have a significant effect on receptors valued as less than Medium (e.g. Local and Less than local). Exceptions are made if the species population has been identified as having a high social or economic value or if the species is legally protected. A similar approach is adopted for habitats.

[3] Joint Nature Conservancy Council (2010) Handbook for Phase 1 Habitat Survey – a technique for environmental audit. JNCC, Peterborough

[4] SEPA (2017) Land Use Planning System Guidance Note 4 – Planning guidance on on-shore windfarm developments

[5] SEPA (2017) Land Use Planning System Guidance Note 31 – Guidance on Assessing the impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependent Terrestrial Ecosystems.

[6] CIEEM (2018, updated September 2019). Guidelines for ecological impact assessment in the United Kingdom. Winchester. Chartered Institute of Ecology and Environmental Management

Table 5.2: Scale of Value

Value of Receptor	Examples
International (Very High)	An internationally important site e.g. Special Protection Area (SPA), Special Area of Conservation (SAC), Ramsar (or a site proposed for, or considered worthy of such a designation). A regularly occurring substantial population of an internationally important species (listed on Annex IV of the Habitats Directive).
National (High)	A nationally designated site e.g. Site of Special Scientific Interest (SSSI), or a site proposed for, or considered worthy of, such designation. A viable area of a habitat type listed in Annex 1 of the Habitats Directive or smaller areas of such habitat which are essential to maintain the viability of a larger whole. A regularly occurring substantial population of a nationally important species, e.g. listed on Schedules 5 & 8 of the 1981 Wildlife and Countryside Act. A feature identified as a priority species / habitat in the UK BAP.
Regional (Medium)	Regional areas of internationally or nationally important habitats which are degraded but are considered readily restored. A regularly occurring, locally significant population of a species listed as being nationally scarce. A regional-scale important population or area of a species or habitat listed on the SBL or local BAP e.g. areas of woodland included on the AWI of semi-natural origin.
Local (Low)	Viable areas of priority habitat identified in the LBAP or smaller areas of such habitat which are essential to maintain the viability of a larger habitat as a whole. Non-statutory designated areas e.g. Local Nature Reserve (LNR), Environmentally Sensitive Area (ESA), Scottish Wildlife Trust (SWT) reserve or areas of woodland listed on the Ancient Woodland Inventory (AWI) as being of plantation origin. A regularly occurring, substantial population of a nationally scarce species, including species listed on the UK and Local BAPs. Areas of nationally important habitats which are degraded and have little or no potential for restoration. Areas of GWDTE habitats such as flushes (such as M6 and M23), which are uncommon within the local area. A good example of a common or widespread habitat in the local area, e.g. those listed as broad habitats on the LBAP. Species of national or local importance, but which are only present very infrequently or in very low numbers within the subject area.
Less than Local (Very Low)	Areas of habitat which have value to the local environment, or populations of regularly occurring common species of local conservation interest. Areas of GWDTE habitats which are common within the local area, such as MG10 rush pasture. Local areas of heavily modified or managed vegetation of low species diversity or low value as habitat to species of nature conservation interest. Common and widespread species. Areas of limited ecological value, which are not representative of semi-natural habitat and do not support wildlife of conservation interest.

Magnitude of Effect

5.5.10 Effects can be permanent or temporary; direct or indirect; adverse or beneficial and can be cumulative. Effects can vary according to scales of size, extent, duration, timing and frequency of impacts. These factors are brought together to assess the magnitude of the effect on the 'conservation status' of the particular valued receptors, and on the 'integrity' of the habitats that support them:

- integrity is the coherence of the ecological structure and functions of a site or habitat that enables it to sustain its plant and animal communities and populations; and
- conservation status is the ability of a habitat, a plant or animal community or population to maintain its distribution and / or extent / size.

5.5.11 Conservation status is therefore largely determined by the extent to which integrity is maintained. It follows that habitats may or may not be valued ecological receptors in their own right. Wherever possible, the magnitude of the effect is quantified. Professional judgement is then used to assign the effects on the receptors to one of four classes of magnitude, as defined in **Table 5.3** below.

Table 5.3: Magnitude of Effect

Magnitude	Definition
High	A permanent or long-term effect on the integrity of a site or conservation status of a habitat, species assemblage / community, population or group. If adverse, this is likely to threaten its sustainability; if beneficial, this is likely to enhance its conservation status.
Medium	A permanent or long-term effect on the integrity of a site or conservation status of a habitat, species assemblage / community, population or group. If adverse, this is unlikely to threaten its sustainability; if beneficial; this is likely to be sustainable but is unlikely to enhance its conservation status.
Low	A short-term but reversible effect on the integrity of a site or conservation status of a habitat, species assemblage / community, population or group that is within the range of variation normally experienced between years.
Negligible	A short-term but reversible effect on the integrity of a site or conservation status of a habitat, species assemblage / community population or group that is within the normal range of annual variation.

Significance of Effect

5.5.12 The significance of an effect is determined through a standard method of assessment based on professional judgement and available evidence, considering the sensitivity (nature conservation and conservation status) of the ecological receptor and the characterisation of the impact, in a reasoned way.

5.5.13 Significant effects include those which result from impacts on the structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).

5.5.14 **Table 5.4** below details the significance criteria that have been used in assessing the effects of the Proposed Development. Major and Moderate effects are considered significant in this assessment. **Table 5.4: Significance Criteria**

Significance of Effects	Definition
Major	Significant effect, as the impact is likely to result in a long term significant negative effect on the conservation status of the feature.
Moderate	Significant effect, as the impact is likely to result in a medium term or partially significant negative effect on the conservation status of the feature.
Minor	The impact is likely to have a negative effect on the feature at an insignificant level by virtue of its limited duration and/or extent, but there will probably be no effect on its conservation status. The level of effect would be Minor and Not Significant.
Negligible	No material effect. The effect is assessed to be Not Significant.

Issues Scoped Out

5.5.15 With implementation of best practice construction methodology and adoption of the Applicant's GEMPs and SPPs (see **Appendix 3.1: General Environmental Management Plans (GEMPs)** and **Appendix 3.2 Species Protection Plans (SPPs))**,

the following surveys have been scoped out of this assessment as significant effects on these ecological receptors are not anticipated:

- Freshwater habitat surveys – the Proposed Development would oversail (as an OHL) several watercourses within the Study Area. As part of the design process, poles have been typically positioned at least 20 m from watercourses and water features such as lochs and ponds. Felling of trees or clearance of scrub may however be undertaken within a 20 m buffer from watercourses. Construction and felling will be undertaken in accordance with best practice measures and pollution prevention guidelines, adhering to the Applicant's GEMPs and SPPs, therefore significant impacts to fish and their habitats are not anticipated. See **Chapter 7: Geology, Hydrology and Hydrogeology** for further details on watercourse protection;
- Species specific surveys and associated assessments for great crested newt (GCN) are not considered to be required due to the habitat within the Study Area being largely unsuitable and the design mitigation in place to typically buffer all water features such as ponds by a minimum of 20 m;
- Species specific surveys for reptiles and other amphibians are not considered to be required, however incidental field signs or evidence of presence will be recorded; and
- Existing access tracks identified for upgrading works are in relatively good condition with only minor carriageway or verge widening works required and therefore did not form part of the Study Area for this assessment.

Survey Limitations

5.5.16 Since the completion of surveys, indicative locations of construction access tracks have been provided, the majority of which are within the Study Area however, some are located outwith the full buffer distance for GWDTE habitats and protected species described in **Section 5.5** above. All new access tracks have a minimum survey buffer of 100 m. Prior to construction commencing pre-construction surveys for protected species will be undertaken to update the ecological baseline of the Proposed Development, which will cover all areas within 200 m of new infrastructure including access tracks. Whilst it is possible that hydrologically sensitive GWDTE habitat and / or protected species shelters might be found outwith the already surveyed 100 m buffer of new access tracks, the adoption of the Applicant's SPPs and GEMPs is considered to reduce or eliminate any potential impacts to such features not already identified during the course of the surveys already undertaken.

5.6 Baseline Conditions

Desk Study

Statutory Designated Sites

5.6.1 **Figure 5.1** displays the location of Special Areas of Conservation (SAC), RAMSAR wetland sites and Sites of Special Scientific Interest (SSSI) designated for biological features within 5 km of the Proposed Development. The Proposed Development is located within proximity of the River Spey SAC and SSSI and oversails the designation at Boat o' Brig, approximately 4.5 km north-east of Rothes. A summary of citations of the designated sites within 5 km is provided in **Table 5.5.**

Table 5.5: Sites of Nature Conservation within 5 km

Site Name	Distance from Proposed Development and Direction	Reason for Designation
River Spey SAC and SSSI	0 km	The River Spey along with some of its main tributaries are designated as a SAC and SSSI, with Atlantic salmon (*Salmo salar*), freshwater pearl mussel (*Margaritifera margaritifera*), otter (*Lutra lutra*) and sea lamprey (*Petromyzon marinus*) qualifying features. Tributaries partially included within the boundary of the SAC include the Burn of Rothes, Back Burn, Broad Burn and the Burn of Mulben. Due to the proximity of the Proposed Development to this SAC and SSSI, potential effects on this site are assessed and discussed further in Section 5.7.
Gull Nest SSSI	1.5 km north	An area of approximately 250 ha of blanket bog located in the hills above Glenlatterach and Glen Rothes, located to the north of the onsite Rothes III substation. Notable plant species include a rare type of bog moss *Sphagnum affine* and the locally uncommon greater sundew *Drosera anglica*. Separated by the Burn of Rothes, given the lack of hydrological connectivity between the Proposed Development to this designation, there are no likely predicted effects.
Den of Pitlurg SSSI	2.8 km south	This SSSI comprises a narrow meltwater channel 5 km south of Keith. Extending for 3 km, the floor of the den contains wet fen vegetation which is floristically rich whilst the adjacent steep slopes, part of an ancient woodland site, support birch and hazel woodland. Given the distance of the Proposed Development to this designation and the lack of hydrological connectivity, there are no likely predicted effects.
Mill Wood SSSI	3.1 km northeast	Covering 8.06 ha, located 2 km east of Keith, Mill Wood SSSI is found in a gorge along the Burn of Mill Wood (a tributary of the River Isla). The site supports birch and hazel woodland habitats, with a varied field layer, ranging from grassy to areas dominated by tall herbs. Although both the Proposed Development at the Blackhillock end and Mill Wood SSSI both drain into the River Isla, there is no hydrological connectivity between the two. Given the distance of the Proposed Development to this designation and the lack of hydrological connectivity, there are no likely predicted effects.
Burn of Ballintomb SSSI	4.5 km southwest	A tributary of the River Spey, the den of the burn contains the largest and least disturbed example in Moray of an ancient semi-natural alder woodland on moderately base-rich flushed slopes and springlines. Given the distance of the Proposed Development to this designation and the lack of hydrological connectivity, there are no likely predicted effects.

Non-statutory Designations and Ancient Woodland

5.6.2 There are no known non-statutory designation sites (such as local nature reserves) within the Study Area.

5.6.3 Habitats listed on the Ancient Woodland Inventory (AWI) within the Study Area are mapped on **Figure 5.1**. The AWI holds information on the location and extent of ancient woodland within Scotland, an categorises each stand as follows:

- Ancient Woodland (category 1a and 2a) interpreted as semi-natural woodland from maps of 1750 (category 1a) or 1860 (2a) and continuously wooded to the present day. If planted with non-native species during the 20th century they are referred to as Plantations on Ancient Woodland Sites (PAWS);

- Long-established woodland of plantation origin (LEPO) (category 1b and 2b) interpreted as plantation from maps of 1750 (category 1b) or 1860 (category 2b) and continuously wooded since. Many of these sites have developed semi-natural characteristics, especially the oldest stands, which may be as rich as Ancient Woodland; and
- Other woodland on Roy Maps (category 3) Shown as un-wooded on the 1st Edition of the OS maps (produced circa 1850) but as wooded on the Roy maps (produced in circa 1750). Such sites have, at most, had only a short break in continuity of woodland cover and may still retain features of Ancient Woodland.

5.6.4 Within the Study Area there is one area of ancient woodland of semi-natural origin (category 2a), found along the western edge of Auchroisk Distillery and located within 105 m of the centre line of the proposed alignment (55 m from the closest edge of the LoD). There are several areas of LEPO (category 2b) woodland located along the route. The design of the Proposed Development has sought to avoid the requirement for felling, however due to the extensive nature of some areas of woodland, some of which includes LEPO, there will be a requirement for a degree of felling through small sections of LEPO at Sourden Woods, Cummings Wood, Rosarie and Blackhill Wood. **Chapter 9: Forestry** provides further detail on LEPO.

Habitats and Vegetation

5.6.5 The Study Area generally comprises a complex mosaic of farmland and woodland. Woodland areas are dominated by conifer plantations, but there are numerous fragments of broadleaved and mixed woodland associated with riparian zones, field boundaries, road and railway sides, and around settlements. Agricultural land within the Study Area is dominated by pasture and arable field system, with arable fields more prevalent on low-lying ground along river floodplains and in the eastern areas of the route near Blackhillock. Pasture is generally improved and occupies gentle hillsides.

5.6.6 **Figure 5.2** displays the vegetation according to Phase 1 Habitat types within the Study Area along with habitat target notes. A description of habitats, vegetation communities and associated notes on location and condition are included below. Target note locations and photographs are detailed in **Appendix 5.2A.**

5.6.7 A total of 1326.51 ha of habitats were mapped within the Study Area. Habitat types recorded are summarised in **Table 5.6** below.

Table 5.6: Phase 1 Habitats within the Study Area

Phase 1 Habitat Code	Phase 1 Habitat	Corresponding NVC Habitats	Annex I Habitat	SBL / LBAP Priority Habitat	GWDTE Status	Area (Ha)	% of Study Area	Value of Receptor
A1.1.1	Broadleaved woodland – semi-natural	W9 *Fraxinus excelsior – Sorbus aucuparia – Mercurialis perennis* woodland W7 *Alnus glutinosa – Fraxinus excelsior – Lysimachia nemoreum* woodland W11 *Quercus petraea – Betula pubescens – Oxalis acetosella* woodland W17 *Quercus petraea – Betula pubescens – Dicranum majus* woodland	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*	Upland birchwood Upland mixed Ashwood Wet woodland	W9, W11, W17 Low W7 High	17.08	1	Regional
A1.1.2	Broadleaved woodland – plantation	None	n/a	n/a	Low	7.75	1	Local
A1.2.1	Coniferous woodland – semi-natural	W18 *Pinus sylvestris – Hylocomium splendens* woodland	n/a	Native pinewood	Low	25.83	2	Local
A1.2.2	Coniferous woodland – plantation	None	n/a	n/a	Low	199.64	15	Less than local
A1.3.1	Mixed woodland – semi-natural	W17 *Quercus petraea – Betula pubescens – Dicranum majus* woodland	n/a	Lowland mixed deciduous woodland	Low	47.92	4	Local
A1.3.2	Mixed woodland – plantation	W17 *Quercus petraea – Betula pubescens – Dicranum majus* woodland	n/a	Lowland mixed deciduous woodland	Low	48.81	4	Local
A2.1	Scrub – dense/continuous	W23 *Ulex europaeus – Rubus fruticosus* scrub W24 *Rubus fruticosus – Holcus lanatus* underscrub	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*	Wet woodland; Riparian woodland	W23, W24 Low W6 Moderate W4b High	26.11	2	Local
A2.2	Scrub – scattered					0.11	<1	Less than local
A2.1/A3.1	Scrub / scattered trees-broadleaved					1.59	<1	Local
A2.1/A3.2	Scrub / scattered trees-coniferous					0.24	<1	Less than local

Phase 1 Habitat Code	Phase 1 Habitat	Corresponding NVC Habitats	Annex I Habitat	SBL / LBAP Priority Habitat	GWDTE Status	Area (Ha)	% of Study Area	Value of Receptor
A2.1/A3.3	Scrub / scattered trees-mixed	W4b *Betula pubescens – Molinia caerulea* woodland *Juncus effusus* sub-community W6 *Alnus glutinosa – Urtica dioica* woodland				1.49	<1	Less than local
A4.2	Recently felled woodland	None	n/a	n/a	Low	77.77	6	Less than local
B1.1	Acid grassland – unimproved	U4 *Festuca ovina – Agrostis capillaris – Galium saxatile* grassland	n/a	n/a	Low	0.72	<1	Less than local
B2.2	Neutral grassland – semi-improved	MG9 *Holcus lanatus – Deschampsia cespitosa* grassland MG10 *Holcus lanatus – Juncus effusus* rush-pasture	n/a	n/a	MG9, MG10 Moderate	98.05	7	Less than local
B2.2/A2.2	Neutral grassland – semi-improved / scattered scrub		n/a	n/a		21.95	2	Less than local
B2.2/A3.1	Neutral grassland – semi-improved / scattered trees-broadleaved		n/a	n/a		2.04	<1	Less than local
B2.2/A3.2	Neutral grassland – semi-improved / scattered trees-coniferous		n/a	n/a		0.77	<1	Less than local
B2.2/A3.3	Neutral grassland – semi-improved / scattered trees-mixed		n/a	n/a		1.47	<1	Less than local
B2.2/C1.2	Neutral grassland – semi-improved / scattered bracken		n/a	n/a		0.35	<1	Less than local
B4	Improved grassland	MG6 *Lolium perenne – Cynosurus cristatus* grassland	n/a	n/a	Low	217.87	16	Less than local
B5	Marsh/marshy grassland	MG9 *Holcus lanatus – Deschampsia cespitosa* grassland	n/a	Lowland wet grasslands	M23 High	7.76	1	Local
B5/A2.2	Marsh/marshy grassland / scattered scrub					16.22	1	Local

Phase 1 Habitat Code	Phase 1 Habitat	Corresponding NVC Habitats	Annex I Habitat	SBL / LBAP Priority Habitat	GWDTE Status	Area (Ha)	% of Study Area	Value of Receptor
B5/A3.3	Marsh/marshy grassland / scattered trees-mixed	MG10 *Holcus lanatus – Juncus effusus* rush-pasture M23 *Juncus effusus/acutiflorus – Galium palustre* rush-pasture M25 *Molinia caerulea – Potentilla erecta* mire M27 *Filipendula ulmaria – Angelica sylvestris* mire U6 *Juncus squarrosus – Festuca ovina* grassland		Purple moor grass and rush pastures	MG9, MG10, M25, M27, U6 Moderate	2.64	<1	Local
B6	Poor semi-improved grassland	MG6 *Lolium perenne – Cynosurus cristatus* grassland	n/a	n/a	Low	44.16	3	Less than local
C1.1	Bracken – continuous	U20 *Pteridium aquilinum – Galium saxatile* community	n/a	n/a	Low	1.79	<1	Less than local
C1.1/A3.1	Bracken / scattered trees-broadleaved		n/a	n/a		0.15	<1	Less than local
C1.2/A2.2	Bracken / scattered scrub		n/a	n/a		0.90	<1	Less than local
C1.2/J1.4	Bracken / introduced scrub		n/a	n/a		0.41	<1	Less than local
C3.1	Tall herb and fern – tall ruderal	OV25 *Urtica dioica-Cirsium arvense* community OV27 *Epilobium angustifolium* community	n/a	n/a	Low	5.43	<1	Less than local
D1.1	Dry dwarf shrub heath	H9 *Calluna vulgaris – Deschampsia flexuosa* heath H10 *Calluna vulgaris – Erica cinerea* heath H12 *Calluna vulgaris – Vaccinium myrtillus* heath	European Dry Heaths	Upland heathland	Low	14.09	1	Regional
D1.1/A3.2	Dry dwarf shrub heath / scattered trees-coniferous					2.23	<1	Regional

Phase 1 Habitat Code	Phase 1 Habitat	Corresponding NVC Habitats	Annex I Habitat	SBL / LBAP Priority Habitat	GWDTE Status	Area (Ha)	% of Study Area	Value of Receptor
D1.1/E1.8	Dry dwarf shrub heath / dry modified bog mosaic	H12 *Calluna vulgaris – Vaccinium myrtillus* heath M19 *Calluna vulgaris-Eriophorum vaginatum* mire	European Dry Heaths Blanket bog (modified but capable of restoration)	Upland heathland Blanket bog	Peatland	13.41	1	Regional
D2	Wet dwarf shrub heath	M15 *Trichophorum germanicum – Erica tetralix* wet heath	Northern Atlantic wet heaths with *Erica tetralix*	Upland heathland	Moderate	20.55	2	Regional
D5	Dry dwarf shrub heath / acid grassland mosaic	H12 *Calluna vulgaris – Vaccinium myrtillus* heath U4 *Festuca ovina – Agrostis capillaris – Galium saxatile* grassland U2 *Deschampsia flexuosa* grassland	European Dry Heaths	Upland heathland	Low	13.20	1	Regional
E1.6.1	Blanket bog	M17b *Trichophorum germanicum-Eriophorum vaginatum* blanket mire *Cladonia* sub-community M19 *Calluna vulgaris-Eriophorum vaginatum* mire	Blanket bog	Blanket bog	Peatland	1.03	<1	Regional
E1.7	Wet modified bog	M19 *Calluna vulgaris-Eriophorum vaginatum* mire M20 Eriophorum vaginatum mire	Blanket bog (modified but capable of restoration)	Blanket bog	Peatland	6.50	<1	Regional
E1.7/A3.2	Wet modified bog / scattered trees-coniferous					4.98	<1	Regional
E1.8/D2	Dry modified bog / wet heath mosaic	M19 *Calluna vulgaris-Eriophorum vaginatum* mire M15 *Trichophorum germanicum – Erica tetralix* wet heath	Blanket bog (modified but capable of restoration)	Blanket bog	Peatland	13.24	1	Regional

Phase 1 Habitat Code	Phase 1 Habitat	Corresponding NVC Habitats	Annex I Habitat	SBL / LBAP Priority Habitat	GWDTE Status	Area (Ha)	% of Study Area	Value of Receptor
			Northern Atlantic wet heaths with *Erica tetralix*					
E2.1	Flush/spring – acid	M6 *Carex echinata – Sphagnum fallax/denticulatum* mire	n/a	Upland flushes, fens and swamps	High	5.56	<1	Regional
G1.2	Standing water	None	n/a	Lochs and ponds	Low	1.23	<1	Local
G2.2	Running water	None	n/a	Rivers and Burns	Low	8.67	1	Local
I1.4	Bare rock	None	n/a	n/a	Low	0.20	<1	Less than local
I2.1	Quarry	None	n/a	n/a	Low	0.61	<1	Less than local
J1.1	Cultivated/disturbed land – arable	None	n/a	n/a	Low	287.95	22	Less than local
J1.2	Cultivated/disturbed land – amenity grassland	None	n/a	n/a	Low	0.57	<1	Less than local
J1.3	Cultivated/disturbed land – ephemeral/short	None	n/a	n/a	Low	0.48	<1	Less than local
J2.2.2	Boundaries – hedges – species-poor	None	n/a	n/a	Low	1.73	<1	Less than local
J3.6	Buildings and gardens	None	n/a	n/a	Low	29.35	2	Less than local
J4	Bare ground (includes tracks)	None	n/a	n/a	Low	9.16	<1	Less than local
J5	Other habitat (includes roads, railway line)	None	n/a	n/a	Low	14.75	1	Less than local
Total						**1326.51**		

Woodland and Scrub

5.6.8 Woodland habitat is widespread within the Study Area. Coniferous, broadleaved and mixed woodlands are all present, with both semi-natural and plantation origin stands found. Woodland habitats (including recently felled) account for 32 % of habitat surveyed. Semi-natural broadleaved woodland is mainly found along the banks of watercourses within the Study Area, associated with riparian zones. Large coniferous woodland plantations are found at Sourden, Auchroisk and Rosarie, typically dominated by non-native conifer species. Areas of Sourden wood are noted on the NWSS as native pinewood, these sections are dominated by Scots pine (*Pinus sylvestris*) but lack the age structure to be considered as Caledonian pinewood Annex I habitat.

5.6.9 Gorse scrub (*Ulex europaeus*) is common across the Study Area, typically found as strips along track edges, edges of pasture field systems and along the edges of woodland habitats. Often there was little ground flora beneath these dense areas where sheep and deer take shelter and disturb the ground. Willow (*Salix spp*.) scrub was found scattered throughout many grassland habitats, where the most commonly recorded species was eared willow (*Salix aurita*) and grey willow (*Salix cinerea*) often found alongside scattered hazel (*Corylus avellana*) and hawthorn (*Crataegus monogyna*).

Heath and Mire

5.6.10 In open ground between the Rothes III on-site substation and the Burn of Rothes there is a mosaic of heath and mire habitats including blanket bog, wet modified bog, dry modified bog, wet dwarf shrub heath, dry dwarf shrub heath and acid flush. Habitats in this area have been modified through drainage, grazing and woodland planting schemes. Blanket bog is not extensive and is restricted to the south-west corner of the Study Area, with modified bog habitats in mosaic with either wet dwarf shrub heath or dry dwarf shrub heath more commonly found.

Grasslands

5.6.11 Improved grassland is the second most frequent land use type across the Study Area, comprising 16 % of habitats surveyed. Many of the fields were grazed by cattle or sheep and were dominated by common agricultural grass species and typically species-poor. These grasslands are dominated by perennial rye-grass (*Lolium perenne*), timothy grass (*Phleum pratense*) and white clover (*Trifolium repens*) with little species diversity within the sward.

5.6.12 Unimproved grassland is rare within the Study Area and is confined to a small area within the open ground habitat east of Rothes III on-site substation. Sheep's fescue (*Festuca ovina*) was the dominant grass with abundant heath bedstraw (*Galium saxatile*). Acid grassland is also found in a mosaic with dry dwarf shrub heath on the north side of Hunt Hill.

5.6.13 Neutral or mesotrophic grassland comprised just under 10 % of the habitats within the Study Area, with the largest extents found to the west of Rothes and around Rosarie. These field systems were less well drained than areas of improved grassland, yet they were still relatively species poor examples of the habitat. Wetter areas within semi-improved neutral grassland had a high cover of soft rush (*Juncus effusus*), characteristic of MG10a *Holcus lanatus-Juncus effusus* rush-pasture, typical sub-community. In drier areas of this habitat, MG6 *Lolium perenne – Cynosurus cristatus* grassland community was found, often in a mosaic with MG10. These fields were typically grazed by cattle or sheep at the time of survey.

5.6.14 Marshy grassland communities were occasional within wetter areas of lower ground, along ditch lines and field margins, as rush-pasture in damper fields and where general groundwater movement occurred down slopes. These grasslands were typically dominated by rush species (*Juncus spp*.), Yorkshire fog, tufted hair-grass and more locally purple moor-grass (*Molinia caerulea*) and yellow iris (*Iris pseudacorus*). Most areas of marshy grassland correspond to MG10 *Holcus lanatus – Juncus effusus* rush-pasture. Smaller areas of M25 *Molinia caerulea – Potentilla erecta* mire consisting of purple moor-grass were found, sometimes in a mosaic with heathland and mire habitats.

5.6.15 Stands of marsh/marshy grassland were characteristic of several different NVC habitats. *MG10 Holcus-lanatus – Juncus effusus* rush-pasture was a common marshy grassland habitat in areas where grazing was limited. MG10 was also found as a transition to more floristically diverse areas of M23 *Juncus effusus/acutiflorus* rush-pasture. Within areas of M23, forbs were more frequent than in other rush-pasture stands and included common marsh-bedstraw (*Galium palustre*), meadow buttercup (*Ranunculus acris*), yellow iris (*Iris pseudacorus*), wild angelica (*Angelica sylvestris*), greater bird's-foot-trefoil (*Lotus pedunculus*), devil's-bit scabious (*Succisa pratensis*), marsh violet (*Viola palustris*), marsh thistle (*Cirsium palustre*) and marsh cinquefoil (*Comarum palustre*). The forbs were found under a layer of rushes including sharp-flowered rush (*Juncus acutiflorus*), Soft rush and occasional compact rush (*Juncus conglomeratus*). The water table was typically found to be high within the areas of M23, occasionally forming small shallow pools at the surface.

5.6.16 Smaller areas of marshy grassland included M25 *Molinia caerulea – Potentilla erecta* mire, where the sward was typically species poor, dominated by purple moor-grass (*Molinia caerulea*), with scattered Tormentil (*Potentilla erecta*). Patches of MG9 *Holcus lanatus – Deschampsia cespitosa* grassland could be found at the margins of areas of M23. Areas of M27 *Filipendula ulmaria – Angelica sylvestris* mire was found in areas where grazing was limited and often along the margins of slow-moving burns and occasionally in roadside ditches.

Cultivated/Disturbed Land

5.6.17 Arable crops are the most frequent land use and habitat type across the Study Area, comprising 22 % of habitats surveyed. At the time of survey, the fields were generally planted with cereal crops, with occasional smaller areas of cover crop for gamebirds. Generally, the arable fields within the Study Area had negligible field margins, being planted to field boundaries. A small area of amenity grassland is found adjacent to the A941 as the proposed alignment crosses this road north of Rothes.

Standing and Running Water

5.6.18 Several watercourses are crossed by the proposed alignment including the Burn of Rothes, Back Burn, Broad Burn, River Spey, Burn of Mulben, the River Isla and several smaller tributaries of these watercourses. There are also several field drainage systems found within the Study Area. Standing water is not common, with a few small ponds found around Mulben and on Delfur Estate. Further details can be found in **Chapter 7: Geology, Hydrology and Hydrogeology.**

Other Habitats

5.6.19 Hedgerows are not found frequently within the Study Area and are limited to track and roadsides within Delfur estate and Douglasbrae where they were typically species-poor, often with non-native shrubs or trees.

5.6.20 Smaller areas of habitat present within the Study Area include stands of bracken located along the banks of the Burn of Rothes and Back Burn, tall herb and fern found mainly as small strips of habitat in disturbed areas such as adjacent to farm buildings and the quarry east of Rosarie. Buildings and gardens, tracks, roads, railway lines and bare ground make up approximately 4 % of the Study Area.

Invasive Non-Native Species (INNS)

5.6.21 INNS are a threat to biodiversity and there is a legal obligation to control their spread. Records of the following INNS were identified within the Study Area during the course of surveys:

- American skunk-cabbage (*Lysichiton americanus*) - found scattered in small numbers along wide ditch adjacent to the River Spey between NJ 29421 50740 and NJ 29643 50448;
- Himalayan balsam (*Impatiens glandulifera*) - extensive stand found within wide ditch adjacent to the River Spey between NJ 29386 50774 and NJ 29643 50448; extensive areas found along small watercourse adjacent to the Braes of Collie between NJ 30783 51434 and NJ 30307 51213; scattered throughout woodland and scrub habitats on both banks of the River Spey between NJ 31532 51573 and NJ 31876 51933 and also scattered in patches along railway embankments between NJ 34489 51532 and NJ 37993 50190;

- Japanese knotweed (*Fallopia japonica*) - found in two locations, one area along the west bank of the River Spey at Boat o' Brig close to the OHL crossing point at and another adjacent to a track near Bridgeton at NJ 32180 51189. The area of Japanese knotweed at Boat o' Brig looks to have been treated with herbicide recently;
- Rhododendron (*Rhododendron ponticum*) - a small number of small shrubs were found scattered throughout heathland habitats between Hunt Hill and the Burn of Rothes.

Protected Species

5.6.22 Surveys recorded signs of otter, pine marten, badger and red squirrel within the Study Area. Locations of recorded signs and shelters are shown in **Figure 5.3** and **Figure 5.4a-f (Confidential)**, as appropriate with further details provided in **Appendix 5.2A** and **Appendix 5.2B (Confidential)**. The main findings from the protected species survey were:

- Otter is a qualifying feature of the River Spey SAC, several signs of otter presence were found within proximity to the SAC/SSSI. Two possible holts and one couch were identified during the surveys within proximity to the proposed alignment. To avoid disturbance to otter, the locations of their shelters and signs are discussed in confidential **Appendix 5.2B (Confidential)**.
- Abundant woodland, woodland edge and pasture habitat within the Study Area provides extensive suitable foraging and sheltering habitat for badgers. Several setts were identified within proximity to the proposed alignment, the closest being within 40 m of the nearest indicative pole location. As badgers can suffer from persecution, the locations of their shelters and signs are discussed in confidential **Appendix 5.2B (Confidential).**
- One tree has been identified with moderate bat roost potential, located within riparian woodland adjacent to the River Spey. The tree is within 35 m of the nearest pole location, but is at the edge of the felling corridor for the operational wayleave. The tree is in an area of optimal foraging habitat for several bat species. No signs were found externally to confirm if the tree is being used as a roost by bats, however external checks during daylight are not sufficient to determine if bat roosts are present. For the purposes of the assessment, it will be assumed that the tree holds an active bat roost.
- A single pine marten scat was located on a forestry access track north of Hunt Hill. Suitable habitat for foraging and breeding pine marten is present within woodland areas of the Study Area, particularly throughout Sourden Wood and Rosarie woods.
- Red squirrel foraging signs were found on conifer cones in Sourden Wood within 100 m of where felling is proposed for the creation of a new access track. Suitable habitat for foraging, commuting and breeding squirrel is present within the woodland areas of the Study Area. No squirrel dreys were found during the survey.
- An incidental record of a freshwater pearl mussel (FWPM) shell was noted along a shingle bank of the River Spey approximately 400 m outwith the Study Area. FWMP are qualifying features of the River Spey SAC/SSSI and anecdotal reports from the local ghillies indicate that FWPM sites are present both upstream and downstream of the proposed OHL crossing point.

5.7 Potential Impacts

5.7.1 The potential effects which may arise from the Proposed Development relate principally to the construction phase. There are no anticipated effects on ecological receptors from the operational phase.

5.7.2 Based on the consultation responses and known environmental sensitivities, this assessment considers the following potential effects:

- Effects on designated sites (River Spey SAC and SSSI);
- Habitat loss and fragmentation of sensitive habitats;
- Effects on GWDTEs;
- Disturbance and displacement of protected species; and
- The spread of non-native invasive species.

Embedded Mitigation

5.7.3 In the context of this chapter, embedded mitigation includes a range of environmental measures to avoid or reduce potential effects on nature conservation and biodiversity that have been incorporated into the Proposed Development from design stage through to operation.

Mitigation by Design

5.7.4 The routeing and alignment selection process for the Proposed Development has taken into consideration the potential for significant effects on ecological features, and for such effects to be avoided or minimised where possible. This has continued through the EA process, with survey data informing the siting of infrastructure and access routes to further minimise effects on habitats and species where practicable, following the mitigation hierarchy as described in CIEEM guidance.

Pre-Construction and Construction

5.7.5 This assessment has been carried out on the basis that all works would be carried out in accordance with industry good practice construction measures, guidance and legislation. Furthermore, the Applicant has developed a series of GEMPs and SPPs in agreement with statutory consultees, including SEPA and NatureScot. These can be found in **Appendix 3.1** and **Appendix 3.2.**

5.7.6 The appointed Principal Contractor would be committed to the implementation of a comprehensive and Site-specific CEMP. This document would detail how the Principal Contractor would manage the works in accordance with all commitments and mitigation detailed in the EA, the Applicant's GEMPs and SPPs, statutory consents and authorisations, and industry good practice and guidance, including pollution prevention guidance. It would also detail measures to manage, control and monitor the potential effects of construction including noise, dust, waste, pollution and personnel / vehicular movements. Best practice pollution control measures, with reference to Guidance for Pollution Prevention (GPPs)[7] and COSHH guidelines[8], would be included in the CEMP. Particular reference would be made to managing handling, storage and use of hazardous chemicals and fuels used during the construction process. A detailed spill response plan would be developed as part of the CEMP and fully-briefed to all site operatives. An Ecological Management Plan (EMP) would also be included as part of the CEMP, which will include relevant information on habitats and protected species local to the Proposed Development, requirements for pre-construction surveys and toolbox talks (TBTs), reference to relevant SPPs and information on licencing requirements and procedures.

5.7.7 Pre-construction surveys for protected species will be undertaken no more than 6 months in advance to identify any new ecological constraints and to ascertain the activity status of previously identified features within proximity of planned works.

5.7.8 Any micrositing of infrastructure within the defined LoD will be discussed with the ECoW and will consider existing ecological data and the completion of pre-construction surveys if required.

5.7.9 To ensure all reasonable precautions are taken to avoid negative effects on habitats, protected species and aquatic interests, a suitably qualified ECoW will be appointed prior to the commencement of construction to advise the Applicant and the Principal Contractor on all ecological matters. The ECoW will be required to be present onsite as appropriate during the construction phase and will carry out monitoring of works and briefings with regards to any ecological sensitivities to the relevant staff of the Principal Contractor and subcontractors.

[7] Guidance for Pollution Prevention (GPPs). NetRegs. Environmental guidance for your business in Northern Ireland and Scotland https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/

[8] Control of Substances Hazardous to Health (COSHH) https://www.hse.gov.uk/coshh/

Sites of Nature Conservation

Statutory Designated Sites

5.7.10 The proposed alignment will oversail the River Spey SAC and SSSI at Boat o' Brig and will run parallel within 100 m for a section west of Dundurcus farm for approximately 400 m at the Spey's prominent northern meander, see **Figure 5.4**. Due to the proximity to the designation, there is potential for unmitigated effects on qualifying features of the SAC and SSSI. To reduce any potential effects on the River Spey SAC and SSSI, poles would be positioned 20 m from the riverbank where practicable. Furthermore, there would be no felling of riparian vegetation within 10 m of the riverbank, where practicable. Embedded mitigation within the design of the project seeks to eliminate and reduce any potential effects on the designation, these include:

- implementation of good practice construction methodology and industry best practice to ensure that water quality is maintained during the construction phase;
- all works will be subject to a construction environmental management plan (CEMP) that will stipulate how the construction of the Proposed Development will avoid and minimise any potential effects on the water environment; and
- Implementation of the Applicant's Otter SPP.

5.7.11 With consideration to the above construction methodologies and embedded mitigation, which the Principal Contractor will be contractually obliged to adhere to, there are no likely predicted effects on the River Spey SAC and SSSI.

5.7.12 Under the Conservation (Natural Habitats, &c.) Regulations 1994, as amended (the Habitats Regulations) any development that may have a 'Likely Significant Effect' (LSE) on a SAC, either alone or in combination with other plans or projects, requires an Appropriate Assessment (AA) to be carried out by the relevant competent authority, to determine whether the proposal will have an adverse effect on the integrity of the SAC. Before an AA is initiated a screening process has to be undertaken to determine whether any of the predicted effects of the development will result in a LSE. Although no likely effects on the River Spey SAC are predicted in terms of assessment methodology, a screening assessment has been provided in **Appendix 5.3** to provide information to the competent authority to allow them to reach a decision on whether or not there will be a LSE on the SAC.

Ancient Woodland Inventory

5.7.13 The one area of ancient woodland of semi-natural origin (2a) within the Study Area will not be affected by the Proposed Development due to its distance from any proposed felling or infrastructure. There are several areas of LEPO (2b) woodland located along the route. The design of the Proposed Development has sought to avoid the requirement for felling, however due to the extensive nature of some areas of woodland, there will be a requirement for a degree of felling through small sections of LEPO at Sourden Woods, Cummings Wood, Rosarie and Blackhill Wood. The effects of woodland removal on LEPO ancient woodland are assessed in **Chapter 9: Forestry.**

Habitats

5.7.14 Permanent habitat loss will occur in woodland habitats where felling is proposed to create the operational wayleave and where permanent access tracks are proposed. The areas of temporary impact from proposed pole locations are each less than 0.02 ha.

5.7.15 Habitats identified within the Study Area include those of Regional (Medium) to Less than Local value. Irreplaceable habitats (those of ecological value that take an exceptionally long time or are technically very challenging to recreate) within the Study Area include blanket bog, wet modified bog (modified but considered capable of restoration) and ancient woodland. Areas of blanket bog and wet modified bog are found at the west end of the Study Area across the open habitats between the Rothes III on-site substation and the Burn of Rothes and have been avoided along the route as far as possible. No infrastructure (temporary or permanent) is proposed within 100 m of the single area of blanket bog

within the Study Area. Four poles are located within areas of wet modified bog, representing temporary disturbance of less than 0.1 ha of this habitat.

5.7.16 A number of NVC communities correlate to Annex I habitat types however, this does not mean that all instances of that NVC community constitute an Annex I habitat. Its Annex I status can depend on various factors such a quality, extent, species assemblages and geographical setting. Using JNCC's Annex I habitat listings and descriptions the following Annex I habitats have been identified within the Study Area:

- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*;
- Blanket bog (includes wet modified bog / dry modified bog considered capable of restoration);
- European dry heaths; and
- Northern Atlantic wet heaths with *Erica tetralix*.

5.7.17 Blanket bog, European dry heaths and Northern Atlantic wet heaths with Erica tetralix are restricted to the open ground areas between the Rothes III on-site substation and the Burn of Rothes. Twelve poles are proposed to be located in areas of habitat considered dry modified bog or wet modified bog mosaic habitats, representing temporary disturbance of less than 0.24 ha. Five poles are proposed to be located in areas of habitat considered wet heath, representing temporary disturbance of less than 0.1 ha. Small discrete areas of W7 woodland qualify as Annex I habitat Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior,* although this community is limited in extent and there is no felling proposed within these areas.

5.7.18 GWDTE Habitats identified within the Study Area that are considered likely to have high groundwater dependency:

- M6 *Carex echinata – Sphagnum fallax/denticulatum* mire;
- M23 *Juncus effusus/acutiflorus – Galium palustre* rush-pasture;
- W7 *Alnus glutinosa – Fraxinus excelsior – Lysimachia nemoreum* wet woodland; and
- W4b *Betula pubescens – Molinia caerulea* wet woodland *Juncus effusus* sub-community.

5.7.19 M6 upland flush habitat is present within the open ground area near the Rothes III on-site substation, close to the forest edge. Two poles are located on the fringes of this habitat as it transitions into marshy grassland or wet modified bog habitat, representing temporary disturbance of less than 0.04 ha. Mitigation by design has already been implemented here to move the pole locations to the outer edge where the habitat is transitional to reduce potential effects on this GWDTE. Areas of M23 rush-pasture are found mainly around the rail line east of Mulben, but also in smaller amounts within other marshy grassland habitats within the Study Area. No infrastructure is proposed within areas of M23 habitat. Areas of W7 and W4b wet woodland are localised and were not a dominant habitat when found, more typically scattered throughout other habitats such as scrub and marshy grassland. No felling is proposed in areas of W7 or W4b wet woodland habitats.

5.7.20 GWDTE Habitats identified within the Study Area that are considered likely to have moderate groundwater dependency:

- W6 *Alnus glutinosa – Urtica dioica* wet woodland;
- M15 *Trichophorum germanicum – Erica tetralix* wet heath;
- MG10 *Holcus lanatus – Juncus effusus* rush-pasture;
- MG9 *Holcus lanatus – Deschampsia cespitosa* grassland;
- M25 *Molinia caerulea – Potentilla erecta* mire;
- M27 *Filipendula ulmaria – Angelica sylvestris* mire; and
- U6 *Juncus squarrosus – Festuca ovina* grassland.

5.7.21 Areas of habitat with moderate groundwater dependency were typically associated with areas of marshy grassland and semi-improved neutral grassland found within the Study Area. A total of 26 pole locations fall within areas of semi-improved neutral grassland and three are within areas of marshy grassland, representing temporary disturbance of less

than 0.52 ha of semi-improved neutral grassland and 0.06 of marshy grassland. Not all of the areas of semi-improved neutral grassland will have categorised as GWDTE, but often there are patches scattered throughout larger field systems.

5.7.22 No new permanent access tracks are located within 100 m of GWDTE habitats. Avoidance of any habitats considered as having potential to be groundwater dependent will form part of the CEMP, but where this is not possible, temporary access over soft ground will utilise low ground pressure machines or Trackway where required to prevent disturbance.

5.7.23 Non-native invasive species (NNIS) are present within the Study Area and without appropriate mitigation construction has the potential to spread these plant species, causing detrimental effects to biodiversity within and out with the Study Area.

5.7.24 Given the small areas of habitat anticipated to be disturbed during the construction phase and the implementation of the Applicant's GEMPs and a site-specific CEMP to protect the water environment, there are no likely predicted effects on habitats.

Protected Species

5.7.1 Otter, badger, red squirrel, pine marten and bat species have been identified as ecological receptors present within the Study Area. All are receptors of Regional importance as individuals and their places of shelter are legally protected. Potential impacts to protected species could include the following:

- destruction of tree roosts used by bats during felling to accommodate the OHL wayleave;
- disturbance to individual animals commuting, foraging or resting in proximity to construction activity (noise, lighting, vehicle movements); and
- mortality or injury to individual animals.

5.7.2 The Applicant's SPPs for construction works where protected species may be present are based on a hierarchy of mitigation, where there is a general presumption against works being carried out which could disturb these species in their place of shelter.

5.7.3 Avoidance is the preferred option for active otter holts and couches identified within 30 m of works or 200 m for confirmed breeding holts. The LoD allows for a micrositing allowance of up to 50 m either side of the OHL alignment. The alignment has already taken into account the presence of the two potential holts and couch along the River Spey and has sought to ensure that buffer distances of 30 m from couches and 100 m from holts is achieved. It is currently unknown if the otter holts identified are used for breeding, additional pre-construction surveys will be undertaken to establish the use of the holts and determine if the buffers around the holts need to be increased up to 200 m. With the implementation of embedded mitigation including the Applicant's GEMPs and SPPs which the Principal Contractor will be contractually obliged to adhere to and implement, there are no likely predicted effects on otter.

5.7.4 Avoidance is the preferred option for active badger setts identified within 30 m of planned works. There are no setts within 30 m of the current proposed alignment, but there is one sett within 10 m of planned felling for the creation of the wayleave. The LoD allows for a micrositing allowance of up to 50 m and this will be implemented at this location to move the felling corridor away from the sett in order to maintain a 30 m buffer from the sett. In addition to the sett mentioned above, there are an additional four setts within 100 m of the current proposed alignment, that may be affected by works if the route was microsited closer to the setts. With the implementation of embedded mitigation, there are no likely predicted effects on badger.

5.7.5 Avoidance is the preferred option for features with the potential to support roosting bat species within 30 m of planned works. One broadleaved tree adjacent to the River Spey and within 10 m of the proposed Operational Corridor has moderate bat roost Work activities at this location should be discussed with the ECoW to minimise potential disturbance. The tree is located within an area of riparian woodland approximately 70 m from the edge of the River Spey where the loss of a small amount of woodland foraging habitat will not significantly reduce or fragment the foraging

habitat for bats in this location. With the implementation of embedded mitigation, there are no likely predicted effects on bats.

5.7.6 No shelters supporting red squirrel or pine marten were identified within the Study Area, therefore there are no likely predicted effects on either species.

5.8 Mitigation

5.8.1 No significant effects to ecological receptors have been identified as part of this assessment, however the following good practice management measures are proposed in order to further minimise any potential impacts and ensure legal compliance during the construction phase.

5.8.2 As detailed in **Sections 5.7** above, the embedded mitigation within the Proposed Development includes implementation of the Applicant's GEMPs and SPPs, the development of a site-specific CEMP and the employment of a suitably qualified and experienced ECoW to undertake pre-construction surveys and to provide guidance and monitoring of ecological features throughout the construction phase.

5.8.3 As part of the CEMP, an invasive species management plan will be developed prior to works commencing to prevent the spread of NNIS within and out with the Site. This should be developed in consultation with the Spey Fishery Board, which may already hold information of treatment regimes along the affected areas of the River Spey.

5.9 Summary

5.9.1 The Proposed Development has largely been designed to avoid areas of sensitive habitats and protected species shelters as far as possible giving consideration to other constraints to the project. The construction of the Proposed Development is not considered likely to result in any significant effects on any valued ecological receptors.

5.9.2 Areas of habitat loss will be limited to felling of woodland areas required to facilitate construction access and to create the operational wayleave for the OHL. Temporary disturbance of habitats during the construction phase to install poles will be minimised by adherence the site-specific CEMP, which will include detailed methods of soil management and reinstatement. An ECoW will be appointed to undertake pre-construction surveys for protected species and non-native invasive species, provide advice throughout construction and monitor compliance with environmental legislation and documentation (including GEMPs, SPPs and the CEMP).