MORAY WEST
OFFSHORE WINDFARM

Onshore Transmission Infrastructure Environmental Impact Assessment (EIA)

Moray Offshore Windfarm (West) Limited

Chapter 6 Ecology and Nature Conservation

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Acronyms	
Acronym	**Expanded Term**
AC	Aberdeenshire Council
AL	Action levels
BAP	Biodiversity Action Plan
BoCC	Birds of Conservation Concern
BTO	British Trust for Ornithology
CIEEM	Chartered Institute of Ecology and Environmental Management
CoCP	Code of Construction Practice
dSPA	Draft SPA
ECoW	Ecological Clerk of Works
EcIA	Ecological Impact Assessment
EIA	Environmental Impact Assessment
ES	Environmental Statement
ESB	Ecological Survey Boundary
FCS	Favourable Conservation Status
GCN	Great crested newt
GPPs	Guidance for Pollution Prevention
GWDTE	Groundwater Dependent Terrestrial Ecosystem
Ha	hectare
HDD	Horizontal directional drilling
IAQM	Institute of Air Quality Management
IUCN	International Union for Conservation of Nature
JNCC	Joint Nature Conservation Committee
Km	Kilometer
LDP	Local Development Plan
LEMP	Landscape and Ecology Management Plan
LNCS	Local Nature Conservation Site
LNR	Local Nature Reserve
LOD	Level of detection
LWS	Local Wildlife Site
M	Metre
MC	Moray Council
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MPA	Marine Protected Area
MPCP	Marine Pollution and Contingency Plan

Acronyms	
Acronym	**Expanded Term**
MS	Method Statement
NBN	National Biodiversity Network
NESBReC	North East Scotland Biological Records Centre
NESRSG	North East Scotland Raptor Study Group
NNR	National Nature Reserve
NVC	National Vegetation Classification
OnTI	Onshore Transmission Infrastructure
O&M	Operational and Maintenance
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
PAB	Planning Application Boundary
PAH	Polycyclic aromatic hydrocarbons
PAN	Planning Advice Note
PMF	Priority Marine Feature
PPGs	Pollution Prevention Guidelines
PPP	Planning Permission in Principle
pSPAs	Potential SPA
Q1 (etc.)	Quarter
RDB	Red Data Book
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SCI	Site of Community Importance
SDP	Strategic Development Plan
SEPA	Scottish Environment Protection Agency
SESA	Schedule of Environmentally Sensitive Areas
SNH	Scottish Natural Heritage
SPA	Special Protection Area
SPP	Scottish Planning Policy
SSSI	Sites of Special Scientific Interest
SSRS	Saving Scotland's Red Squirrel
TEL	Total exceedance level
TPP	Tree Protection Plan
TN	Target note
UKBAP	UK Biodiversity Action Plan
WeBS	Wetland Bird Survey

Acronyms	
Acronym	**Expanded Term**
ZoI	Zone of Influence

6 Ecology and Nature Conservation

6.1 Introduction

6.1.1.1 This chapter of the Environmental Impact Assessment (EIA) Report describes the aspects relating to ecology and nature conservation for the Moray West Onshore Transmission Infrastructure (OnTI). It considers intertidal ecology between Mean Low Water Springs (MLWS) and Mean High Water Springs (MHWS), ornithology above MLWS and terrestrial ecology above MHWS, as well as designated sites. Intertidal ecology is also covered within Chapter 14: Whole Project Assessment of this EIA Report and within Chapter 7: Benthic and Intertidal Ecology of the Offshore EIA Report.

6.1.1.2 This chapter includes identification and assessment of the potential effects of the OnTI within the Planning Application Boundary (PAB) and the surrounding area where appropriate. This chapter should be read in conjunction with Chapter 2: The Proposed Development and Chapter 3: The Environmental Impact Assessment Process.

6.1.1.3 This chapter is supported by:

- Technical Appendix 6.1: Baseline Ecology Report;
- Technical Appendix 6.1a: Confidential Ecology Report;
- Technical Appendix 6.2: Ornithological Technical Report;
- Technical Appendix 6.3: Intertidal Ecology Survey Report; and
- Technical Appendix 6.4: Scoping Potential Receptors.

6.1.1.4 The chapter is also supported by Figures 6.1.1 to 6.1.3 (referenced in the text where relevant).

6.1.1.5 The scientific names of all species cited in the text are included in Technical Appendices 6.1 - 6.3.

6.1.1.6 The following sections of this chapter include:

- Approach to assessment
    - A summary of legislation and planning policy relevant to the ecology associated with the OnTI;
    - A description of the methodology for the assessment, including details of the study area and the approach to the evaluation of effects;
    - A summary of consultation with stakeholders;
- A review of baseline (existing) conditions;
- Details of the measures proposed as part of the OnTI to avoid or reduce negative environmental effects, including mitigation and design measures that form part of the OnTI (embedded mitigation);
- An assessment of the potentially significant effects for the construction, operation and maintenance (O&M) and decommissioning phases of the OnTI, taking into account the embedded mitigation proposed;
- Identification of any additional mitigation measures or monitoring required for the OnTI in relation to potentially significant effects;
- Summary assessment of all phases of the OnTI; and
- Assessment of any cumulative effects of the OnTI with other proposed developments.

6.1.1.7 This chapter of the EIA Report has been prepared by Anita Hogan BSc, MSc MCIEEM (Member of the Chartered Institute of Ecology and Environmental Management) CEnv (Chartered Environmentalist) and Gayle Boyle, BSc, MSc, MCIEEM, CEnv. Anita Hogan is a Principal Consultant within the Environmental Assessment department of Wood Environment & Infrastructure Solutions UK Limited who has been working as an Ecological Consultant in Scotland for over 13 years. Her BSc is in Zoology and MSc is in Ecology. Gayle Boyle is a marine biologist at GoBe Consultants Limited and has practiced within the fields of ecology and EIA for 19 years.

6.2 Approach to Assessment

6.2.1 Planning Policy and Legislative Context

6.2.1.1 In preparing the ecology and nature conservation assessment, relevant legislation and policy has been accounted for as outlined in Table 6.2.1. Further detail of planning policy is provided within Chapter 4: Planning Policy Context. The PAB for the OnTI is located in both Aberdeenshire Council (AC) and Moray Council (MC) administrative areas, so reference to the policies of both Councils have been included in Table 6.2.1.

Table 6.2.1: Planning Policy Context and Guidance

Policy / Legislation	Key Provisions
Legislation	
The Conservation (Natural Habitats *&* *c*.) Regulations 1994	These regulations (The Habitats Regulations) transpose Council Directive 92/43/EEC into national law. They provide for the designation of Natura 2000 sites, the protection of European protected species (EPS), and the adaptation of planning and other controls for the protection of Natura 2000[1] sites.
The Wildlife and Countryside Act 1981 (as amended in Scotland)	This act is the primary legislation for the protection of wildlife in the UK. It provides additional protection for certain plants and animals, including water vole and red squirrel.
Nature Conservation (Scotland) Act 2004	This act places duties on public bodies in relation to the conservation of biodiversity and strengthens protection for these and wildlife enforcement. It also places a duty on every public body to further the conservation of biodiversity in a manner consistent with the proper exercise of their functions.
Protection of Badgers Act 1992	This act provides protection for badgers and their habitats. It makes it an offence to willfully take, kill, injure or ill-treat a badger; to obstruct, destroy or damage a badger sett or to disturb badgers whilst they are in a sett.
Water Environment and Water Services (Scotland) Act 2003 (WEWS Act)	This transposes the Water Framework Directive (WFD) (2000/60/EC) into Scottish legislation and seeks to protect both surface waters and groundwater, including groundwater dependent terrestrial ecosystems (GWDTEs).
Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003	This act provides the legal basis behind protection of rivers with fisheries interests and grants powers to district salmon fisheries boards to enforce this protection.
Marine (Scotland) Act 2010	This act safeguards the future of Scotland's seas by providing a marine planning and licensing system for the protection of the seas and wildlife.

[1] Natura 2000 is a network of nature protection areas in the territory of the European Union. It is made up of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) designated respectively under the Habitats Directive and Birds Directive.

Table 6.2.1: Planning Policy Context and Guidance	
Policy / Legislation	**Key Provisions**
Scottish Planning Policy (2014)	
Valuing the Environment Subject Policy (paragraphs 193-218)	The 'Valuing the Natural Environment' subject policy within the Scottish Planning Policy (SPP) (2014) sets out detailed policy provisions relating to the protection and enhancement of different types of natural resources and natural heritage assets, as detailed below: • Natural Heritage Planning Principles (paragraph 194); • Protecting Designated Sites (paragraph 196); • Development Management Decisions (paragraphs 202-206); • Non-Native Species (paragraph 206); • Protected Species (paragraph 214); and • Woodland (paragraph 216).
Scottish Government Control of Woodland Removal (2009)	This document provides a national policy position to inform decisions on all woodland removal across Scotland. According to the guiding principles of the policy, there is a *"strong presumption in favour of protecting Scotland's woodland resources"* and in all cases woodland should only be removed where it will achieve *"significant and clearly defined additional public benefits"*.
Marine Policy	
UK Marine Policy Statement (2011)	Sets out the framework for preparing marine plans and taking decisions affecting the marine environment
Scotland's National Marine Plan (2015)	The plan covers the management of both Scottish inshore waters (out to 12 nm) and offshore waters (12 to 200 nm) and sets out the strategic policies for which management decisions will be made across the main marine sectors including general policies as well as specific policies for offshore wind and marine renewable energy. The following general policies apply to the intertidal assessment: • General Policy (GEN) 9 Natural heritage: Development and use of the marine environment must: (a) Comply with legal requirements for protected areas and protected species; (b) Not result in significant impact on the national status of Priority Marine Features (PMFs); and (c) Protect and, where appropriate, enhance the health of the marine area; • GEN 10 Invasive non-native species: Opportunities to reduce the introduction of invasive non-native species to a minimum or proactively improve the practice of existing activity should be taken when decisions are being made; and • GEN 13 Noise: Development and use in the marine environment should avoid significant adverse effects of man-made noise and vibration, especially on species sensitive to such effects. Linked to General Policy 9 (above), Scotland has identified a list of 81 PMFs. These PMFs are species and habitats on existing conservation schedules that are considered to have a significant proportion of their population occur in Scotland's seas, and which are under threat or in decline.
Local Planning Policies	
Aberdeen City and Shire Strategic Development Plan (2014)	The current statutory Development Plan applicable to the PAB as it is located within Aberdeenshire comprises the approved Aberdeen City and Shire Strategic Development Plan (SDP) (2014) and the adopted Aberdeenshire Local Development Plan (LDP) (2017).

Table 6.2.1: Planning Policy Context and Guidance	
Policy / Legislation	**Key Provisions**
	The Aberdeen City and Shire SDP outlines the stances of Aberdeen City Council and AC on nationally or regionally important issues. The SDP establishes a set of aims that provide guidance on the contents of LDPs, including: • Promoting the need to use resources more efficiently and effectively; • Take on the urgent challenges of sustainable development and climate change; and • Protect and improve valued assets and resources, including the built and natural environment and cultural heritage.
The Aberdeenshire LDP (2017)	The adopted Aberdeenshire LDP policies of relevance to this chapter include: • Policy R1 Special Rural Areas (creates a coastal zone in which any development proposal's social and economic benefits must outweigh any negative environmental impact); • Policy E1 Natural Heritage (seeks to protect Aberdeenshire's national and local conservation areas, protected species, biodiversity and geodiversity. A development proposal's public benefits must outweigh any negative effects and be sufficiently mitigated); and • Policy PR1 Protecting Important Resources (states that development proposals will not be approved where they have a negative effect on important environmental resources, including the water environment, peat and trees and woodland, except where the public, economic or social benefits outweigh the value of the site and there are no alternatives).
Aberdeenshire Supplementary Guidance	The Aberdeenshire LDP is accompanied by a suite of adopted statutory Supplementary Guidance documents, which carry the same weight in planning determinations as adopted LDP policies. Those of particular relevance to this chapter are: • The Coastal Zones Supplementary Guidance which supports Policy R1. • The Local Nature Conservation Sites Supplementary Guidance which supports Policy E1. • The Aberdeenshire Forestry and Woodland Strategy Supplementary Guidance which supports Policy PR1.
Aberdeenshire Planning Advice	AC has published planning advice to aid development proposals in understanding what the Aberdeenshire LDP and Supplementary Guidance require and how to meet these requirements. The following is a list of relevant planning advice: • 1/2015 Protected Species Surveys; • 4/2015 Biodiversity and Development; • 5/2015 Opportunities for Biodiversity Enhancement; and • 11/2015 Trees and Development.
Moray LDP (2015)	Moray LDP policies of particular relevance to this chapter include: • Policy E2: Local Nature Conservation Sites and Biodiversity (development proposals likely to affect such sites must demonstrate over-riding local public benefits and a specific locational need); • Policy E3 Protected Species (relates to development proposals likely to affect European or Nationally protected species); • Policy E4 Trees and Development (places stipulations on development proposals that require woodland removal); • Policy EP6 Waterbodies (requires development proposals to avoid negative effects on the water environment and to seek opportunities for restoration);

Table 6.2.1: Planning Policy Context and Guidance	
Policy / Legislation	**Key Provisions**
	• Policy EP8 Pollution (development proposals that could cause noise, air, water or light pollution must include detailed assessments and appropriate mitigation measures as required); • Policy ER2 Development in Woodlands (proposals including woodland removal must demonstrate that the impact on the woodland is clearly outweighed by social or economic benefits of national, regional and local importance, and a programme of compensatory planting has been agreed); and • Policy ER6 Soil Resources (development proposals must assess their likely effects with regard to important soil resources, especially peat, and mitigate any negative effects).
Moray Supplementary Guidance	The Moray LDP is accompanied by a suite of adopted statutory Supplementary Guidance documents, which carry the same weight in planning determinations as adopted LDP policies. Those of particular relevance to this chapter include Policy E4, which is supported by the Trees and Development Supplementary Guidance.
Biodiversity Policy	
UK Biodiversity Action Plan (UKBAP) / UK Post-2010 Biodiversity Framework (UKBAP)	The UKBAP, produced in 1994 by the UK Government, was a national strategy for the conservation of biodiversity. The UK BAP was replaced by the UKBAP (July 2012) which covers the period 2011-2020. This framework is implemented individually by each of the four UK countries. Within Scotland, the UKBAP is coordinated through the Biodiversity Action Reporting System (BARS), which is an online tool which contains a list of Scottish priority habitats and species (The Scottish Biodiversity List [SBL]). All UKBAP species and habitats are listed in the SBL.
Scottish Biodiversity List (SBL)	The SBL is a list of flora, fauna and habitats considered by the Scottish Ministers to be of principal importance for biodiversity conservation and its publication was a requirement of Section 2(4) of The Nature Conservation (Scotland) Act 2004.
North East Scotland Local Biodiversity Action Plan (LBAP)	This LBAP was under revision at the time of the preparation of this chapter. The SBL is referred to instead of the LBAP since the previous version of the LBAP is no longer relevant.

6.2.1.2 Account has been taken of the following relevant standards and guidance:

- Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. 2nd edition 2016;
- Institute of Ecology and Environmental Management (now CIEEM) (2010). Guidelines for Ecological Impact Assessment in Britain and Ireland. Marine and Coastal. Final Document, August 2010;
- Wyn, G. and Brazier, P. (2001). Procedural Guideline No. 3-1 - In-situ intertidal biotope recording. In Davies J., Baxter J., Bradley M., Connor D., Khan J., Murray E., Sanderson W., Turnbull C. & Vincent M. 2001. Marine Monitoring Handbook, 405 pp;
- Ruddock, M. and Whitfield, D.P. (2007). A Review of Disturbance Distances in Selected Bird Species. Scottish Natural Heritage; and
- British Standard (BS) 42020:2013, Biodiversity. Code of practice for planning and development.

6.2.1.3 Guidance on the detailed survey methodologies for each of the scoped in receptors are described in the respective ecology, intertidal and ornithology baseline survey reports (Technical Appendices 6.1 - 6.3).

6.2.2 Scope of Assessment

6.2.2.1 The OnTI Scoping Report (Moray Offshore Windfarm (West) Limited [Moray West], June 2017) submitted to MC and AC proposed an assessment of direct and indirect effects relating to nature conservation and ecology assets within a Scoping Study Area[2] extending to MLWS.

6.2.2.2 The Scoping Report set out what elements were proposed to be scoped in or out of the assessment as presented in Table 6.2.2, as well as the receptors to be included and their respective survey methodologies. The proposed scope was based on a description of the various phases of the OnTI (detailed further in Chapter 2: The Proposed Development) as follows:

- **Construction Effects** – There are known ecological receptors within the Scoping Study Area and, depending upon the final location of the OnTI, these could be materially disturbed during construction. Depending upon the final location of the OnTI, indirect effects on ecological receptors may arise through pathways including pollution (air or water), spread of non-native invasive species, noise disturbance and artificial lighting.
- **Operational Effects** – Maintenance activities are likely to be limited to remote routine testing during outages. In the event of damage or faults, testing will identify their location so that disruption from any intrusive works, e.g. equipment replacement, will be isolated. Based on this limited operation and maintenance (O&M) schedule it is anticipated that there is limited risk of effects on ecological receptors through pathways including pollution (air or water), spread of non-native invasive species, noise disturbance and artificial lighting as well as potential of direct effects on mobile ecological receptors that may have colonised the OnTI after construction.
- **Decommissioning Effects** – After the lifetime of the Moray West Offshore Wind Farm (assumed to be up to 50 years), it is possible that the onshore substation may be retained and not decommissioned. However, in accordance with the Scoping Report and Scoping Opinion, the most likely decommissioning scenario for the OnTI is also considered here.

6.2.2.3 The current (most likely) decommissioning proposals include all underground equipment and the onshore substation foundations remaining in-situ, with the exception of the intertidal cables which may be removed below MHWS (Chapter 4: Development Description of the Offshore EIA Report). Above ground equipment at the onshore substation site will be cleared and the site reinstated. It is proposed that the consideration of decommissioning effects focus solely on the onshore substation site.

Table 6.2.2: Scope as Presented in Scoping Report.

Potential Effect	Construction	O&M	Decommissioning	Scoped Out
Potential direct loss of ecological features (habitats and / or fauna) on statutory designated sites.	**Yes**	No	No	No

[2] At the time of Scoping the PAB was not known. Accordingly, a Scoping Study Area (which encompasses the PAB) was used. At the north, the Scoping Study Area extended for approximately 14 km along the south coast of the Moray Firth between Portessie in Moray and Portsoy in Aberdeenshire. From here the Scoping Study Area spanned approximately 23 km inland to incorporate a 3 km radius around the existing Blackhillock substation located around 1.5 km south of Keith in Moray. At its narrowest point, near Grange Crossroads on the B9018, the Scoping Study Area measured approximately 5 km from east to west.

Table 6.2.2: Scope as Presented in Scoping Report.				
Potential Effect	**Construction**	**O&M**	**Decommissioning**	**Scoped Out**
Potential direct loss of ecological features (habitats and / or fauna) on non-statutory designated sites.	**Yes**	No	No	No
Direct terrestrial habitat loss / disturbance.	**Yes**	No	No	No
Indirect terrestrial habitat loss / disturbance (e.g. from disruption or changes to hydrology).	**Yes**	**Yes**	**Yes (onshore substation only)**	No
Loss of, or disturbance to, intertidal habitat and species.	**Yes**	**Yes**	**Yes**	No
Increased suspended sediments / sediment deposition within the intertidal area.	**Yes**	**Yes**	**Yes**	No
Spread of invasive non-native terrestrial and/or freshwater species.	**Yes**	**Yes**	**Yes (onshore substation only)**	No
Potential injury or death of terrestrial and/or freshwater fauna (direct effect).	**Yes**	**Yes**	**Yes (onshore substation only)**	No
Noise disturbance leading to the displacement of terrestrial fauna (indirect effect).	**Yes**	**Yes**	**Yes (onshore substation only)**	No
Pollution leading to loss of or damage to ecological features (direct and / or indirect effect).	**Yes**	**Yes**	**Yes (onshore substation only)**	No
Biosecurity.	**Yes**	**Yes**	**Yes (onshore substation only).**	No

6.2.2.4 Since issue of the Scoping Report, the scope of the assessment has been further refined through consultation and this is set out in section 6.2.2.4 and Table 6.2.3. Additionally, data from the surveys has further informed the scope and this is set out in Technical Appendix 6.4: Scoping Potential Receptors.

Consultation

6.2.2.5 Table 6.2.3 summarises the consultee responses to date and / or to the Scoping Report, along with details how they have been addressed in this assessment.

Table 6.2.3: Consultation			
Date	**Consultee**	**Issue Raised**	**Moray West Approach**
27 March 2017	Pre-scoping consultation with SNH.	Great crested newt: During this meeting it was agreed that great crested newts will not require specific consideration, due to their likely absence from the Scoping Study Area.	Great crested newt excluded from survey and assessment.
27 March 2017	Pre-scoping consultation with SNH.	Freshwater pearl mussel: It was agreed that, although there is some suitable habitat for freshwater pearl mussels in the wider area, a recent study identified many of the smaller watercourses in the area as sub-optimal. No requirement for freshwater pearl mussel surveys	Freshwater pearl mussel excluded from survey. Section 6.4 addresses the requirements of this species through

Table 6.2.3: Consultation			
Date	**Consultee**	**Issue Raised**	**Moray West Approach**
		provided trenchless methods are employed for installing the onshore cable circuits beneath any watercourses that support habitat that is potentially suitable for freshwater pearl mussels.	embedded mitigation, particularly where watercourse crossing employ trenchless techniques.
11 July 2017	Scottish Environment Protection Agency (SEPA) – Scoping Opinion	Proposed scope: In agreement with potential effects scoped in and out of assessment.	Assessment undertaken as per Scoping Report.
11 July 2017	SEPA – Scoping Opinion	Proposed survey methods: In agreement that survey methods sufficient to inform a robust impact assessment.	Surveys and assessment undertaken as per Scoping Report.
11 July 2017	SEPA – Scoping Opinion	Site Layout: The site layout must be designed to avoid impacts upon the water environment. Where activities such as watercourse crossings, watercourse diversions or other engineering activities in the water environment cannot be avoided then the submission must include a map showing: a) All proposed temporary or permanent infrastructure overlain with all lochs, wetlands and watercourses. b) A minimum buffer of 50 m around each loch or watercourse. If this minimum buffer cannot be achieved each breach must be numbered on a plan with an associated photograph of the location, dimensions of the loch or watercourse, drawings of what is proposed in terms of engineering works. c) Detailed layout of all proposed mitigation including all cut off drains, location, number and size of settlement ponds.	See Chapter 5: Hydrology, Hydrogeology and Geology. Section 6.4 addresses some requirements through embedded mitigation.
11 July 2017	SEPA – Scoping Opinion	Disturbance and re-use of excavated peat and other carbon rich soils: Scottish Planning Policy states (Paragraph 205) that *"Where peat and other carbon rich soils are present, applicants must assess the likely effects of development on carbon dioxide (CO_2) emissions. Where peatland is drained or otherwise disturbed, there is liable to be a release of CO_2 to the atmosphere. Developments must aim to minimise this release"*. The planning submission must a) demonstrate how the layout has been designed to minimise disturbance of peat and consequential release of CO_2 and b) outline the preventative / mitigation measures to avoid significant drying or oxidation of peat through, for example, the construction of access tracks, drainage channels, cable trenches, or the storage and re-use of excavated peat.	See Chapter 5: Hydrology, Hydrogeology and Geology.

Table 6.2.3: Consultation			
Date	**Consultee**	**Issue Raised**	**Moray West Approach**
11 July 2017	SEPA – Scoping Opinion	Disruption to GWDTEs: The following information must be included in the submission: a) A map demonstrating that all GWDTE are out with a 100 m radius of all excavations shallower than 1 m and outwith 250 m of all excavations deeper than 1 m and proposed groundwater abstractions. If micro-siting is to be considered as a mitigation measure the distance of survey needs to be extended by the proposed maximum extent of micro-siting. The survey needs to extend beyond the site boundary where the distances require it. b) If the minimum buffers above cannot be achieved, a detailed site specific qualitative and / or quantitative risk assessment will be required.	See Chapter 5: Hydrology, Hydrogeology and Geology.
11 July 2017	SEPA – Scoping Opinion	Forest removal and forest waste: If forestry is present on the site, we prefer a site layout which avoids large scale felling as this can result in large amounts of waste material and a peak in release of nutrients which can affect local water quality. The submission must include a map with the boundaries of where felling will take place and a description of what is proposed for this timber in accordance with Use of Trees Cleared to Facilitate Development on Afforested Land – Joint Guidance from SEPA, SNH and Forestry Commission Scotland.	Forestry removal is not currently being proposed as part of the OnTI (see Chapter 2: The Proposed Development).
11 July 2017	SEPA – Scoping Opinion	Pollution prevention and environmental management: One of SEPA's key interests in relation to developments is pollution prevention measures during the periods of construction, operation, maintenance, demolition and restoration. A schedule of mitigation supported by site specific maps and plans must be submitted. These must include reference to best practice pollution prevention and construction techniques, regulatory requirements, the daily responsibilities of Environmental Clerks of Work (ECoWs), how site inspections will be recorded and acted upon and proposals for a planning monitoring enforcement officer. Provided reference to the SEPA Pollution Prevention Guidelines for further information.	See Chapter 5: Hydrology, Hydrogeology and Geology. Section 6.4 addresses some requirements through embedded mitigation.
12 July 2017	SNH – Scoping Opinion	Proposed scope: In agreement with potential effects scoped in and out of assessment.	Surveys and assessment undertaken as per Scoping Report.
12 July 2017	SNH – Scoping Opinion	Proposed survey methods: In agreement that survey methods sufficient to inform a robust impact assessment.	Surveys undertaken as per Scoping Report.

Table 6.2.3: Consultation			
Date	**Consultee**	**Issue Raised**	**Moray West Approach**
12 July 2017	SNH – Scoping Opinion	Mill Wood SSSI: Is relatively small and designated for its upland birch woodland. Given its size and location it is perhaps less likely that transmission infrastructure would select a route that traverses this site.	The SSSI is avoided by the PAB. Sections 6.4, 6.5 and 6.7 consider potential disturbance / pollution effects
12 July 2017	SNH – Scoping Opinion	Cullen to Stake Ness Coast SSSI: There is potential for landfall works to negatively impact the nationally important hard-rock (Dalradian) interest of this SSSI, through physical damage and/or by obscuring outcrops (except in relatively small areas of sandy bays where this interest does not exist). The greatest potential impact would be through trenching in hard rock areas, although this seems unlikely given the availability of sandy bays. In section 5.1.2.1 of the Scoping Report 'construction effects', the potential to impact directly on geological interests of the SSSI is not referred to. At this stage SNH don't know whether it will be possible to avoid the SSSI or mitigate fully any potential impacts on the geological interests. 1. SNH recommend that the EIA includes a clear assessment of potential impacts on the geological interest of the SSSI. The ecology section does recognise the potential to impact on the biological interests of the SSSI and proposes a suite of appropriate surveys to inform the EIA. 2. SNH recommend the applicant facilitate ongoing liaison and technical discussions with SNH regarding cable landfall methods well in advance of EIA report preparation.	SSSI is within the PAB. Section 6.4: Embedded Mitigation presents key principles for construction activities within the SSSI. Sections 6.5 and 6.7 consider the associated effects. Also see Chapter 5: Hydrology, Hydrogeology and Geology.
12 July 2017	SNH – Scoping Opinion	SNH refer Moray West to the National Coastal Change Assessment which provides Scotland-wide historical analysis of sea-level and coastal changes - www.dynamiccoast.com. This resource can help inform future projections of future coastal change. This is highly relevant to ensure that the landfall installation remains suitably protected throughout its design life in the context of predicted sea-level rise and changing coastal sediment supply	This is addressed in Chapter 5: Hydrology, Hydrogeology and Geology, Table 5.2.2.
August 2017	AC – Scoping Opinion	Largely AC are satisfied with the suite of protected species and habitat surveys proposed for the EIA Report. The coastal strip between Cullen and Whitehills is also included in the 2017 LDP as a Local Nature Conservation Site (LNCS) of value for geology, entomology and ornithology. Although not a statutory designation, it does highlight features of value that are not otherwise covered by the SSSI designation and potential negative impacts on this may also be worth consideration.	Regarding the LNCS, Section 6.4: Embedded Mitigation recommends avoidance, but presents key principles for construction should this not be possible. Sections 6.5 and 6.7 consider effects

Table 6.2.3: Consultation			
Date	**Consultee**	**Issue Raised**	**Moray West Approach**
			where avoidance may not be possible. Coastal bird data collated from Seabird 2000 / British Trust for Ornithology (BTO) Wetland Bird Survey.
August 2017	MC – Scoping Opinion	MC is in agreement with the proposed suite of protected species and habitat surveys, subject to the advice contained in response from SEPA and SNH. Where the route for the onshore cable circuits or onshore substation location are likely to occupy areas possibly hosting GWDTEs, then such assessments may be required.	See Chapter 5: Hydrology, Hydrogeology and Geology regarding GWDTEs.
December 2017	SNH – e-mail communication	Ornithology: SNH agree to revised scope of breeding bird survey analysis methods as a result of PAB being finalised.	Analysis carried out in all breeding bird survey tiles that fall wholly or partly within 500 m of PAB
December 2017	SNH – e-mail communication	Ornithology: SNH agreed that the nature of proposed works (temporary and sequential in time and place) and their distance from the Special Protection Area (SPAs), although within 20 km, is such that negative impacts are predictably unlikely and are therefore comfortable that this project can scope out the need for Habitats Regulations Appraisal (HRA) on this basis.	HRA not undertaken.
January 2018	North East Scotland Raptor Study Group (NESRSG)	Ornithology: There are no known breeding goshawk or osprey within the 750 m buffer boundary, although it does go close to some known sites. Overall the area has a good goshawk population and it's likely that most large blocks of woodland would hold pairs, so we would recommend appropriate surveys prior to work starting.	Section 6.4 includes pre-construction surveys as embedded mitigation.
May 2018	SNH – e-mail communication	Cullen to Stake Ness Coast SSSI: The PAB includes a stretch of this designation at the coast and it is currently proposed that the Onshore Landfall Area will require works within it (see Chapter 2: The Proposed Development regarding the installation of the offshore export cable circuits). MW developed a number of design principles aimed at mitigating any potentially significant effects. These were issued to SNH by e-mail for approval; SNH agreed that the principles are adequate.	The design principles regarding works within the SSSI are set out in Section 6.4 and assumed to be applied by the assessment presented in Section 6.5.
May 2018	The Woodland Trust Scotland	The Woodland Trust is concerned regarding the following:	Forestry removal is not currently being proposed as part of

Table 6.2.3: Consultation			
Date	**Consultee**	**Issue Raised**	**Moray West Approach**
		Direct loss to ancient woodland and long-established woodland recorded on the Scottish Ancient Woodland Inventory (AWI), which is sited within the corridor; The impacts of noise, light and dust pollution to woodland within close proximity of the transmission installation; The fragmentation of semi-natural adjacent habitats to the ancient woodlands to facilitate the transmission installation; and The potential for trampling of sensitive ancient woodland flora and soils if access is required within any adjacent ancient woodland.	the OnTI (see Chapter 2: The Proposed Development). Embedded mitigation measures in Section 6.4 address protection of woodland habitats from direct / indirect effects.

6.2.3 Data Gathering

Study Area

6.2.3.1 Figures 6.1.1 to 6.1.3 illustrate the PAB, which delineates the anticipated maximum extent of land in which the OnTI may be located. This chapter refers to 'the OnTI' or 'the PAB' depending on context. The OnTI will be positioned within the PAB following a detailed design process that will follow granting of Planning Permission in Principle (PPP). The assessment of effects focuses on those works to be conducted within the PAB given this is where the potential development activities for construction, O&M and decommissioning will occur. Indirect effects from those works, and those effects associated with the temporary works, are also assessed and cited as necessary within and beyond the PAB as appropriate depending on the receptors and effects concerned.

6.2.3.2 Assessment of terrestrial ecology (non-ornithological) receptors is based on their occurrence (or likely occurrence) within the PAB, plus buffers appropriate to the receptor concerned (as detailed in the Technical Appendix 6.1: Baseline Ecology Report).

6.2.3.3 Assessment of ornithological receptors is based on their occurrence within 1 km^2 tiles that fall wholly or partly within the PAB and a 500 m buffer (Technical Appendix 6.2: Ornithological Technical Report).

6.2.3.4 Assessment of intertidal receptors is based on their occurrence within the coastal section (MHWS to MLWS) of the PAB in the vicinity of Redhythe Point within which the export cable(s) will be brought ashore connected to the Moray West OnTI (referred to as the Onshore Landfall Area).

6.2.3.5 Consequently, the assessment considers the relative proximity of receptors from the PAB where appropriate. A data-gathering exercise was undertaken to obtain any available information relating to statutory and non-statutory nature conservation sites, priority habitats and species, and legally protected and controlled species (see Boxes 6.1 and 6.2). These are the sites, habitats and species that are of sufficient importance that effects upon them could be significant and are therefore the focus of the assessment.

Box 6.1: Designated Nature Conservation Sites, and Priority Habitats and Species

Statutory Nature Conservation Sites

Internationally important sites (collectively referred to herein as European sites, whilst recognising that Ramsar sites are designated at a global level):

- SACs, including possible / proposed / candidate SACs[3];
- Sites of Community Importance (SCIs)[4];
- SPAs, including potential SPAs[5] and draft SPAs[6];
- Marine Protected Areas (MPAs) or proposed MPAs;
- Ramsar sites that are listed, including proposed Ramsar sites; and
- Sites identified or required as compensatory measures for negative effects on other European sites.

Nationally important sites:

- SSSIs that are not European sites; and
- National Nature Reserves (NNRs).

Local Nature Reserves (LNRs) are statutory sites that are of importance for recreation and education as well as biodiversity. Their level of importance is defined by their other statutory or any non-statutory designations (e.g. if a LNR is also a SSSI but is not a European site, it would be of national importance). If an LNR has no other statutory or non-statutory designation it should be treated as being of district importance for biodiversity.

Non-Statutory Nature Conservation Sites

Sites of County / District importance: Non-statutory nature conservation sites notified as LNCS and / or Study of Environmentally Sensitive Areas (SESA)[7].

Habitats and Species

The geographic level at which a species / habitat has been identified as a priority for biodiversity conservation is referred to as its level of 'importance'. The level of importance in this context pertains to the species / habitat as a whole rather than to individual areas of habitat or species populations, which cannot be objectively valued (other than for waterfowl, for which thresholds have been defined for national / international population importance).

International importance:

- Populations of species or areas of habitat for which European sites are designated;
- Populations of birds meeting the threshold for European importance (1% of the relevant international population);
- Species / habitats listed on the OSPAR list of threatened and / or declining species and habitats. Marine habitats / species in need of protection in the North-East Atlantic. List is being used by the

[3] Candidate SACs (cSACs) are sites that have been submitted to the European Commission, but not yet formally adopted.
[4] Sites of Community Importance (SCIs) are sites that have been adopted by the European Commission but not yet formally designated by the government of each country.
[5] Potential SPAs (pSPAs) are sites that are currently in the process of being classified.
[6] SNH and JNCC submitted scientific advice to the Scottish Government in July 2014 for 14 draft SPAs for the protection of species such as red-throated diver, little tern and northern gannet. Some of the sites are extensions of existing SPAs whilst others are completely new sites.
[7] The SESA is an inventory of areas that are locally important for a particular scientific interest. These sites were selected in the 1990s under the former Grampian Regional Council and are still applicable to the MC area. The SESA inventory has recently been reviewed by AC has been replaced by a new inventory of LNCS. SESAs are included in this chapter as they help identify and prioritise areas of particular ecological interest.

Box 6.1: Designated Nature Conservation Sites, and Priority Habitats and Species

OSPAR Commission to guide the priorities for further work on the conservation and protection of marine biodiversity under Annex V of the OSPAR Convention;

National importance:

- Habitats and species listed on the SBL or listed as PMFs.
- Species listed as being of conservation concern in the relevant UK Red Data Book (RDB) or the Birds of Conservation Concern Red and Amber List (Eaton *et al*, 2015).
- Nationally Rare and Nationally Scarce species, which are species recorded from, respectively, 1-15 and 16-100 hectads (10 x 10 km squares of the national grid).
- Populations of birds comprising at least 1 % of the relevant British breeding / wintering population (where data are available).

District / County importance:

- Habitats and species not listed in the SBL but listed on the district or county LBAP (if relevant).

Local importance:

- Habitats or species lacking policy status but considered important at local or site level.

Less than Local importance:

- Habitats or species lacking policy status and not considered important at any level.

Box 6.2: Legally Protected and Controlled Species

Legal Protection

Many species of animal and plant receive some degree of legal protection. For the purposes of the assessment, legal protection refers to species included on Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981 (as amended in Scotland), excluding:

- Species that are only protected in relation to their sale (see Section 9(5) and 13(2)), given that the OnTI does not include any proposals relating to the sale of species;
- Species that are listed on Schedule 1 but that are not likely to breed on or near the site, given that this schedule is only applicable whilst birds are breeding;
- Species included on Schedules 2 and 5 of the Habitats Regulations; and
- Badgers, which are protected under the Protection of Badgers Act 1992.

Legal Control

In Scotland non-native species are covered by Section 14 of the Wildlife and Countryside Act 1981 (as amended in Scotland) which make it an offence to:

- release or allow to escape from captivity any animal to a place out with its native range;
- cause any animal out with the control of any person to be at place out with its native range; and/or
- plant or otherwise cause to grow any plant in the wild out with its native range.

Desk Study / Field Survey

6.2.3.6 Data for designated sites and protected species were obtained through desk studies in February, March and July 2017. This contextual information is important as it may point to notable habitats and species that could occur within the PAB and respective receptor buffers.

6.2.3.7 Given the potential for the OnTI to effect ecology and nature conservation resources located within and outside the PAB, data were obtained for:

- Statutory sites of ecology and nature conservation interest located in and within 2 km of the PAB;
- International, European and national statutory sites with ornithological qualifying features within the PAB and 20 km from the PAB;
- Non-statutory sites of ecology and nature conservation interest located in and within 2 km of the PAB; and
- Records of priority habitats and priority, legally protected and controlled species in and up to 2 km of the PAB.

6.2.3.8 The potential receptor scoping process (see Tables 1.1, 1.2 and 1.3 in Technical Appendix 6.4: Scoping Potential Receptors) lists potential receptors and provides rationale for their inclusion or exclusion from the assessment based on the potential for significant effects upon them.

6.2.3.9 Sources of desk study information are set out in Table 6.2.4.

Table 6.2.4: Desk Study Information

Topic of Information	Information Sources
Statutory biodiversity sites	SNH SiteLink (http://gateway.snh.gov.uk/sitelink/)[8]. North East Scotland Biological Records Centre (NESBReC).
Non-statutory biodiversity sites	NESBReC.
Priority habitats	UKBAP (http://ukbars.defra.gov.uk/plans/priority.asp). SBL (http://www.gov.scot/Topics/Environment/Wildlife-Habitats/16118/Biodiversitylist/SBL).
Records of legally protected and priority species[9]	National Biodiversity Network (NBN). NESBReC.
Terrestrial birds	Royal Society for the Protection of Birds (RSPB).
Breeding birds of prey	NESRSG.
Breeding coastal seabird colonies	JNCC Seabird 2000 database (http://jncc.defra.gov.uk/page-4460).
Coastal birds	Wetland Bird Survey, BTO (https://www.bto.org/volunteer-surveys/webs/publications/webs-annual-report).
Intertidal habitat and species information	Marine Scotland NMPI (2018). National Marine Plan Interactive. [online] Available at: https://marinescotland.atkinsgeospatial.com/nmpi/

[8] SiteLink provides data and information on key Protected Areas across Scotland ranging from sites of local natural heritage to designations of national and international importance.
[9] NBN data were gathered out to 2 km from the PAB. The data received from NESBReC covered the PAB and differing buffers outside of this to a maximum of approximately 3 km as the PAB was not finalised at the time of the NESBReC data search.

6.2.3.10 The scope of the ecology and ornithology surveys has been consulted on with relevant stakeholders throughout development of the OnTI (see Table 6.2.3). The scope for the intertidal survey was developed (prior to the exclusion of the beach at Sandend) following consultation with MS-LOT and their advisors and followed standard procedures e.g. Marine Monitoring Handbook procedural guideline 3-1 (Wyn *et. al.*, 2001). A summary of the surveys carried out to inform the assessment is provided in Table 6.2.5. Surveys commenced in May 2017 for breeding birds and July 2017 for habitats and non-avian species. Additional ecological surveys were conducted in April 2018 to address proposed changes to the PAB.

6.2.3.11 The specific study area for each receptor reflects the life-cycle of the species or functionality of the habitat in question, taking account of the potential effects of the OnTI. Field surveys were started prior to the finalisation of the PAB owing to seasonal survey windows and to ensure survey findings could influence the design process.

6.2.3.12 Habitat surveys were undertaken within a 'Phase 1 Study Area' as shown on Figure 3.1 in Technical Appendix 6.1: Baseline Ecology Report. The protected species surveys were undertaken within a 'Protected Species Study Area' as shown on Figures 3.2 to 3.4 in Technical Appendix 6.1: Baseline Ecology Report and Confidential Figure 3.1 in Technical Appendix 6.1a: Confidential Ecology Report.

6.2.3.13 It was envisaged that the Phase 1 Study Area and Protected Species Study Area would cover the PAB plus a 250 m and 100 m buffer respectively. However, there are areas within the PAB that extend beyond these Study Areas, meaning survey coverage of the PAB is not complete. In addition, there were areas that were inaccessible for ecological surveys, due to access restrictions and / or health and safety / practicalities[10]. These survey coverage limitations are described in Technical Appendix 6.1: Baseline Ecology Report and the implications are taken into consideration by the assessment.

6.2.3.14 Seasonal constraints meant ornithological surveys (breeding birds) commenced on the Scoping Study Area rather than the PAB. Due to the large size of the Scoping Study Area (approximately 135 km^2) SNH was consulted with a view to reducing survey effort to a practical level. SNH agreed that given the OnTI's likely zone of influence (ZoI) (see box 6.4), the transitory nature of cable circuit installation and the likely breeding bird assemblage typical of mixed farmland in northern Scotland, it was unnecessary to survey the entire Scoping Study Area. Thus, approximately 25% of the area was surveyed, providing an appropriate overview of the ornithological interest present. The selection of areas to be surveyed was based on a random sample approach of 1 km squares. Where there were built up areas, or commercial forestry within selected 1 km squares, these areas were not surveyed. In total, approximately 34km^2 was identified for survey, covering 39 separate 1 km squares across the Scoping Study Area (see Figure 2.1 in Technical Appendix 6.2: Ornithological Technical Report).

6.2.3.15 As the PAB covers a greatly reduced area to that within the Scoping Study Area, a number of the 1 km squares were situated some considerable distance outside it. Following consultation with SNH, a revised approach to the analysis of the survey results was taken, by which only data from those 1 km squares that fell wholly or partly within the PAB plus a 500 m buffer were included. Figure 2.1 in Technical Appendix 6.2: Ornithological Technical Report shows the original Scoping Study Area with the PAB plus a 500 m buffer and the 1 km survey squares.

[10] Access was not possible within areas of crops or livestock or within areas of dense scrub or thicket stage conifer plantation.

6.2.3.16 Although some areas of the PAB were not covered by the breeding birds surveys, the habitats present within the 1 km squares and PAB are relatively homogenous and the breeding bird assemblage recorded during the surveys is typical of mixed farmland in northern Scotland. Therefore, it is considered that the survey data are sufficiently robust to represent the ornithology interest of the PAB.

6.2.3.17 A site-specific extended Phase 1 intertidal survey was carried out by PMSL in July 2017 to collate representative baseline information on the sandy / shingle habitats that are present within the Onshore Landfall Area. At the time of survey and of preparation of this chapter, the precise location of the landfall within the Offshore Landfall Area was / is yet to be determined, however the beach at Sandend has subsequently been excluded from the PAB (Chapter 2: Proposed Development). Survey effort originally focused on the beach at Sandend as this was the main stretch of soft sediment shore present within the vicinity of the Onshore Landfall Area (Figure 3.1) which at the time was favoured Although the beach at Sandend has now been excluded, the results of this survey are still considered relevant to the assessment from a technical perspective, as it ensures that soft sediment shorelines, that are still present in the Onshore Landfall Area and are most susceptible to potential disturbance impacts, are given full consideration. Where the cable circuits are installed in areas of rocky shoreline, they will be installed either beneath the surface of the rock by horizontal directional drilling (HDD) methods, ensuring that there is a significantly reduced potential for impacts or by trenching if feasible (e.g. Redhaven, where the seabed may consist of boulders held by clay). Should the final location of landfall be out with surveyed areas, it is recognised that there may be a requirement for further pre-construction intertidal survey to confirm the nature of the coastline and that no sensitive features are present.

6.2.3.18 Phase 2 sediment samples were also collected from the beach at Sandend using 0.01 m^2 cores from three transects across the intertidal area (three samples were collected per transect to cover the upper, mid and lower shores) (Technical Appendix 6.3, Figure 3.1).

6.2.3.19 Detailed survey information is provided within the respective Technical Appendices 6.1, 6.1a (Confidential Ecology Report), 6.2 and 6.3 with a summary provided in Table 6.2.5.

Table 6.2.5: Baseline Surveys

Receptor to be Surveyed	Survey Specification	Survey Area	Period of Survey
Terrestrial and freshwater habitats	Phase 1 habitat survey (JNCC, 2010).	Phase 1 Study Area (Figure 3.1, Technical Appendix 6.1).	4-7 July; 12-14 July; 18-19 July; 21-25 August; 27-28 August 2017; and 11-13 April 2018
Intertidal habitats and species	Phase 1 and Phase 2 intertidal survey (JNCC, 2004)	The beach at Sandend (Technical Appendix 6.3).	25 – 27 July 2017; during ebb conditions (detailed in Technical Appendix 6.3).
Bats	Habitat assessment and incidental signs (Collins 2016).	Protected Species Study Area (Figure 3.3, Technical Appendix 6.1).	Various dates from 4 July to 26 October 2017 and 11-13 April 2018 (detailed in Technical Appendix 6.1).
Otter[11]	Presence / absence survey (Chanin, 2003).	Protected Species Study Area (Figure 3.4, Technical Appendix 6.1).	Various dates from 4 July to 26 October 2017 and 11-13 April 2018 (detailed in Technical Appendix 6.1).

[11] Observations and records of beaver to be made alongside otter and water vole surveys.

Table 6.2.5: Baseline Surveys			
Receptor to be Surveyed	**Survey Specification**	**Survey Area**	**Period of Survey**
Water vole	Presence / absence survey (Strachan *et al.* 2011).	Protected Species Study Area (Figure 3.4, Technical Appendix 6.1).	Various dates from 4 July to 26 October 2017 and 11-13 April 2018 (detailed in Technical Appendix 6.1).
Badger	Presence / absence survey (Harris *et al.* 1989).	Protected Species Study Area (Figure 3.2, Technical Appendix 6.1a).	Various dates from 4 July to 26 October 2017 and 11-13 April 2018 (detailed in Technical Appendix 6.1).
Pine marten	Habitat assessment and incidental signs (Cresswell *et al.* 2012).	Protected Species Study Area (Figure 3.4, Technical Appendix 6.1).	Various dates from 4 July to 26 October 2017 and 11-13 April 2018 (detailed in Technical Appendix 6.1).
Red squirrel	Habitat assessment and incidental signs (Gurnell *et al.* 2009).	Protected Species Study Area (Figure 3.4, Technical Appendix 6.1).	Various dates from 4 July to 26 October 2017 and 11-13 April 2018 (detailed in Technical Appendix 6.1).
Scottish wildcat	Habitat assessment and incidental signs (Cresswell *et al.* 2012).	Protected Species Study Area (Technical Appendix 6.1).	Various dates from 4 July to 26 October 2017 and 11-13 April 2018 (detailed in Technical Appendix 6.1).
Amphibians and reptiles	Habitat assessment and incidental signs (Gent and Gibson, 2003 and Edgar *et al.* 2010).	Protected Species Study Area (Technical Appendix 6.1).	Various dates from 4 July to 26 October 2017 and 11-13 April 2018 (detailed in Technical Appendix 6.1).
Non-native invasive species	Phase 1 habitat survey.	Phase 1 Study Area (Figure 3.1, Technical Appendix 6.1).	4-7 July; 12-14 July; 18-19 July; 21-25 August; 27-28 August 2017; and 11-13 April 2018.
Breeding birds	Common Birds Census (CBC).	Any 1 km^2 survey tile that fell wholly or partly within a 500 m buffer of the PAB (Figure 2.1, Technical Appendix 6.2).	Three visits to each 1 km^2 survey tile during 3-5 May, 6-8 June and 4-6 July 2017.

6.2.4 Evaluation of Effects

Potential Receptors

6.2.4.1 The starting point for the assessment has been to subdivide the receptors subject to desk study and survey (i.e. designated sites, together with species populations and habitats) into the following:

- Those that can be significantly affected by, or for which the OnTI could result in the contravention of relevant legislation[12], and that therefore required more detailed assessment; and

[12] Where protected species are present and there is the potential for a breach of the legislation, those species should be considered as 'important' features. It will always be necessary for the EcIA to determine whether there could be a breach of the legislation as a result of the project, and the scheme being assessed needs to be designed/mitigated in such a way that the law will not be contravened.

- Those that are considered unlikely to be significantly affected, or for the relevant legislation to be contravened, and that did not therefore require further assessment (i.e. that were 'scoped out' of the assessment).

6.2.4.2 Differentiating these receptors begins with determining the following:

- Which, if any, sites, areas of habitat, and species that have been recorded are of importance for biodiversity conservation, notwithstanding any legal protection that they may have (see Box 6.1); and / or
- Which, if any, of the species that have been recorded are legally protected or controlled (see Box 6.2).

6.2.4.3 For sites / habitats / species that are important for biodiversity conservation, it is necessary to determine whether they are likely to be of sufficient 'biodiversity conservation value' that an effect upon them could be significant. In this context:

- Biodiversity conservation value relates to the quality and / or size of sites or habitats, or the size of species populations (see Box 6.3 below); and
- Where effects are deemed to be potentially significant, these could be of sufficient concern, or of such substantial benefit where positive, that these could influence the decision about whether or not the OnTI is acceptable.

Box 6.3: Value and Importance for Biodiversity Conservation

The distinction between 'importance' and 'value' can be illustrated by widespread species such as the house sparrow. This species is important at a national level because it is a priority species (on the SBL). However, an area which supports an individual or small population that could be affected by a development would often be assessed as being of insufficient value for any effect on house sparrows (whether negative or positive) to be significant. On this basis, any potential effect on house sparrows would not need to be assessed further within the EIA (i.e. it would be 'scoped out' of the assessment).

6.2.4.4 Receptors that are of sufficient value that an effect upon them could potentially be significant, together with all relevant legally protected species, are then taken through to the next stage of the assessment. This involves:

- Identifying for each receptor, any environmental impacts that are likely to be caused by the OnTI which have the potential to lead to a significant effect and / or to contravene relevant legislation;
- For these environmental impacts, determining the spatial scope within which they could cause a potentially significant effect on each relevant receptor and / or could contravene relevant legislation (i.e. an 'ecological ZoI' - see Box 6.4);
- Comparing the area where the receptor occurs with the ecological ZoI, recognising that the receptor may be wholly or partly associated with an area located outside of the PAB (e.g. where a species breeds outside the PAB, but its foraging area lies within it, or in adjacent areas that would be within the spatial scope of effects of the OnTI); and
- If the receptor occurs, or is likely to occur, within the ZoI, concluding that:
    - Either the receptor could be subject to a significant effect and / or the relevant legislation could be contravened (with the result that the receptor has been taken forward for detailed assessment); or
    - If the environmental impact is unlikely to result in a significant effect on a receptor (allowing for cumulative effects), this receptor has been scoped out of the assessment.

Box 6.4: Defining Ecological Zones of Influence (Spatial Scope)

The ecological ZoI that is the most straightforward to define is the area affected by land take and direct land cover changes associated with a development. This zone is the same for all affected receptors. By contrast, for each environmental change that can extend beyond the area affected by land take and land cover change (e.g. changes in noise associated with development activities within the land take area), the ZoI may vary between receptors, dependent upon the receptors' sensitivity to the change and the precise nature of the change.

For example, a dormouse might be unaffected by noise associated with a development unless the noise is generated very close to where the dormouse nests, while another mammalian species might be disturbed at much greater distances; other species (e.g. species of invertebrate) may be unaffected by changes in noise. A further complication is that the response of a receptor to a change associated with one development may differ to the response of the same receptor to a similar change on another development. This can occur as a result of the wide range of variables that influences the precise nature of any change (e.g. for noise this can include: differing baseline noise conditions; specific magnitude, timing or other characteristics of the noise; and the effects of screening and topography).

In view of these complexities, the definition of a ZoI that extends beyond a land take area is based upon professional judgement and informed by discussions with technical specialists in other disciplines. These specialists provide information about the environmental changes of concern for their disciplines. This information can then be combined with available ecological information about receptors' sensitivities to different environmental changes in order to define the extent of each ecological ZoI. The potential outcome of this is that a ZoI can be so extensive that a larger than expected species population or area of habitat could be affected, which in turn could lead to a likely significant effect being identified when it was previously assessed that this would be unlikely. In light of this possibility, it is necessary to review the list of receptors that were initially scoped out to determine whether any of them should be scoped back into the assessment on the basis of a larger area / population being affected by a development.

Equally, if a ZoI extends beyond the area that has initially been used for baseline data collection, there is a need to review additional data in order to identify if there are any receptors located further away that could be subject to a significant effect.

Temporal Scope

6.2.4.5 Impacts may occur during any or all phases of a development lifecycle, including construction, O&M and any future decommissioning. The OnTI construction phase comprises a number of proposed activities spread over the course of the programme, and potential impacts on biodiversity receptors could arise for part of, or the entirety of the construction phase. For biodiversity receptors, effects on their Favourable Conservation Status (FCS) (as defined in Section 6.2.4.23) or the site integrity (as defined in Section 6.2.4.25) have to be considered. Consequently, the impacts from all construction activities have been considered across the OnTI programme.

6.2.4.6 The anticipated construction programme for the OnTI is provided in Chapter 2: The Proposed Development. Site preparation and construction works are anticipated to start in Q2 / Q3 2022 (subject to the appropriate consents being granted) and be completed and commissioned by 2024.

6.2.4.7 The assumed 'completion year' for the OnTI (2024) is used as the basis of the assessment of operational effects (including maintenance activities) on ecology receptors. The assessment of the most likely decommissioning approach for the OnTI comprises a number of proposed activities; for the purposes of assessing impacts to onshore biodiversity receptors, all impacts from decommissioning are assessed from the year these works are most likely to commence (i.e. following 50 years of operation).

Identifying Receptors that Could be Subject to a Potential Significant Effect

6.2.4.8 Based on the methodology set out above, Technical Appendix 6.4: Scoping Potential Receptors (Table 1.1) lists the receptors that are relevant to the assessment because they are either 'important' (see Box 6.1) or legally protected (see Box 6.2) and could be affected by the OnTI. A justification is provided for any receptors that have been scoped out.

6.2.4.9 For receptors identified in Table 1.1 of Technical Appendix 6.4 as requiring detailed assessment, Table 1.2 in Technical Appendix 6.4 sets out information about the relevant ecological ZoI relating to the impacts that are likely to be caused by the OnTI. These ZoIs reflect the design of the OnTI and consultee comments and take full consideration of the embedded mitigation that is set out in Section 6.4.

6.2.4.10 The environmental impacts that could potentially result in significant effects on receptors identified as requiring detailed assessment in Table 1.1 of Technical Appendix 6.4 have been identified as follows:

- Land take / land cover change;
- Increased light, noise and vibration (disturbances);
- Increased vehicle movement; and
- Pollution.

6.2.4.11 The potential resulting effects have been identified as follows:

- The direct temporary and permanent habitat loss from land take relating to the OnTI, which could also result in the loss and / or displacement of species;
- The indirect habitat loss / barrier effects (i.e. the disturbance and potential displacement of species from the area of the construction / decommissioning and operation of cabling). Such disturbance may occur as a consequence of access and construction work, or due to the presence of cable circuits close to dwelling places, nest or feeding sites or on habitual flight routes; and
- Pollution and disturbance to surrounding habitat and species (indirect effects).

6.2.4.12 The final design of the OnTI, and thus specific details on and the locations of site works, is not available at the time of application. The assessment of effects follows the process described herein in the context of the design details and construction methods set out in Chapter 2: The Proposed Development. The evaluation of effect significance is on the basis of a 'reasonable worst case' scenario for all receptors for the purposes of the assessment (see Table 6.5.1).

6.2.4.13 Further to the terms and method described above in Section 6.2 the following terms, explained further below, are used to describe the impacts in relation to onshore biodiversity:

- Positive, negligible or negative;
- Short, medium or long-term; and
- Temporary or permanent.

6.2.4.14 The description of the impacts and prediction of effects is informed by the CIEEM / IEEM guidelines (CIEEM, 2016; IEEM, 2010); these guidelines are widely regarded by the ecology profession as the 'industry standard'.

6.2.4.15 The assessment presented is based upon not only the results of the desk study and field surveys, but also relevant published information (on potential ecology receptors' status, distribution, sensitivity to environmental changes and ecology), and professional knowledge of ecological processes and functions.

6.2.4.16 The effects on the receptors considered have been assessed against the predicted future baseline conditions during construction, O&M and decommissioning. The future baseline has been defined using information about the likely future use and management of the area within the PAB in the absence of the OnTI, known species population trends (where available).

6.2.4.17 Where potentially significant effects were anticipated, this informed the requirement for additional baseline data collection and embedded mitigation to be incorporated into the OnTI design as necessary (in order to avoid or reduce negative effects. The results of the assessment reflect the OnTI design, including the embedded mitigation identified in Section 6.4.

6.2.4.18 The spatial extent of each potentially significant effect reflects the area occupied by the receptor that is being assessed and the ZoI associated with the environmental impacts that are likely to affect the receptor (see Box 6.4). Thus, if part of a designated biodiversity site is located within the ecological ZoI relating to a particular environmental impact, an assessment has been made of the effects on the site as a whole. A similar approach was taken for areas of notable habitat. For species that occur within an ecological ZoI that could be significantly affected, an assessment was carried out on the total area used by the affected individuals / population (e.g. for foraging, or as breeding territories).

6.2.4.19 The assessment has been informed by the description of the OnTI works (see Table 6.5.1) and embedded mitigation described in Section 6.4. The evaluation of effects on receptors is considered following the significance assessment process presented below and in the context of the information set out in Chapter 2: The Proposed Development, which describes the proposed methods and approaches to the delivery of construction, O&M and decommissioning of the OnTI. The evaluation of effects on receptors takes account of embedded mitigation relevant to onshore ecology as described in Section 6.4.

Importance of Receptor

6.2.4.20 The importance[13] of the receptors under consideration is assessed on the basis of the rationale presented in Box 6.1 and Table 6.2.6, while the magnitude of impact is defined in Table 6.2.7.

6.2.4.21 Intertidal importance is based on the Marine Life Information Network (MarLIN) Marine Evidence based Sensitivity Assessment (MarESA) four-point scale (high – medium – low – not sensitive) classifications. The scale takes account of the tolerance and recoverability (resilience) of a species or biotope in response to a stressor. Specific benchmarks (duration and intensity) are defined for the different impacts for which sensitivity has been assessed. (e.g. suspended sediment and smothering, habitat loss / change and disturbance / abrasion, etc.). Detailed information on benchmarks used and definitions of resistance and resilience can be found on the MarLIN website (https://www.marlin.ac.uk/

[13] In other chapters of this ES, the term 'sensitivity' is used rather than 'importance'. Importance is used in this chapter, since it is the term used in CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

Table 6.2.6: Importance of the Receptor	
Receptor Importance*	**Description / Reason**
High	All receptors: Statutory nature conservation sites of international and national level (Ramsar, SPA, SAC, SSSI). All species recognised at an international or national policy level. Sites or species at a level of importance at which impacts could result in significant effects. Intertidal species and habitats: Equivalent to MarLIN MarESA sensitivity category 'High'. The habitat or species is noted as exhibiting 'None' or 'Low' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover only over very extended timescales i.e. >25 years or not at all (resilience is 'Very Low'); OR The habitat or species is noted as exhibiting 'None' or 'Low' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover only over very extended timescales i.e. > 10 or up to 25 years (resilience is 'Low').
Moderate	All receptors: Statutory nature conservation sites (LNRs) and non-statutory designated sites (LNCS) considered important at a regional or district level. Species recognised at a regional or district policy level. Sites or species at a level of importance at which impacts could result in significant effects. Intertidal species and habitats: Equivalent to MarLIN MarESA sensitivity category 'Medium' . The habitat or species is noted as exhibiting 'None' or 'Low' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover over medium timescales i.e. > 2 or up to 10 years (resilience is 'Medium'); OR The habitat or species is noted as exhibiting 'None' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover over <2 years (resilience is 'High'); OR The habitat or species is noted as exhibiting 'Medium' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover over medium to very long timescales, i.e. > 2 years or up to 25 years or not at all (resilience is 'Medium', 'Low' or 'Very Low').
Low	All receptors: Habitats or species lacking policy status, considered important at local or site level, with insufficient value to merit a formal nature conservation designation. Habitats or species at a level of importance at which impacts could result in significant effects. Intertidal species and habitats: Equivalent to MarLIN MarESA sensitivity category 'Low'. The habitat or species is noted as exhibiting 'Low' or 'Medium' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover over <2 years (resilience is 'High'); OR The habitat or species is noted as exhibiting 'High' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, but is expected to recover over

Table 6.2.6: Importance of the Receptor	
Receptor Importance*	**Description / Reason**
	medium to very long timescales, i.e. > 2 years or up to 25 years or not at all (resilience is 'Medium', 'Low' or 'Very Low').
Negligible	<u>All receptors:</u> Habitats or species lacking policy status, not considered important at any level. Commonplace feature of little or no species / historical significance. Habitats or species at a level of importance at which impacts could not result in significant effects. <u>Intertidal species and habitats:</u> Equivalent to MarLIN MarESA sensitivity category 'Not Sensitive'. The habitat or species is noted as exhibiting 'High' resistance (tolerance) to an external factor, whether that arises from natural events or human activities, and is expected to recover over short timescales, i.e. < 2 years (resilience is 'High').

*Detailed descriptions of the geographic basis of importance are Boxes 6.1 and 6.3 above. N.B. Importance is notwithstanding any legal protection receptors may have.

Magnitude of Impact

6.2.4.22 Using information about the way in which sites / habitats / species are likely to be affected by the OnTI, each impact that is assessed has been assigned a level of 'magnitude', based on the definitions set out in Table 6.2.7.

Table 6.2.7: Magnitude of Impact	
Magnitude	**Criteria**
High	The impact permanently (or over the long-term) negatively affects the conservation status of a habitat / species, reducing the ability to sustain the habitat or the population level of the species within a given geographic area. Relative to the wider habitat resource / species population, a large area of habitat or large proportion of the wider species population is affected. For designated sites, integrity is compromised. There may be a decrease in the level of biodiversity conservation value of the receptor.
Moderate	The impact permanently (or over the long-term) negatively affects the conservation status of a habitat / species reducing the ability to sustain the habitat or the population level of the species within a given geographic area. Relative to the wider habitat resource / species population, a small-medium area of habitat or small - medium proportion of the wider species population is affected. There may be a decrease in the level of biodiversity conservation value of the receptor.
Low	The quality or extent of designated sites or habitats or the sizes of species' populations, experience some small-scale reduction. These impacts are likely to be within the range of natural variability and there is not expected to be any permanent impact on the conservation status of the species / habitat or integrity of the designated site. The impact is unlikely to modify the evaluation of the receptor in terms of its biodiversity conservation value.
Negligible	Although there may be some effects on individuals or parts of a habitat area or designated site, the quality or extent of sites and habitats, or the size of species populations would experience little or no reduction. Any impacts are likely to be within the range of natural variability and there would be no short-term or long-term impact on the conservation status of habitat / species receptors or the integrity of designated sites.

Significance of Effect

6.2.4.23 The criteria in Table 6.2.6 refer to the terms 'integrity' and 'conservation status'. For habitat areas and species, an effect is assessed as being significant if the FCS of a receptor would be impacted by the OnTI. Conservation status is defined in CIEEM (2016) as follows:

- For habitats – "conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area"; and
- For species – "conservation status is determined by the sum of influences acting on the species concerned that affect its abundance and distribution within a given geographical area".

6.2.4.24 The decision as to whether the conservation status of each specified receptor has been impacted has been made using professional judgement, drawing upon the results of the assessment of how each receptor is likely to be affected by the OnTI.

6.2.4.25 A similar procedure has been used for designated sites that could potentially be affected by the OnTI, except that the focus is on the effects on the integrity of each site, defined by the CIEEM guidelines as *"the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and / or the levels of populations of the species for which it was classified"*. The assessment of effects on integrity draws upon the assessment of effects on the conservation status of the features for which the site has been designated. Where these features are not clearly defined, it is necessary to use professional judgement to identify the interest features.

6.2.4.26 Positive effects can be measured along the same scales of magnitude as negative effects and are assessed as being significant if OnTI activities are predicted to cause:

- An improvement in the condition of a habitat / species population from unfavourable to unfavourable, recovering or favourable (noting that condition data are only available for SSSIs but that professional judgement has been used to apply the same principle to habitats / species elsewhere); or
- Partial or total restoration of a site's favourable condition.

6.2.4.27 If a species population, habitat or site is already in favourable condition, it is still possible for there to be a significant positive effect. There is, however, no simple formula for determining when such effects are significant and decisions about significance therefore have to be made on a case by case basis using professional judgement.

6.2.4.28 In terms of The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations), it is only impacts that are likely to have significant effects that require detailed assessment. As the EIA Regulations guide the assessor to focus on effects that are likely to be significant, the outcome of the assessment of a given effect on a particular receptor in its simplest form would be that it is significant or not significant. However, there may be instances where it is appropriate to further sub-divide the category of 'not significant', for example by use of the terms 'minor' and 'negligible' in terms of the level of effect. The use of the category of 'minor' may for example be used in acknowledgement that there are instances whereby there may be an effect, albeit that this is not likely to be significant, as this approach may better facilitate assessment of cumulative effects where cumulatively several minor effects could be significant.

6.2.4.29 Table 6.2.8 illustrates a matrix which has been used for guidance in the evaluation of significance. Where a range of significance is presented in Table 6.2.8, the final assessment for each effect is based upon professional judgement. For the purposes of the assessment, any effects with a significance level of minor or less have been concluded to be not significant in terms of the EIA Regulations.

Table 6.2.8: Significance of Effects

Importance of Receptor	Magnitude of Impact			
	Negligible	**Low**	**Moderate**	**High**
Negligible	Negligible	Negligible or Minor	Negligible or Minor	Minor
Low	Negligible or Minor	Negligible or Minor	Minor	Minor or moderate
Moderate	Negligible or Minor	Minor	Moderate	Moderate or Major
High	Minor	Minor or moderate	Moderate or Major	Major

6.3 Baseline Conditions

6.3.1 The Planning Application Boundary and Zone of Influence of the OnTI

6.3.1.1 The PAB includes part of Cullen to Stake Ness Coast SSSI. Non-statutory sites located within the PAB are three SESAs (Redhythe Point; Craibstone Quarry and Mill Wood), Cullen to Whitehills Coast LNCS and several areas of ancient woodland. The locations of these statutory and non-statutory sites are presented on Figure 6.1.1 to 6.1.3.

6.3.1.2 Terrestrial and freshwater habitats within and adjacent to the PAB include arable land, improved and semi-improved grassland, dense and scattered scrub, trees and woodland (mainly coniferous plantation), coastal sand dunes, heath, roads, watercourses and residential properties (Figure 3.1 within Technical Appendix 6.1). Within this mosaic are habitats with potential to support protected and notable species, including bats, water vole, otter, badger, breeding and wintering birds, reptiles, terrestrial and aquatic invertebrates, freshwater fish and freshwater pearl mussel.

6.3.1.3 The Onshore Landfall Area is comprised of rocky shores backed by cliffs and occasional sandy bays. Eastwards from the beach at Sandend, smaller bays intercept rocky promontories towards Redhythe Point. Apart from the coastal habitats that form part of the Cullen and Whitehills LNCS and Cullen to Stake Ness Coast SSSI, information gathered via desktop research has not identified any sites of marine ecological importance in the intertidal zone within the Onshore Landfall Area (Bennett and McLeod, 1998; Marine Scotland NMPI, accessed March 2018). The boundary of the Southern Trench proposed Marine Protected Area (pMPA) is below MLWS and so ecological receptors associated with the pMPA are addressed within Chapter 7: Benthic and Intertidal Ecology of the Offshore EIA Report. Rocky shores are typically exposed or moderately exposed to wave action and considered representative of the Moray Firth, with moderately rich fauna on the lower shore (where boulders, cobbles, rock pools and bedrock at varying inclinations are present) and the upper shore being generally poor in species diversity. Sedimentary shores are typically comprised of clean sand or muddy sand and support communities again typical of the Moray Firth, dominated by polychaetes, amphipods and bivalves (Bennett and McLeod, 1998).

6.3.1.4 Following the receptor scoping process described in Section 6.2.5, and the definition of assessment criteria in Section 6.3, Tables 1.1, 1.2 and 1.3 in Technical Appendix 6.4: Scoping Potential Receptors sets out the process through which each potential receptor has been scoped in / out of the assessment as follows:

- Table 1.1 lists the receptors that are relevant to the assessment because they are either potentially of sufficient biodiversity importance (Box 6.1) or legally protected (Box 6.2).
- Table 1.2 considers the potential effects on the receptors scoped in for further assessment. As noted, potential environmental impacts have been assessed with reference to Chapter 2: The Proposed Development (summarised in Table 6.5.1) and on the basis that embedded mitigation measures (set out in Section 6.6) are included. As such, certain receptors can be scoped out if the embedded mitigation measures are sufficient to avoid potentially significant effects. Only those receptors and potential environmental impacts that are outlined in Table 1.2 as potentially resulting in significant effects are included in this chapter (summarised in Table 6.7.1).
- Table 1.3 presents a justification for the ZoI for each ecological and ornithological receptor.

6.3.1.5 Table 6.3.1 summarises the receptors that have been identified as having the potential to be significantly affected by at least one environmental impact during a phase of the OnTI (due to their importance and the spatial area of the ZoI) and / or for which legislation could be contravened. All other receptors are henceforth excluded from the remainder of the assessment.

Table 6.3.1: Potential Receptors Scoped in for Further Assessment

Potential Biodiversity Receptor	Relevant Criteria*	Phase and Associated Environmental Impact Scoped In (Technical Appendix 6.4: Table 1.2)
Den of Pitlurg SSSI: Upland birch woodland; and valley fen.	Wildlife and Countryside Act 1981 (as amended in Scotland) Schedule 1.	Construction phase: Pollution.
Cullen to Stake Ness Coast SSSI: lowland dry; heath; saltmarsh; shingle; and springs (including flushes).	Wildlife and Countryside Act 1981 (as amended in Scotland) Schedule 1.	Construction phase: • Land take / land cover change; and • Pollution.
Mill Wood SSSI: Upland birch woodland.	Wildlife and Countryside Act 1981 (as amended in Scotland) Schedule 1.	Construction phase: • Land take / land cover change; and • Pollution.
SESAs (Botanical): • Redhythe Point SESA. • Craibstone Quarry SESA. • Mill Wood SESA.	Non-statutory biodiversity site.	Construction phase: • Land take / land cover change; and • Pollution.
Cullen to Whitehills Coast LNCS: Habitats including maritime grassland, sand dune and shingle; and plants including oysterplant, sea spleenwort and shrubby sea blight. Includes	Non-statutory biodiversity site. SBL coastal sand dune habitats included.	Construction phase: • Land take / land cover change; and • Pollution.

Table 6.3.1: Potential Receptors Scoped in for Further Assessment		
Potential Biodiversity Receptor	**Relevant Criteria***	**Phase and Associated Environmental Impact Scoped In (Technical Appendix 6.4: Table 1.2)**
Phase 1 habitats B1.1 (acid grassland – unimproved) and H6 and H8 maritime habitats.		
Woodland including: • ancient woodland; • broadleaved woodland - semi-natural; -broadleaved woodland plantation; and -mixed woodland plantation.	Non-statutory biodiversity site. SBL woodland habitats.	Construction phase: Land take / land cover change.
Habitats: • B5 (marsh / marshy grassland); • G1 (standing water); and • G2 (running water).	These habitats have been included as they are listed in SBL.	Construction phase: • Land take / land cover change; and • Pollution.
Breeding barn owl.	Wildlife and Countryside Act Schedule 1 species.	Construction phase: • Land take / land cover change; • Increased light, noise and vibration; and • Increased vehicle movement.
Breeding quail.	Wildlife and Countryside Act Schedule 1 species.	Construction phase: Increased light, noise and vibration.
Reptiles.	Common (viviparous) lizard, slow worm and adder are protected under the Wildlife and Countryside Act 1981 (as amended in Scotland). Common lizard: SBL.	Construction phase: • Land take / land cover change; and • Increased vehicle movement.
Badger.	Protection of Badgers Act 1992 as amended by the Wildlife and Natural Environment (Scotland) Act 2011. SBL (social criterion).	Construction phase: • Land take / land cover change; • Increased light, noise and vibration; and • Increased vehicle movement.
Bat assemblage.	All bat species found in Scotland are classed as European protected species.	Construction phase:

Table 6.3.1: Potential Receptors Scoped in for Further Assessment		
Potential Biodiversity Receptor	**Relevant Criteria***	**Phase and Associated Environmental Impact Scoped In (Technical Appendix 6.4: Table 1.2)**
	They receive full protection under the Habitats Regulations. SBL: Common pipistrelle, soprano pipistrelle	• Land take / land cover change; and • Increased light, noise and vibration.
Pine marten.	Pine marten receives full protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended in Scotland). Certain methods of killing or taking pine martens are illegal under the Habitats Regulations. SBL.	Construction phase: • Land take / land cover change; • Increased light, noise and vibration; and • Increased vehicle movement.
Red squirrel.	Red squirrel and their dreys (resting places) receive full protection under Schedules 5 and 6 of the Wildlife and Countryside Act 1981 (as amended in Scotland). SBL.	Construction phase: • Land take / land cover change; • Increased light, noise and vibration; and • Increased vehicle movement.
Otter.	As a European protected species, otter is fully protected under the Habitats Regulations. SBL.	Construction phase: • Land take / land cover change; • Increased light, noise and vibration; • Increased vehicle movement; and • Pollution.
Water vole.	Water vole receives partial protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended in Scotland). SBL.	Construction phase: • Land take / land cover change; • Increased vehicle movement; and • Pollution.
Scottish wildcat.	Wildcat is a European protected species and is fully protected under the Habitats Regulations. SBL.	Construction phase: • Land take / land cover change; • Increased light, noise and vibration; and • Increased vehicle movement.

Table 6.3.1: Potential Receptors Scoped in for Further Assessment		
Potential Biodiversity Receptor	**Relevant Criteria***	**Phase and Associated Environmental Impact Scoped In (Technical Appendix 6.4: Table 1.2)**
Atlantic salmon; brown / sea trout[14]; eel; sea lamprey; brook lamprey; river lamprey; and freshwater pearl mussel.	Wildlife and Countryside Act 1981 (as amended in Scotland) and the Habitats Regulations. Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003, sea trout have the same legal status as salmon. SBL.	Construction Phase: • Land-take / land cover change; and • Pollution.
Non-native invasive species.	Wildlife and Countryside Act 1981 (as amended in Scotland) and the Wildlife and Natural Environment (Scotland) Act 2011.	Construction phase: Land take / land cover change.

Note: *Box 6.1 (designated sites and priority habitats and species) and / or Box 6.2 (legal status).

6.3.1.6 The following sections describe the current condition of each of these receptors together with a prediction of the future status of these receptors if the project were not to proceed (the predicted future baseline or the "do - nothing scenario").

6.3.2 Den of Pitlurg SSSI

Current Baseline

6.3.2.1 Den of Pitlurg SSSI (covering 39.4 ha) comprises a narrow meltwater channel extending for 3 km. The floor of the den contains wet fen vegetation which is floristically very rich whilst the adjacent steep slopes, part of an ancient woodland site, support birch and hazel woodland. The notified features are upland birch woodland (conservation status: favourable maintained) and valley fen (conservation status: favourable maintained). The SSSI is located 145 m from the PAB at its closest point and is connected via hydrological pathways (e.g. Burn of Nethertown and unnamed tributary of Burn of Cairnie).

Predicted Future Baseline

6.3.2.2 It is anticipated that the conservation status of the notified features will remain the same, with the favourable status being maintained.

[14] Under the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003, sea trout have the same legal status as salmon. In Scottish legislation the definition 'salmon' refers to both salmon and sea trout (the migratory form of brown trout), as stated in the Salmon Act 1986. Sea trout and brown trout are the same species (*Salmo trutta*) and cannot be differentiated between until after the 'smolt' stage of their lifecycle (when they physiologically adapt for sea migration).

6.3.3 Cullen to Stake Ness Coast SSSI

Current Baseline

6.3.3.1 This SSSI contains both geological and biological notified features and covers an area of 344 ha. The north east section of the PAB encroaches into 30.7 ha of the SSSI. This coast is an important part of a longer coastal section (Cullen to Troup Head) that provides the longest continuous section across the strike of the Dalradian succession in Scotland. The coastal slopes and raised beaches of this SSSI contain a wide variety of habitats. These include both notified features (saltmarsh; shingle; springs [including flushes]; lowland dry heath and springs [including flushes]); and non-notified features (coastal grasslands; cliff vegetation and vegetation associated with shingle shores; calcareous sand dunes; and limestone outcrops). The conservation status of the notified features is currently as follows:

- Geology – Dalradian: Favourable maintained;
- Lowland dry heath – Unfavourable declining;
- Quaternary of Scotland – Partially destroyed: Favourable;
- Saltmarsh coast – Favourable maintained;
- Shingle coast – Favourable maintained; and
- Springs (including flushes) – Not assessed.

Predicted Future Baseline

6.3.3.2 It is anticipated that the conservation status of the notified features will remain the same, with the favourable status being maintained. The unfavourable status of the lowland dry heath is likely to remain unchanged or may decline further without positive management.

6.3.4 Mill Wood SSSI

Current Baseline

6.3.4.1 Mill Wood SSSI (covering 8.06 ha) is located in a gorge along the Burn of Mill Wood (a tributary of the River Isla) and is outside, but directly adjacent to the PAB. The SSSI mainly supports birch and hazel and also contains alder, wild cherry, ash, rowan, hawthorn and sloe (blackthorn). The field layer of the woodland is varied, ranging from grassy to areas dominated by tall herbs or heather. The conservation status of the upland birch woodland is 'Favourable – Maintained'.

Predicted Future Baseline

6.3.4.2 It is anticipated that the conservation status of the notified features will continue to be 'Favourable – Maintained'.

6.3.5 SESAs (botanical)

Current Baseline

6.3.5.1 Mill Wood SESA (covering 13.7 ha) is located in a gorge along the Burn of Mill Wood (a tributary of the River Isla). Approximately 11.8 ha of the SESA is in the PAB. It comprises woodland and associated limestone flora.

6.3.5.2 Logie Head SESA (covering 249 ha) supports sea spleenwort growing in the former sea caves and a colony of oysterplant on the shingle beach to the west. However, none of the SESA is located within the PAB.

6.3.5.3 Redhythe Point SESA (covering 86 ha) is an area of heathland with approximately 19 ha situated within the PAB.

6.3.5.4 Craibstone Quarry SESA (covering 15 ha) is a disused flooded limestone quarry with an adjacent area of mixed woodland and a section of the Deskford Burn. The whole of this SESA is within the PAB.

Predicted Future Baseline

6.3.5.5 It is anticipated that the current conservation status of these SESAs will be maintained.

6.3.6 Cullen to Whitehills Coast LNCS

Current Baseline

6.3.6.1 The LNCS (covering 1,766 ha) is designated in respect of its coastline with associated maritime grassland, steep cliffs and rocky intertidal shores. It is considered to be important for diversity of plants and invertebrates as well as its geological features. Approximately 2 % of the LNCS is located in the PAB (32.7 ha of the LNCS is in the PAB). Aberdeen LDP notes "*This is a varied stretch of coastline with steep cliffs and rocky intertidal shores in the more exposed areas and low-lying beaches and dunes in the sheltered bays. Geological interest is present in the form of Old Red Sandstone cliffs and glacially transported Jurassic clay. Boyne Quarry has exposures of glacial and interglacial features. Habitats include maritime grassland together with small areas of sand dune and shingle. It is one of the richer areas of the coastline botanically due to the presence of calcareous soils with oysterplant, sea spleenwort and shrubby sea blight. Sheltered grasslands are important for invertebrates such as small blue butterfly, and the cliffs for nesting coastal sea birds*".

Predicted Future Baseline

6.3.6.2 It is anticipated that the current conservation status of the designated features will be maintained.

6.3.7 Ancient Woodland, Broadleaved Woodland – Semi-Natural and Plantation and Mixed Woodland – Plantation

Current Baseline

6.3.7.1 There is 44.2 ha of ancient woodland within the PAB (see Figure 6.1.1), comprising 16.2 ha of ancient woodland of semi-natural origin and 28 ha of long-established woodland (of plantation origin). Forestry land covers approximately 328 ha within the PAB, made up of various categories including assumed Woodland (15 ha), broadleaved (32 ha), conifer (214 ha), felled (81 ha), mixed mainly broadleaved (15 ha), mixed mainly conifer (3 ha) and Young trees (49 ha) (National Forest Inventory, 2016). The locations of these habitats in relation to the PAB are illustrated on Technical Appendix 6.1: Terrestrial Ecology Report (Figure 3.1 and Appendix A).

Predicted Future Baseline

6.3.7.2 It is anticipated that the current conservation status of these woodlands will be maintained.

6.3.8 Terrestrial and Freshwater Habitats

Current Baseline

6.3.8.1 The PAB is predominantly lowland arable and pasture farmland, with areas of coniferous plantation woodland. There are also numerous isolated dwellings, as well as aggregations of buildings. Since the Phase 1 habitat surveys were undertaken before the PAB was confirmed, some areas of PAB were not surveyed since they were outside the Phase 1 Study Area. However, the areas that were surveyed provide representative and robust baseline data for the purposes of the assessment that can be applied across the PAB.

6.3.8.2 The Phase 1 Study Area extends approximately 28 km from north to south, with a loop extending around the towns of Keith and Fife Keith. Some areas within the Phase 1 Study Area were inaccessible for direct survey (due to access permissions and / or safety reasons) these areas were surveyed from a distance.

6.3.8.3 Those habitats scoped into the assessment (with reference to Technical Appendices 6.1 and 6.4) are described below in the order in which they are presented in the Phase 1 Handbook (JNCC, 2010). They are illustrated on Figure 3.1 in Technical Appendix 6.1. The closest corresponding SBL category is included in brackets in the bullet points below (e.g. SBL purple moor-grass and rush pastures**)** and coverage (ha) with the PAB is also included:

- **B5: Marsh / marshy grassland (SBL purple moor-grass and rush pastures) (28.4 ha)**. In part due to the high levels of agricultural improvement in the area, marshy grassland occupies only a small part of the study area where soils are poorly drained and frequently heavily poached, lying within areas of semi-improved or improved grassland. Notable areas of marshy grassland occur on the outskirts of Sandend, upper reaches of the Burn of Fordyce, Myreside and Mill of Paithnick. Species present include: soft rush; sharp-flowered rush; ragged robin; floating sweet-grass; common spotted orchid; marsh violet; common yellow-rattle; quaking grass; tufted hair-grass; meadow buttercup; common sedge; cuckooflower; lesser spearwort; marsh bedstraw; and bulrush.
- **G1: Standing water (SBL Ponds).** Open standing water is not a common feature of the PAB, with a pond situated at Gallowhill, adjacent to the Burn of Tarnash, Greenwood Farm being the only recorded that were large enough to map.
- **G2: Running Water (SBL Rivers).** The PAB is divided into two key river catchments. The northernmost drains directly into the sea in the vicinity of Sandend (Scattery Burn [tributaries within the PAB] and the Burn of Fordyce) or Cullen (via the Burn of Deskford). South of the watershed, which bisects the study area close to Nethertown Farm, all watercourses drain into the River Isla. The River Isla is the major river within the study area and rises in the Grampians and converges with the River Deveron near Rothiemay, ultimately flowing into the North Sea at Banff Bay. Running water includes extensive networks of man-made drainage channels and ditches. These are the main watercourses within the PAB along with Burn of Fordyce; Herds Burn; Linn Burn; Alton Burn; Flake Burn; Hoggie Burn; Burn of Croft; Bowie Burn; Burn of Paithnick; River Isla; Mill of Wood Burn; Herrick's Burn; Birken Burn; Burn of Tarnash; and Burn of Nethertown.
- **H1 and H8: Maritime hard cliff, coastal grassland, dune habitats (SBL coastal sand dunes).** Maritime hard cliffs (H1), most of which are very steep and high, are commonly present in the north-east of the PAB. An area of coastal grassland (H8.4), together with areas of dense gorse scrub, is present in the north of the PAB. This habitat is also associated with areas of dune grassland (H6.5), open dune (H6.8) and dune slack (H6.4). Most sand associated with these habitats is consolidated. Species such as marram and lyme-grass are present in these areas along with meadowsweet. A very small area of open dune is also present. These habitats are included in the Cullen to Stake Ness Coast SSSI and Cullen to Whitehills Coast LNCS assessments since they are not located outside of these designated areas.

Predicted Future Baseline

6.3.8.4 In the absence of the OnTI, the management of the land in the PAB is unlikely to change notably in the foreseeable future and therefore the baseline with respect to terrestrial and freshwater habitats would remain largely unchanged.

6.3.9 Intertidal

Current Baseline

6.3.9.1 The Onshore Landfall Area is comprised of rocky shores backed by cliffs and occasional sandy or shingle bays (Section 6.3.1.3). Rocky shores dominate throughout the Onshore Landfall Area, with smaller bays intercepting rocky promontories towards Redhythe Point. These rocky shores and shingle areas form part of the Cullen to Stake Ness Coast SSSI (Figure 6.1.2).

6.3.9.2 The text immediately below describes the results of a site-specific survey undertaken at the beach at Sandend. Although the beach at Sandend is now excluded from the PAB, the results are considered representative of the intertidal habitats and communities that will be present within smaller pockets of soft sedimentary areas of the coastline in the vicinity of Redhythe Point.

Sediment Composition

6.3.9.3 The intertidal habitats recorded at the beach at Sandend were predominantly characterised by well sorted medium sands with low gravel and silt content (<1%).

Sediment Contamination

6.3.9.4 Three mid shore stations from the beach at Sandend were sampled for contaminants including metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, barium, aluminium and tin) and polycyclic aromatic hydrocarbons (PAHs). A summary of the results of the contaminant analysis are provided in Table 12 of Technical Appendix 6.3 (Intertidal Survey Report). All metals were found at concentrations below respective guidelines (where available) with no samples above UK Cefas Action Levels (ALs), Dutch Quality Standards (IADC/CEDA, 1997) or Canadian Sediment Quality Guidelines (CMME, 1999). PAH concentrations were also low below the level of detection (LOD) for the analytical tests although LODs for Acenaphthene, Acenaphthylene, Dibenzo(ah)anthracene were slightly higher than the Canadian total exceedance level (TEL) values.

Intertidal Communities

6.3.9.5 Intertidal habitats were relatively dynamic and were represented by somewhat sparse benthic invertebrate communities characterised by amphipod crustaceans, occasional isopods and polychaetes such as Nephtyidae species, *Scolelepis* species and occasionally *Arenicola marina*.

6.3.9.6 Figure 4.1 of Technical Appendix 6.3 presents a map of the biotopes identified across the beach at Sandend. Typical biotopes included **LS.LSa.MoSa** (Barren or amphipod-dominated mobile sand shores) or **LS.LSa.MoSa.BarSa** (Barren littoral coarse sand) on the upper shore and **LS.LSa.MoSa.AmSco.Sco** (*Scolelepis* spp. in littoral mobile sand) or relatively impoverished variants of **LS.LSa.FiSa.Po** (Polychaetes in littoral fine sand) on the mid and lower shore. Some areas of cobbles/stones were also present in some areas on the mid to upper shore adjacent to transect SE3 which included the biotope **SS.LCS** (Littoral coarse sediments) or **LR.FLR.Eph.EphX** (Ephemeral green and red seaweeds on variable salinity and/or disturbed eulittoral mixed substrata) whilst areas of sand covered rock lower down the shore near to transect SE3 included examples of **LR.FLR.Eph.Ent** (*Enteromorpha* spp. on freshwater-influenced and/or unstable upper eulittoral rock) or sparse **LR.HLR.MusB.Sem** (*Semibalanus balanoides* on exposed to moderately exposed or vertical sheltered eulittoral rock).

6.3.9.7 Areas of littoral rock were primarily restricted to the eastern and western fringes of the bay which included a variety of biotopes including SS.LCS (Littoral coarse sediments), **LR.FLR.Eph.Ent** (*Enteromorpha* spp. on freshwater-influenced and/or unstable upper eulittoral rock) or **LR.FLR.Lic** (Lichens or small green algae on supralittoral and littoral fringe rock) on the upper shore whilst mid shore rocky habitats tended to be dominated by barnacles, *Littorina* spp. and limpets with sparse fucoid or red algae coverage (e.g. *Mastocarpus stellatus*) and formed variants of the biotope **LR.HLR.MusB.Sem** (*Semibalanus balanoides* on exposed to moderately exposed or vertical sheltered eulittoral rock) often with rockpools with a variety of algal species including biotopes such as **LR.FLR.Rkp.Cor.Cor** (coralline crusts and *Corallina officinalis* in shallow eulittoral rockpools) or **LR.FLR.Rkp.G** (green seaweeds (*Enteromorpha* spp. and *Cladophora* spp.) in shallow upper shore rockpools).

6.3.9.8 Other biotopes included **LR.HLR.FR.Coff.Coff** (*Corallina officinalis* and *Mastocarpus stellatus* on exposed to moderately exposed lower eulittoral rock) and **LR.LLR.F.Pel** (*Pelvetia canaliculata* on sheltered littoral fringe rock) with the latter primarily evident on transect SE4. Sand influenced rock biotopes were also present in lower shore rock habitats in sand such as **LR.MLR.BF.Rho** (*Rhodothamniella floridula* on sand-scoured lower eulittoral rock) often with **LR.FLR.Eph.Ent** (*Enteromorpha* spp. on freshwater-influenced and/or unstable upper eulittoral rock) and biotopes dominated by *Fucus serratus* (**LR.MLR.BF.Fser** (*Fucus serratus* on moderately exposed lower eulittoral rock) or *Fucus spiralis* **LR.LLR.F.Fspi.FS** (*Fucus spiralis* on full salinity sheltered upper eulittoral rock) were also recorded near transect SE5 on the lower and upper shore respectively.

6.3.9.9 Overall the biotopes recorded at the beach at Sandend represent typical communities for moderately exposed sandy beaches and rocky habitats and no species or habitats of conservation importance were noted.

6.3.9.10 A full description of the intertidal habitats and communities present is provided in Technical Appendix 6.3: Intertidal Survey Report.

Predicted Future Baseline

6.3.9.11 The intertidal baseline environment is not static and will exhibit some degree of natural change over time, with or without the Development in place, due to naturally occurring cycles and processes. Modelling sea surface temperature in relation to climate change in the UK has shown that the rate of temperature increase over the previous 50 years has been greater in waters off the east coast of the UK compared to the west and this is predicted to continue for the next 50 years (MCCIP, 2013). As such, the baseline in the Onshore Landfall Area is a 'snapshot' of the present intertidal ecosystem within a gradual yet continuously changing environment. Any changes that may occur during the lifetime of the Moray West OnTI should be considered in the context of both greater variability and sustained trends occurring on national and international scales in the marine environment.

6.3.10 Barn Owl

Current Baseline

6.3.10.1 Barn owl is a Wildlife & Countryside Act 1981 (as amended in Scotland) Schedule 1 breeding species and on the SBL. The 2017 breeding bird surveys recorded one pair of breeding barn owl within the PAB. Whilst barn owl was not recorded breeding within the PAB, there is potential for breeding to occur within suitable habitats in those areas not covered by the 1 km survey squares.

Predicted Future Baseline

6.3.10.2 In the absence of the OnTI, the management of land in the PAB that provides suitable habitat for breeding barn owl would be unlikely to notably change in the foreseeable future. On this basis, the future baseline with respect to barn owl would remain largely unchanged.

6.3.11 Quail

Current Baseline

6.3.11.1 Quail is a Wildlife & Countryside Act 1981 (as amended in Scotland) Schedule 1 breeding species and amber listed Bird of Conservation Concern (BoCC). The 2017 breeding bird surveys recorded six potential territories within the 1km survey squares, four of which were within 500 m of the PAB and two within the PAB. Consequently, there is potential for breeding to occur within suitable habitats in those areas of the PAB not covered by the 1 km survey squares.

Predicted Future Baseline

6.3.11.2 In the absence of the OnTI, the management of the land in the PAB that provides suitable quail habitat would be unlikely to change notably in the foreseeable future. On this basis, the future baseline with respect to quail would remain largely unchanged.

6.3.12 Reptiles

Current Baseline

6.3.12.1 The desk study has confirmed that the following common and widespread reptile species are known to be present in the wider area: slow worm; adder; and common lizard. These species typically occupy a range of habitats including heathland, scree, grassland, woodland edge, disused quarries and embankments and adders will also make use of coastal dune systems (Edgar *et al.* 2010). No sightings of reptile species were reported by field surveyors during surveys. Intensively farmed arable and pasture farmland dominate the PAB. These have an even habitat structure, which is sub-optimal for reptile species. However, many of the habitats recorded within the PAB are potentially suitable for reptile shelter, foraging, basking and hibernation.

Predicted Future Baseline

6.3.12.2 In the absence of the OnTI, the management of the land in the PAB that provides suitable reptile habitat would be unlikely to change notably in the foreseeable future. On this basis, the future baseline with respect to reptiles would remain largely unchanged.

6.3.13 Badger

Current Baseline

6.3.13.1 The desk study data provided by NESBReC returned records of badger within the search area. Signs of badger were ubiquitous throughout the survey area, including well-used setts, latrines and dung pits, paths (as indicated by the presence of badger prints in mud or other substrate; worn push-throughs typically beneath fences and sometimes with caught guard hairs; or worn paths through vegetation). Fifty-three setts (including several possible setts) were recorded within the areas of the PAB surveyed (see Appendix A and Figure 3.1 of Technical Appendix 6.1a). Woodland areas, field boundaries, river flood plains, patches of gorse and scrub, and other secluded areas were seen to be important for sett-building, particularly where soils are well-drained or there is a bank into which to excavate.

6.3.13.2 Interpretation of the survey results indicate that a number of badger groups exist within the PAB and make extensive use of the land within it for sett-building and foraging. Most linear features, including minor or unmarked field boundaries, were frequented by badgers of various ages.

Predicted Future Baseline

6.3.13.3 In the absence of the OnTI, the management of the land in the PAB would be unlikely to change notably in the foreseeable future. On this basis, the future baseline with respect to badger would remain largely unchanged.

6.3.14 Bats

Current Baseline

6.3.14.1 The desk study data provided by NESBReC returned records of common pipistrelle, soprano pipistrelle and Daubenton's bat within the search area. Technical Appendix 6.1 (Appendix C and Figure 3.2) identifies all buildings / building complexes within the PAB which could feasibly be used by bats for roosting. Many of the farm buildings, steadings and associated buildings are suitable for supporting roosting bats, particularly when situated close to good foraging habitat (see below) or on key linear features connecting these. Technical Appendix 6.1 (Appendix C and Figure 3.2) also shows and describes the locations within the PAB which have features with the potential to be used by bats for roosting, including bridges and other man-made structures, and stand-alone trees. In addition to these features, areas of broad-leaved woodland were assessed as having particularly high potential to support roosting bats in trees, these being Mill Wood and the woodlands adjacent to Birken Burn.

6.3.14.2 Key foraging habitat for bats includes the following features (illustrated on Figure 3.2 of Technical Appendix 6.1):

- Still and running water (particularly where this is bordered with riparian vegetation);
- Woodland, in particular broad-leaved woodland and forest edges; and
- Wetland, scrub and pasture farmland.

6.3.14.3 Commuting habitat for bats that was recorded includes the following features (illustrated on Figure 3.2 of Technical Appendix 6.1):

- Post-and-wire fence (least valuable);
- Double fence with hedge or saplings;
- Ditch (dry or running water) with ruderal vegetation;
- Tree lines and vegetated watercourses;
- Woodland edges and rides of conifer plantation woodland; and
- Broad-leaved woodland with running water (most valuable).

Predicted Future Baseline

6.3.14.4 Population trend estimates for three of the ten bat species that occur in Scotland (common pipistrelle; soprano pipistrelle and Daubenton's bat) indicate stable and increasing population trends (SNH, 2015a). Insufficient data were available for the other species. However, ongoing threats to bats that may alter their usage of the PAB and ZoI include: human disturbance to roosting sites and foraging grounds; altering landscape and prey availability; roosts being lost during development; and changes in building practices to improve energy efficiency meaning new buildings may offer fewer roosting opportunities (SNH, 2015a). However, at present there are no data to indicate that such threats will occur within the PAB and in the absence of the OnTI, it is considered on this basis that the future baseline with respect to bats would remain largely unchanged.

6.3.15 Pine Marten

Current Baseline

6.3.15.1 The desk study data provided by NeSBREC returned records of pine marten within the search area. Pine marten is an arboreal (tree-climbing) carnivore and requires extensive woodland habitat in order to escape from ground-based and aerial predators. Whilst pine martens tend to form dens in elevated cavities in trees, where such features are not available they will select crags, boulders, rock piles or den sites in buildings close to woodland, or in other man-made habitats such as nest boxes.

6.3.15.2 The PAB falls within the known distribution of pine marten in north east Scotland (Croose *et al*., 2013), in an 'expansion zone' within which pine marten was not (prior to that study) known to be present following historic declines. Whilst the structure of many of the commercial forestry plantations within the PAB is not ideal, being monotonous in structure (in particular young growth and thicket-stage plantations) there are plentiful substitutes for woodland features and prey species including voles and other small mammals, birds, berries, invertebrates and amphibians are likely to be plentiful.

6.3.15.3 The locations of pine marten or suspected pine marten field signs, including a sighting and anecdotal records within the PAB, are shown in Technical Appendix 6.1 (Table 3.2 and pine marten target notes (PM) are shown in Figure 3.3). These include a pine marten sighting (PM7) in Cotton Hill Wood, scats within Greenhill Plantation (PM9, PM10), a scat within Lurghill Plantation (PM11) and an anecdotal unconfirmed sighting in Windyhills Wood (PM13) and near Hill of Ardrone.

Predicted Future Baseline

6.3.15.4 The PAB is located within an area of pine marten expansion (Croose *et al*., 2013), and in the absence of the OnTI it is considered that some of these plantations may be felled and potentially replanted and there may be additional anthropogenic influences (such as predator control). It is not considered that these factors would notably alter the baseline with respect to pine marten in the forseeable future.

6.3.16 Red Squirrel

Current Baseline

6.3.16.1 The desk study data provided by NeSBREC returned records of red squirrel within the search area. The PAB features woodland and forestry which contain at least some habitat suitable for red squirrel (i.e. with a suitable age structure and diversity of seed-bearing trees and shrubs). Viable red squirrel populations are generally believed to require a minimum of 200 ha of optimal habitat (Pepper and Pattersen, 1998). Two of the woodlands in the PAB (Cotton Hill Wood and Greenhill Plantation) were identified as priority woodlands for red squirrel conservation in the North of Scotland in a preliminary analysis published in 2005 (Poulsom *et al.* 2005). Grey squirrel, a non-native species which is also a competitor of the native red squirrel, is not known to be present in the wider area and the predominance of Sitka spruce plantation is very poor for grey squirrel, although this is a sub-optimal habitat for red squirrel also.

6.3.16.2 Survey results are presented in Technical Appendix 6.1 (red squirrel target notes RS1-RS8 are shown on Figure 3.3 and a summary of known information pertaining to this species within the survey area is shown in Table 3.3). Signs of red squirrel[15], in the form of chewed pine cones and feeding stations on prominent tree stumps and the forest floor, were found by field surveyors in Greenhill Plantation which is partially within the PAB. No dreys or other signs

[15] All signs of squirrel feeding are assumed to be red squirrel as grey squirrel is not known to be present in this part of Moray.

indicative of drey construction were recorded. No red squirrels were sighted by surveyors during surveys and no anecdotal records of this species were recorded.

Predicted Future Baseline

6.3.16.3 Threats to red squirrel include disease, loss and fragmentation of habitat and competition with grey squirrels. Conservation action such as that coordinated by Saving Scotland's Red Squirrel (SSRS) partnership is designed to protect red squirrel populations across Scotland. Therefore, in the absence of the OnTI, it is not considered that the baseline with respect to red squirrel would alter notably.

6.3.17 Otter

Current Baseline

6.3.17.1 The desk study data provided by NESBReC returned records of otter within the search area. There are 20 key named watercourses within the Protected Species Study Area, which are also shown on 1:50,000 scale Ordnance Survey (OS) maps, all of which were surveyed for otter signs. These are the main watercourses that were surveyed within the PAB along with several unnamed drainage channels: Burn of Fordyce; Herds Burn; Linn Burn; Alton Burn; Flake Burn; Hoggie Burn; Burn of Croft; Bowie Burn; Burn of Paithnick; River Isla; Mill of Wood Burn; Herrick's Burn; Birken Burn; Burn of Tarnash; and Burn of Nethertown. Scattery Burn was also surveyed, but only has tributaries within the PAB.

6.3.17.2 The River Isla is a key salmonid river, and as such supports an important population of Atlantic salmon, resident brown trout and sea trout (The Deveron, Bogie and Isla Rivers Charitable Trust, 2018) each of these are otter prey within the Isla and Deveron catchment. The coast will provide many foraging opportunities, including for crustaceans and breeding birds, as well as fish and eels. Other watercourses within the study area will provide foraging resources relative to their size and productivity, with ponds and ditches also used, for example to exploit seasonal resources such as amphibians.

6.3.17.3 Secluded features that could be used as resting sites were not common along open stretches of watercourse and the only structures confirmed to have been used for resting were found in rip-rap banking on the north bank of the River Isla. Woodland and even forestry will provide shelter for otters and may even be suitable for natal holts, for example under the root boles of fallen trees, where protection can be sought from predators such as foxes.

6.3.17.4 The locations of otter (or suspected otter) field signs within the PAB are shown in Technical Appendix 6.1 (otter target notes [O] are shown on Figure 3.4 with descriptions in Appendix D). There were confirmed signs otter on the Burn of Fordyce (O2 – potential resting site), Hoggie Burn (O5 – spraint), Burn of Paithnick (O22 / 23 – Potential resting sites), River Isla (O24 to O33, holt, potential resting sites, spraints, slide and prints), Birken Burn (O46 – spraint) and Burn of Nethertown (O47 – spraint).

Predicted Future Baseline

6.3.17.5 Otter populations within the PAB and ZoI may alter through habitat change, changes in weather and climate, new roads and increasing traffic, changes in fish populations and changes in the types of pollutants in the aquatic environment (SNH, 2015b). However, in the absence of the OnTI, there are no current data to indicate that the otter population would change notably in the foreseeable future.

6.3.18 Water Vole

Current Baseline

6.3.18.1 Local desk study records of water vole are patchy and uncommon although this species is widespread in parts of northern Aberdeenshire, occurring in a variety of habitats such as small

slow flowing burns, ditch systems and field drains even in intensively farmed areas. Many of the watercourses, ditches and drainage channels across the PAB, together with areas of wetland and ponds, are suitable for colonization by water vole, having bank habitat suitable for burrowing and food plant species such as sedges and rushes. The main watercourses that were surveyed for water vole within the PAB, along with several unnamed drainage channels, included: Burn of Fordyce; Herds Burn; Linn Burn; Alton Burn; Flake Burn; Hoggie Burn; Burn of Croft; Bowie Burn; Burn of Paithnick; River Isla; Mill of Wood Burn; Herrick's Burn; Birken Burn; Burn of Tarnash; and Burn of Nethertown. Scattery Burn was also surveyed, but only has tributaries within the PAB. No confirmed signs of water vole were recorded during surveys undertaken in 2017 and 2018.

Predicted Future Baseline

6.3.18.2 Threats to water vole include habitat loss and degradation, pollution, predation (American mink and native predators) and population fragmentation. However, in the absence of the OnTI, the management of the land in the PAB would be unlikely to change notably in the foreseeable future. On this basis, the future baseline with respect to water vole habitat would remain largely unchanged, however, the future baseline of the species may change if new populations move into, or from, the PAB or within the local area and migrate into, or from the PAB due to their mobile nature.

6.3.19 Scottish Wildcat

Current Baseline

6.3.19.1 The desk study data provided by NeSBREC returned a single record of Scottish wildcat within the search area. Scottish wildcats prefer to live on woodland edges, in the margins of mountains and moorlands, with rough grazing. They generally avoid high mountain areas, exposed coasts and intensively farmed lowlands. Wildcats can be very closely associated with humans, particularly around lowland farmland, and in the Strathbogie area of Moray wildcats have also been seen to make use of the extensive opportunities within clear-felled plantation forestry for denning and secluded cover (pers. Comm. Emma Rawling, Scottish Wildcat Action project officer for Strathbogie and Strathavon). The southernmost edge of the study area, south of the existing Blackhillock substation, overlaps with the Strathbogie area, which is one of five areas which have been identified by conservation and research group Scottish Wildcat Action as a priority for wildcat survey and action in Scotland.

6.3.19.2 Areas which are considered particularly suitable for wildcat in the PAB include areas of recently clear-felled forestry plantation (e.g. in Cotton Hill Plantation), while rabbits, the typical prey species of the Scottish wildcat, are present across the PAB at low densities. No wildcats (or suspected wildcats) were sighted during surveys in 2017, although being an elusive and rare mammal this is not unexpected. A landowner who was spoken to at Nethertown (near the centre of the study area) stated that wildcat had been seen nearby, although no further corroboration of this anecdote was received. No suspected wildcat scats or den sites (such as in hollow trees, rock crevices, disused badger setts or rabbit burrows) were recorded during the surveys.

Predicted Future Baseline

6.3.19.3 Threats facing Scottish wildcat include disease, habitat fragmentation and hybridization. However, initiatives such as those coordinated by Scottish Wildcat Action aim to try to address these threats through conservation action. Therefore, in the absence of the OnTI, the management of the land in the PAB would be unlikely to change notably in the foreseeable future. On this basis, the future baseline with respect to Scottish wildcat would remain largely unchanged.

6.3.20 Aquatic Fauna

Current Baseline

6.3.20.1 Aquatic ecology surveys were outside the agreed survey scope. However, the NBN Atlas has records of the following species within the watercourses in the search area: Atlantic salmon; brown / sea trout; eel; sea lamprey; brook lamprey; river lamprey and freshwater pearl mussel.

6.3.20.2 The PAB is situated within the Banff Coastal and River Isla catchments within the Scotland River Basin District and watercourses within these catchments discharge into the Moray Firth. Across the PAB there are seven WFD river water bodies. Those watercourses achieving 'Good' or 'Moderate' WFD status are more likely to provide suitable habitat for aquatic fauna since 'ecological condition' is one of the assessment parameters. These watercourses are listed below with their 2015 WFD condition (SEPA, 2017):

- Deskford Burn – Overall Moderate. SEPA 2017 data indicates that fish populations in the water body may not be in a good condition. SEPA have not been able to identify the contributing cause;
- Fordyce Burn – Overall Moderate;
- Burn of Paithnick: Overall Bad;
- River Isla (Keith to Shiel Burn) – Overall Bad;
- River Isla (Source to Keith) – Overall Poor;
- Burn of Drum – Overall Good; and
- Cairnie Burn – Overall Good.

Predicted Future Baseline

6.3.20.3 In the absence of the OnTI, the management of the land and watercourses in the PAB would be unlikely to change notably in the foreseeable future. However, the WFD watercourses that are not meeting 'Good' status have management plan associated with them in order to achieve this status by 2027. On this basis, the future baseline with respect to aquatic fauna would remain largely unchanged but may improve if the management plans are successfully implemented.

6.3.21 Non-Native Invasive Species

Current Baseline

6.3.21.1 The following non-native species were recorded within the PAB and their locations are illustrated in Technical Appendix 6.1 (Figure 3.1 and Appendix A):

- Giant hogweed (TN16, 50); and
- Monkeyflower (TN17, 21).

Predicted Future Baseline

6.3.21.2 In the absence of the OnTI, the management of the land in the PAB would be unlikely to change notably in the foreseeable future. However, non-native invasive species can reasonably be expected to spread if not controlled. On this basis, the future baseline with respect to non-native species may involve a greater coverage of these species.

6.3.22 Data Limitations

6.3.22.1 The PAB was determined following completion of the ecological surveys; survey coverage does not include all areas within the PAB or the relevant buffers. Surveys for bats, pine marten, red squirrel and Scottish wildcat were limited to 'habitat appraisal' rather than targeted surveys and detailed botanical surveys were not undertaken. Similarly, surveys relating to aquatic receptors, Atlantic salmon, sea / brown trout, freshwater pear mussel, lamprey and eel were not

conducted, however, consideration was given to suitability of the numerous watercourses within the PAB for these species. It was determined that targeted surveys for these species would be best targeted on specific habitats that may be subject to direct effects during the detailed design stage for the OnTI (in consultation with SNH). Furthermore, a route for the cable circuits within the PAB has not yet determined and therefore some construction methods are also as yet unconfirmed.

6.3.22.2 The conclusions presented herein are therefore predictive and precautionary (i.e. a reasonable worst-case scenario has been considered). This chapter provides an indicative assessment in relation to the potential for ecological features within the PAB. Once more information on the OnTI becomes available at the detailed design stage, a more refined and targeted phase of ecological investigation, including detailed botanical and protected species surveys as necessary, will be undertaken to ensure ecological and legal requirements are considered and addressed appropriately. This will include a suite of surveys as described in Section 6.4 targeted to the important ecological receptors within the ZoI.

6.3.22.3 Regardless of data limitations, it is considered that the data presented in this chapter and associated technical appendices are sufficiently comprehensive and robust for the purposes of the assessment.

6.4 Embedded Mitigation

6.4.1.1 In the context of this chapter, embedded mitigation includes a range of environmental measures incorporated into the OnTI from design stage through to (potential) decommissioning.

6.4.1.2 Measures that have been incorporated into the OnTI in order to avoid or reduce potential negative effects on biodiversity, to prevent breaches of legislation, and / or deliver environmental enhancement, are presented below. Consequently, the subsequent assessment is based on the 'mitigated' design.

6.4.2 Detailed Design / Pre-Construction

Cullen to Stake Ness SSSI

6.4.2.1 Regarding infrastructure and construction activities within the SSSI:

- Where practicable, the preferred technique for the installation of infrastructure will be Horizontal Directional Drilling (HDD), as long as this reduces the overall impacts on all features (biological and geological). A HDD method statement (MS) for works within the ZoI of the SSSI will be drawn up in consultation with SNH;
- Should it prove necessary to use installation techniques other than HDD (e.g. open cut trenching), consultation will be undertaken with SNH throughout the detailed design process regarding the most appropriate approach, as well as to agree siting of infrastructure and temporary works areas;
- A botanical assessment (National Vegetation Classification [NVC]) will be undertaken within the ZoI along with surveys of the designated geological features and used to refine the exact construction methods and locations (both temporary and permanent) to avoid the best representative locations of the designated features. The potential to focus on areas where scrub encroachment (and / or other factors) is compromising the FCS of the SSSI will be considered along with a suite of bespoke mitigation and compensation measures if required; and
- If works are required within the intertidal areas of the SSSI, further Phase 1 / Phase 2 intertidal surveys will be undertaken to ensure there are no effects upon SSSI features or other sensitive habitats and communities.

SESAs and / or LNCSs

6.4.2.2 Where the cable circuits are proposed to traverse LNCS / SESA designations, a detailed habitat, faunal and / or botanical assessment will be undertaken within the ZoI as agreed with relevant consultees. A MS will be developed highlighting any amended construction methods and / or location to ensure that site integrity will not be negatively affected.

Habitats and Species Outside Designated Sites

6.4.2.3 Surveys of key ecological features will be undertaken to inform the final design of the OnTI. These will include any important habitats and / or species (Box 6.1) together with any legally protected habitats and / or species that may be directly or indirectly impacted by the proposed works. The survey methodologies will follow current accepted guidance at the time when they are carried out.

6.4.3 Construction Phase

6.4.3.1 The HDD exit point and joint bay will be located above the MHWS to minimise loss and disturbance to the intertidal habitats and species.

6.4.3.2 The Marine Pollution and Contingency Plan (MPCP) being produced for the Moray West offshore export cable corridor to cover the construction, operation and maintenance phases of the Development will apply to the intertidal area and will be followed. This will include planning for accidental spills, address all potential contaminant releases and include pollution event response protocols.

6.4.3.3 Construction works that may affect important ecological features (Box 6.1) will be supervised by a project ecologist or Ecological Clerk of Works (ECoW) to be approved by the relevant authorities. Best practice mitigation measures will be applied to avoid or minimise potential impacts upon key ecological features and will include:

- Tool-box talks will be prepared and delivered by the ECoW as necessary to advise site workers of the presence of ecological features and the mitigation measures required;
- Construction activities will be limited to clearly-defined working areas and vegetation clearance will be kept to a minimum. Where important habitat loss is unavoidable, habitat removal will be timed and phased to minimise potential effects, and compensatory habitat created, or existing habitat enhanced in advance of the works. Habitat connectivity will be retained wherever possible by maintaining links within and to green corridors such as tree lines, scrub and watercourses. Where effects on connectivity are unavoidable, it may be artificially supplemented (e.g. by the creation of temporary brash hedges);
- General construction methods will aim to minimise noise, ground vibrations and disturbance where possible;
- Dust control measures will be implemented. These will include: using a system of onsite vehicle routes; turning areas and loading areas with suitable speed limits and signage; sheeting of potential dust-generating materials being transported on lorries / vans to and within the site; using road sweepers as necessary; damping down access tracks during dry weather; and spraying of stockpiles in dry weather;
- Where night works are unavoidable, the need for artificial lighting will be kept to a minimum and directed away from sensitive habitats and species. The ECoW may make recommendations revising the times of working hours at specific locations or times of year as appropriate to avoid disturbance of sensitive receptors;
- Watercourse crossings will be designed according to best practice (CIRIA, 2010). The exact designs for culvert structures and other watercourse crossings will be the subject of consultation with SEPA, SNH and other relevant consultees prior to construction, and will be

designed to allow the through passage of fish and otters, while maintaining existing flow conditions and river bed conditions within each watercourse;

- All culverts will be fitted with mammal ledges to facilitate otter and water vole movement along ditches and through the culverts themselves;
- Where in-channel culverts are to be installed, they will be specifically designed to be as narrow as possible and fit existing channel dimensions, thereby ensuring that flow conveyance is maintained or enhanced relative to current conditions. All culverts will also be fitted with mammal ledges to facilitate otter and water vole movement along ditches and through culverts. Connectivity will therefore only be severed temporally during the installation and removal works, which is short term; typically taking between one and five days;
- Any construction activities within 10 m of a watercourse or waterbody will be conducted following a detailed MS. Where in-channel culverts are to be installed, they will be specifically designed to be as narrow as possible while fitting existing channel dimensions, thereby ensuring that flow conveyance is maintained or enhanced relative to current conditions;
- Delineation of waterbodies to prevent plant / operatives will be implemented to avoid damaging riparian vegetation and disturbing associated species. A minimum stand off from all watercourses and waterbodies will be adopted where possible on a site by site specific basis. Construction practices will comply with SEPA's Guidance for Pollution Prevention (GPPs) / Pollution Prevention Guidelines (PPGs) with a view to preventing the pollution of ground and surface waters.
- Stand-off buffers, temporary soakaways, appropriately discharged dewatering, soil stockpiles at appropriate locations, silt fencing and appropriate housekeeping measures to prevent pollution and siltation to water receptors;
- Steep-sided excavations will be covered at night, or an escape ramp provided to prevent badgers / otter and other legally protected / important species falling in or becoming trapped;
- A construction vehicle speed limit will be specified. Operatives will also be warned of the presence (or potential presence) of species in order to reduce the risk of death or injury to them through vehicle collision. The majority of construction work will be completed between sunset and sunrise, which limits the likelihood of fatalities;
- HDD will be applied to pass the onshore cable circuits beneath Pitlurg Wood, with no felling of woodland being required;
- The extent of any unnecessary habitat disturbance will be minimised by backfilling, where possible, material displaced as a result of cable circuit trenching and burial activities in order to promote recovery of habitats and species;
- Areas of replacement planting / seeding (if required) will be undertaken where required for mitigation to offset removals, and following agreement with landowners. Planting will be subject to an aftercare and monitoring programme for an agreed period, during which any plantings lost would be replaced.
- If effects on important ecological habitats (Box 6.1) are unavoidable, and if appropriate to the habitat, top soil (and thus the associated seed bank) will be appropriately stored and either reinstated following works or used at an alternative suitable location to preserve that seed bank. For other habitats (e.g. sand dune), recolonization may be more appropriate. This will need to be monitored, with the option to replant should the regeneration not achieve pre-agreed standards as agreed with the relevant consultees;
- Pre-construction verification check surveys will be undertaken for all protected species where potential significant effects or legal breaches could occur otherwise, considered to include

(but not be limited to) otter, water vole, badger, red squirrel, pine marten and bats. Survey results and mitigation measures will be set out in MSs and be regularly reviewed throughout the construction phase to ensure that they continue to be applicable and fit for purpose. Where the presence of legally protected species is confirmed, the works will be designed to minimise potential impacts on each species according to a specific MS or licence from SNH (if required);

- A minimum 30 m buffer will be applied to badger setts, otter holts, pine marten dens, red squirrel dreys or water vole burrows. The timing of any activities within this buffer that could be disturbing will be restricted to daylight hours where at all possible;
- A minimum 100 m buffer will be applied to a Scottish wildcat dens or bat roosts during the detailed design process. The timings of any activities within this buffer that could be disturbing will be restricted to daylight hours where at all possible;
- Where bat roosts within trees are lost and / or disturbed as a result of land take / land cover change such losses or disturbance will be facilitated via licensed mitigation where effects cannot be reduced sufficiently by non-licensed MSs;
- A lighting strategy will be implemented to minimise the extent to which lighting associated with construction activities could potentially affect nocturnal (or predominantly nocturnal) species such as bats and otters. Measures incorporated will include: lights will be of the minimum brightness and / or power rating capable of performing the desired function; light fittings used will reduce the amount of light emitted above the horizontal; light will be positioned correctly and directed downwards; the direction of lights will seek to avoid spillage and will make use of motion sensors, avoiding light spill onto vegetated areas or potential bat roost sites. External lighting, including security lighting, will be minimised during the hours of darkness, where possible, particularly in the vicinity of any confirmed bat roosts. Should site compounds require security lighting, these will be on a timer and be motion sensitive. If the trees or structures that may potentially be used by bats will be affected by light, advice will be sought from a suitably qualified ecologist, and additional bat survey, assessment and mitigation may be required. Best practice guidelines will be followed during the works;
- If reptiles are found in areas of that will be affected by the OnTI, buffers will be determined on a case by case basis for a reptile hibernaculum. Any habitat removal work in these areas will be supervised by a suitably qualified ecologist, and carried out according to a MS. This will be designed to avoid the risk of injury to reptiles. In the unlikely event that reptiles need to be captured and translocated, they will be moved by a suitably qualified ecologist to newly created habitats on site, approved by a suitably qualified ecologist to provide good quality reptile habitat (e.g. with hibernacula, compost heaps, log / brash piles and basking areas);
- Throughout construction, any steep-sided excavations will be covered at night, or an escape ramp provided to avoid protected species such as badger or otter falling in and becoming trapped;
- Vegetation clearance that could affect breeding birds will be undertaken outside of the main breeding season (March to August inclusive) or, if this is not possible, areas to be cleared will be inspected by the ECoW or a qualified ornithologist no more than five days prior to clearance works. Any potential effects on bird nests will be mitigated by the adoption of specific mitigation measures. These will include pre-construction nest checks and adoption of appropriate species specific buffers. In some cases, there may be a requirement to install suitable screening around working areas. An ECoW / qualified ornithologist may be required to monitor the nesting birds during the working phase in certain areas and halt any significantly disturbing activities; and

- Best practice measures will be employed to avoid / minimise the spread of non-native invasive species via pre-construction verification checks under the supervision of an appointed project ecologist or ECoW. A MS would include details of the recommended working methods to avoid such a spread of invasive species, including site hygiene and demarcation. Additionally, onsite biosecurity measures will be implemented to avoid / minimise the spread of agricultural pest / diseases (e.g. the use of appropriate biocides in wheel washes to ensure pests / diseases are not transferred between land parcels).

6.4.4 Operation Phase

6.4.4.1 Mitigation will be expected to be of a similar nature to construction as appropriate where maintenance of infrastructure is required, but proportionally reduced in scale.

6.4.5 Decommissioning Phase

6.4.5.1 Where necessary, MSs will be developed and employed that reflect the legislation and biodiversity conditions in the PAB prevalent at the time of decommissioning to ensure that no significant effects or legal breaches occur. It is likely that these will closely reflect those used during the construction phase.

6.5 Assessment of Potential Effects

6.5.1 Key Parameters for Assessment

6.5.1.1 The assessment of effects focuses on those works to be conducted within the PAB given this is where construction, O&M and decommissioning will occur. Indirect effects from those works, and those effects associated with the temporary works, are also assessed as necessary within and beyond the PAB as appropriate to the receptors and effects concerned.

6.5.1.2 For all assessed receptors, the study area is the area within the PAB and up to (receptor dependent) a 2 km buffer from the PAB. The study areas for receptor surveys are summarised in Table 6.2.5.

6.5.1.3 The maximum design scenarios identified in Table 6.5.1 have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. These scenarios have been derived from the details provided in Chapter 2: The Proposed Development.

6.5.1.4 Since the specific details of the location of the OnTI are not yet known, embedded mitigation is currently limited to that described in Box 6.5. This assumes a reasonable worst case scenario for those receptors likely to be present and affected by the OnTI, as presented in Table 6.5.1.

Table 6.5.1: Design Envelope Scenario Assessed

Potential Impact	Maximum Negative Scenario Assessed	Justification
Construction		
Land take / land cover change; disturbance; and traffic movements.	Programme: It is anticipated that where possible, construction activities will be carried out over a 24 – 30 month period.	It is considered that simultaneous / overlapping working of construction activities has the potential for greatest effects. During construction, there is the potential for permanent and temporary loss of habitats within and outside of designated sites; the potential for a temporary loss of use of functionally connected habitats; the potential for effects on key prey

Table 6.5.1: Design Envelope Scenario Assessed		
Potential Impact	**Maximum Negative Scenario Assessed**	**Justification**
		species; and the potential for disturbance / displacement of dependent species. There is the potential for the temporary loss of foraging resources and sheltering habitat, death, injury or disturbance of dependent species.
Land take / land cover change; disturbance; and vehicle movements.	Construction Compounds: Four temporary construction compounds will be required for installation of the OnTI. It is expected that a single main compound (approximately 6 ha in overall size) will be located at the site of the onshore substation, and a further three satellite compounds (approximately 70 m x 70 m) will be established at selected locations within the PAB. It is likely that vegetation will be stripped and overlaid with aggregate materials. Construction Access Tracks: It likely that a number of temporary access tracks will be required for installation of the OnTI. Depending on ground conditions, they are likely to be constructed by overlaying stripped ground with aggregate materials. Where they are deemed necessary, access tracks will be 5 m to 6 m in width and in sensitive locations trackways may be used.	There is the potential for permanent and temporary loss of habitat; the potential for a temporary loss of use of functionally connected habitats; the potential for effects on key prey species; and the potential for disturbance / displacement of dependent species. There is the potential for the temporary loss of foraging resources and sheltering habitat, death, injury or disturbance of dependent species at each of the compounds.
Land take / land cover change; disturbance; and vehicle movements.	Offshore Export Cable Circuits: Two offshore export cable circuits will come ashore at the Onshore Landfall Area. The offshore export cables will be installed by either open cut trenching or HDD, or a combination of the two. In the intertidal zone (between MLWS and MHWS) the possible approaches to open cut trenching include: a trench is excavated and the sediment stored alongside while the cable is laid, the excavated sediment is then returned to the trench; and a large trench is cut in one or multiple passes to the correct depth before the cable is laid back in trench at a later date. The trench can be backfilled naturally or mechanically. Regarding HDD, drilling from the landward side of MHWS, this may be used to pass the offshore export cable circuits beneath features above MHWS (e.g. coastal sand dunes, unimproved acid grassland, features of the LNCS), with open cut trenching being used in the intertidal zone. However, it may also be possible to drill to a point below MLWS where marine installation equipment can operate.	There is the potential for permanent and temporary loss of Cullen to Stake Ness Coast SSSI / LNCS designated features and habitats, the potential for a temporary loss of use of functionally connected habitats; the potential for effects on key prey species; and the potential for disturbance / displacement effects of dependent species. There is the potential for the temporary loss of foraging resources and sheltering habitat, death, injury or disturbance of dependent species at the landfall.
Land take / land cover change; disturbance;	Onshore Cable Circuits: On exiting the transition joint bays, the onshore cable circuits will be buried and routed inland towards the onshore substation site. Fibre optic and distributed temperature sensing cables will be buried alongside	There is the potential for permanent and temporary loss of Cullen to Stake Ness Coast SSSI designated features and other habitats (e.g. woodland, LNCS,

Table 6.5.1: Design Envelope Scenario Assessed		
Potential Impact	**Maximum Negative Scenario Assessed**	**Justification**
and vehicle movements.	the cable circuits in separate smaller ducts. The target burial depth for the onshore cable circuits will be 1 m, and it will be installed in 750 m to 1 km lengths, which will be connected in joint bays. For the majority of the route, the cable circuits will be installed by open cut trenching, 3 m wide at the top and 0.5 m wide at the bottom. The working width is assumed to be 30 m. Different methods of installing the cable circuits will be employed when crossing linear features such as roads and watercourses. The following methods are generally expected: • Major roads, railway lines, main rivers, and sensitive watercourses and habitats – trenchless techniques wherever practicable; • Minor roads, private access tracks and disused railways – open cut techniques, subject to consultations with the landowners / occupiers and the relevant consenting authorities; and • Small / modified watercourses with straightforward reinstatement potential – open cut techniques, subject to the agreement of SEPA and other relevant consultees. The exact number and location of trenchless crossings will be identified at the detailed design stage. However, some indicative locations are considered likely including the A98, the A96 and the A95, as well as the River Isla and the Aberdeen – Inverness railway line.	SESAs), the potential for a temporary loss of use of functionally connected habitats; the potential for effects on key prey species; and the potential for disturbance / displacement effects of dependent species. There is the potential for the temporary loss of foraging resources and sheltering habitat, death, injury or disturbance of dependent species along the whole route. It is assumed that the onshore cable route will avoid Cullen to take Ness Coast SSSI if possible, and if this is not possible, HDD trenchless techniques will be used when possible. It is assumed trenchless techniques will be used for the River Isla crossing.
Land take / land cover change; disturbance; and vehicle movements.	Transition Joint Bays and Link Boxes: There will be two transition joint bays (approximately 2.5 m in depth) installed landward of MHWS as close to the Onshore Landfall Area as practicable. The footprint of each transition joint bay will measure approximately 20 m x 5 m, with an approximate spacing of 5 m. There will be a link box adjacent to each transition joint bay which will require several surface level access covers near the transition joint bays; these will measure approximately 1.5 m x 4 m. A permanent access track may be required for maintenance purposes.	There is the potential for permanent and temporary loss of habitats, the potential for a temporary loss of use of functionally connected habitats; the potential for effects on key prey species; and the potential for disturbance / displacement of dependent species. There is the potential for the temporary loss of foraging resources and sheltering habitat, death, injury or disturbance of dependent species.
Land take / land cover change; disturbance; and vehicle movements.	Onshore Substation: Permanent infrastructure (i.e. the onshore substation itself) will only be located within the western field of the onshore substation site. It is currently proposed that the eastern site be used for temporary works only. The exact location and layout of the proposed infrastructure within the western field will also be	The maximum construction area of the onshore substation has been considered. During the construction phase, there is the potential for permanent and temporary loss of improved grassland / agricultural habitats

Table 6.5.1: Design Envelope Scenario Assessed		
Potential Impact	**Maximum Negative Scenario Assessed**	**Justification**
	determined as part of the detailed design process; however its footprint will be up to 60,000 m^2. A permanent access will be taken from the existing single-track asphalt road that provides access to the buildings of Whitehillock from the A96, and borders the site to the east. Depending upon requirements, upgrades to this road may be necessary.	present; the potential for a temporary loss of use of functionally connected habitats; the potential for effects on key prey species; and the potential for disturbance / displacement of dependent species. There is the potential for the temporary loss of foraging resources and sheltering habitat, death, injury or disturbance of dependent species.
Air pollution.	Dust arising from construction activities and associated traffic movements (see Chapter 11: Air Quality for details). It is assumed that activities occur simultaneously. The Institute of Air Quality Management (IAQM, 2014) guidance states that ecological receptors within 50 m of the boundary of a construction site or 50 m of the route(s) used by construction traffic on the public road network, up to 500 m from site entrance(s), should be assessed.	It is considered that simultaneous / overlapping working of construction activities has the potential for greatest effects. Exhaust emissions and construction may exceed critical loads for nitrogen deposition and dust deposition on sensitive habitats.
Water pollution / alteration in water environment.	Pollution of water based resources from the above construction activities.	Cut trenching and piled foundations are likely to be the most intrusive construction methods, which have the potential to temporarily disrupt infiltration and displace shallow groundwater levels.
Intertidal Area: Loss of, or disturbance to habitat and species; and Increased suspended sediment concentrations / sediment deposition	Open cut trenching in the Onshore Landfall Area • Up to two cable trenches through mobile sediments in intertidal areas; • Burial depth of maximum 3 m below seabed (to be confirmed by cable burial risk assessment); • Trench affected width of up to 15 m; and • Trenches to be open for a period of days to a few weeks. HDD in the Onshore Landfall Area • Underground routing of up to two cable circuits requiring no surficial sediment disturbance; • May be used as an alternative to open cut trenching in the Onshore Landfall Area (between the onshore side and extending typically no further than 2 km offshore). • Cable transition and HDD pits will be located onshore (above MHWS) and sufficiently set back to avoid any interaction with the beach / rocky shore	The maximum design scenario is associated with open-cut trenching through the intertidal area.

Table 6.5.1: Design Envelope Scenario Assessed		
Potential Impact	**Maximum Negative Scenario Assessed**	**Justification**
	during construction and during the operational lifetime of the Development. • The cable will enter the marine environment (HDD punch out) in the subtidal area.	
Increased light / noise / vibration; and vehicle movements.	Light, noise and vibration, and traffic movements from the above activities assume that all construction activity is simultaneous. 24 hour working will be limited in extent and location and is likely to be only in relation to HDD operations.	During construction, there is the potential for temporary loss or degradation of refuging, foraging and commuting habitat, and causing disruption to the behaviour of fauna. Peak traffic numbers and any working at night, would potentially lead to highest interactions between fauna and construction traffic, causing disturbance, death or injury.
Operation and Maintenance		
Land take / land cover change; disturbance; increased light / noise / vibration; and vehicles movements. Intertidal Area: Loss of, or disturbance to habitat and species; and Increased suspended sediment concentrations / sediment deposition	O&M phase will commence after 2024, based on an onshore construction start date in 2022. Installation of the onshore cable circuits (and those in the intertidal area) will seek to ensure they are securely buried and protected from damage, such that their operation will largely be maintenance free. Maintenance activities are likely to be limited to routine testing during outages. In the event of damage or faults, testing will identify their location so that disruption from any intrusive works (e.g. equipment replacement) will be isolated. The onshore substation will not be permanently staffed. Site visits during operation will typically be limited to fortnightly routine inspections and annual routine maintenance activities. Each visit will generally involve one or two service engineers attending site. Unplanned refurbishment and maintenance of assets may require temporary removal of habitats in the immediate vicinity of the works.	During the operational period, there is some very limited potential risk of temporary damage to habitats (outside of statutory designated sites), displacement resulting from disturbance and reduction in quality of the supporting habitat and prey abundance / distribution. Temporary loss of foraging resources and sheltering habitat, death, injury or disturbance of dependent species.
Decommissioning		
Disturbance; increased light / noise / vibration; and vehicle movements.	For the purposes of this assessment, it is anticipated that all underground equipment and the onshore substation foundations will remain in-situ, with exception of intertidal cables which may be removed. Above ground equipment at the onshore substation site will be cleared and the site reinstated resulting in localised disturbance of a short-term temporary nature at this location. The exact location and layout of the	There is some very limited potential for disturbance affecting ecological receptors in the vicinity of the onshore substation.

Table 6.5.1: Design Envelope Scenario Assessed		
Potential Impact	**Maximum Negative Scenario Assessed**	**Justification**
	proposed infrastructure within the onshore substation site will be determined as part of the detailed design process; however a footprint area of up to 60,000m^2 is assumed.	
Intertidal Area: Loss of, or disturbance to habitat and species	It is anticipated that cable circuits within the intertidal area will remain in situ at Decommissioning, but it is possible they could be removed below MHWS. There may be some decommissioning activity at the edge or within the intertidal area in relation to joint bays or HDD exit / entrance points.	There is some potential for disturbance affecting ecological receptors in the intertidal area.
Cumulative Effects (All Phases)		
Land take / land cover change; disturbance; increased light / noise / vibration: and vehicle movements.	It is anticipated that the identified developments will be built out to their maximum permissible extent and that any ecological features would be damaged and / or disturbed by construction. Cumulative effects could occur where construction or decommissioning phase activities are undertaken concurrently with other similar activities associated with other developments within the study area.	Potentially significant effects are likely to be limited to the construction phase.

6.5.2 Potential Construction Effects

6.5.2.1 This section considers the construction phase impacts on ecological receptors. Where possible, impacts are quantified as identified with the design envelope Table 6.5.1. However, impacts are identified individually where appropriate and grouped where their resultant effect(s) on the receptor concerned and the consequent mitigation is the same, or where there are insufficient data at this stage to distinguish further.

Den of Pitlurg SSSI / Mill Wood SSSI / Cullen to Stake Ness Coast SSSI (biological features) / Mill Wood SSSI / SESA Cullen to Whitehills LNCS

Pollution (Air and Water)

6.5.2.2 These designated sites have been combined for consideration of indirect pollution effects.

6.5.2.3 During construction of the OnTI, pollution impacts arising from excavations, soil storage, and run-off could result in the potential for short term and temporary loss and / or degradation of habitats within these designated sites. However, implementation of embedded mitigation reduces the potential for accidental pollution events and provides a process to deal with any should they occur. Specifically, the relevant measures (as described in Section 6.4) will include adoption of best practice mitigation guidelines to prevent pollution and siltation to water receptors within these designated sites during all construction works, including, stand-off buffers, temporary soakaways appropriately discharged dewatering, soil stockpiles at appropriate locations, silt fencing and appropriate housekeeping measures.

6.5.2.4 The SSSIs are receptors of high importance, and with application of the proposed embedded mitigation will potentially be subject to a temporary negative indirect impact of **negligible magnitude**, not affecting the site integrity. This results in an effect of **minor significance** which is **not significant**. The embedded mitigation will ensure no legal breaches will result.

6.5.2.5 The SESA / LNCS are receptors of moderate importance, and will potentially be subject to a temporary negative indirect impact of **negligible magnitude**, not affecting the site integrity. This results in an effect of **minor significance** which is **not significant**.

Cullen to Stake Ness Coast SSSI (biological features)

Land Take / Land Cover Change

6.5.2.6 During construction, land take / land cover change impacts could result in the potential for permanent or temporary loss of habitat or land cover change within this statutory designated site. As a worst case scenario it is assumed that it will be necessary for the offshore export cable circuits to traverse the SSSI.

6.5.2.7 Section 6.4 sets out key principles regarding the siting of infrastructure and temporary works areas, as well as the most suitable construction methods within the SSSI. In order to identify the least sensitive parts of the SSSI (in relation to location and status of designated features) a detailed botanical assessment will be undertaken and used to inform location and methods of works (for example, determination of whether HDD or open trenching would be most appropriate). A MS will be drawn up in consultation with SNH. In addition, construction will be subject to standard best practice mitigation measures employed to avoid and minimise potential effects on running water and standing water under the supervision of an appointed project ecologist or ECoW.

6.5.2.8 This approach will ensure that the locations and nature of all construction works will be agreed in advance with SNH and will avoid and / or minimise direct effects (land take) and indirect effects (land cover, caused by changes to hydrology) on sensitive habitats and / or plant communities within this designated site. Positive management measures may be proposed (e.g. gorse scrub management) in order to address current issues affecting the FCS of the SSSI.

6.5.2.9 In summary, agreement will be reached with SNH that only effects of acceptable magnitude will occur or pursuant to a consent from SNH if any Operations Requiring Consent[16] are to be carried out.

6.5.2.10 The SSSI ecological features are receptors of **high importance**, potentially subject to a temporary negative direct impact of **negligible magnitude**, not affecting the site integrity. This results in an effect of **minor significance** that is **not significant.**

SESAs

6.5.2.11 In this section Redhythe Point, Craibstone Quarry and Mill Wood SESAs are covered together.

Land Take / Land Cover Change

6.5.2.12 Embedded mitigation will ensure that construction works avoid direct effects (land take) and indirect effects (land cover, caused by changes to hydrology) on sensitive habitats and / or plant communities within these designated sites.

[16] These operations include (http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=480): Cultivation, including ploughing, rotovating, harrowing and re-seeding; Changes in the grazing regime; Changes in stock feeding practice; Application of manure, fertilisers and lime; Application of pesticides, including herbicides (weedkillers); Dumping, spreading or discharge of any materials; Burning; Drainage; Extraction of minerals; Construction, removal or destruction of roads, tracks, walls, fences, hardstands, banks, ditches, or other earthworks, or the laying, maintenance or removal of pipelines and cables, above or below ground; Storage of materials within the site; Erection of permanent or temporary structures, or the undertaking of engineering works, including drilling; Battering, buttressing or grading rock faces; Use of vehicles or craft likely to damage or disturb features of interest; Recreational or other activities likely to damage features of interest other than those carried out responsibly in keeping with the Scottish Outdoor Access Code.

6.5.2.13 As set out in Section 6.4, where the cable circuits are proposed to traverse SESA designations a detailed habitat, faunal and botanical assessment (e.g. NVC) will be undertaken within the ZoI as agreed with SNH / AC / MC and used to refine construction methods and location to ensure that site integrity will not be negatively affected. A MS will be drawn up and agreed with SNH and other relevant consultees should cable circuits traverse a SESA. Construction will be subject to standard best practice mitigation measures employed to avoid and minimise potential effects on SESAs under the supervision of an appointed project ecologist or ECoW.

6.5.2.14 The SESA habitats are of **moderate importance**, and potentially subject to a temporary negative indirect impact of **low magnitude**, not affecting the site integrity. This results in an effect of **minor significance** and the effects of land take / land cover change would be **not significant**.

Cullen to Whitehills LNCS

Land Take / Land Cover Change

6.5.2.15 During construction, direct land take / land cover change impacts could result in the potential for temporary loss of habitat or land cover change within the non-statutory designated site.

6.5.2.16 Embedded mitigation will ensure construction works avoid the most sensitive habitats within the site in and adjacent to the PAB, and will avoid / reduce impacts on the intertidal and terrestrial habitats and the plants, insects and birds of importance to the LNCS designation.

6.5.2.17 Prior to detailed design of the OnTI, NVC surveys will be conducted to confirm the nature and potential sensitivities of the habitats within and surrounding the potential route for the cable circuits (at the land fall position) within the LNCS; the extent of surveys will be agreed with SNH and AC. Consultations will be undertaken with SNH and AC to agree any proposed activities, methods and the location of infrastructure. These will be secured via MSs to the agreement of all parties. Construction will be subject to standard best practice mitigation measures employed to avoid and minimise potential effects on the LNCS under the supervision of an appointed project ecologist or ECoW.

6.5.2.18 The LNCS ecological features are receptors of **moderate importance**, potentially subject to a temporary negative direct impact of **low magnitude**, not affecting the site integrity. This results in an effect of **minor significance** that is **not significant**.

Ancient Woodland, Broadleaved Woodland – Semi-Natural and Plantation, Mixed Woodland – Plantation and Marshy Grassland

Land Take / Land Cover Change

6.5.2.19 During construction direct land take / land cover change impacts could result in the potential for temporary loss of habitat or land cover change from the ancient woodland, broadleaved woodland (semi-natural and plantation), mixed woodland (plantation) and marshy grassland.

6.5.2.20 Construction will be subject to standard best practice mitigation measures employed to avoid and minimise potential effects on these habitats. Mitigation will include the protection of tree roots.

6.5.2.21 Ancient woodland, broadleaved woodland (semi-natural and plantation), mixed woodland (plantation) and marshy grassland are receptors of **high importance**, potentially subject to a temporary negative direct or indirect impact of **negligible magnitude**, not affecting the FCS. This results in an effect of **minor significance** that is **not significant**. The embedded mitigation will ensure no legal breaches will result.

Running Water and Standing Water

Land Take / Land Cover

6.5.2.22 During construction, direct land take / land cover change impacts could result in loss of these habitats where the cable circuits are installed using open trench techniques and due to culvert installation. Embedded mitigation (Section 6.4) states that should there be the potential for ecologically important habitats (such as running water habitats) to be directly and / or indirectly affected by the OnTI, Phase 1 habitat survey and / or NVC survey will be conducted to confirm the nature and potential sensitivities of the habitats within and surrounding the potential infrastructure locations. Following these targeted ecology surveys, the final detailed design of the OnTI will be refined to relocate (microsite) those works away from the more ecologically important running and standing water locations.

6.5.2.23 Construction will be subject to standard best practice mitigation measures employed to avoid and minimise potential effects on running water and standing water under the supervision of an appointed project ecologist, or ECoW.

6.5.2.24 Any construction activities within 10 m of a watercourse or waterbody will be conducted following a detailed MS. Where in-channel culverts are to be installed, they will be specifically designed to be as narrow as possible while fitting existing channel dimensions, thereby ensuring that flow conveyance is maintained or enhanced relative to current conditions. Delineation of waterbodies to prevent plant / operatives will be implemented to avoid damaging riparian vegetation and disturbing associated species.

6.5.2.25 The implementation of embedded mitigation within all working areas during construction will reduce the temporary and direct impacts of land take / land cover change to a negligible level.

6.5.2.26 Running water and standing water are receptors of **high importance**, potentially subject to a negative impact of **negligible magnitude**, not affecting the FCS. This results in an effect of **minor significance** that is **not significant**. The embedded mitigation will ensure no legal breaches will result.

Pollution (Aquatic)

6.5.2.27 Best practice mitigation guidelines will be used to prevent pollution and siltation to water receptors during all construction works, including, stand-off buffers, temporary soakaways appropriately discharged dewatering, soil stockpiles at appropriate locations, silt fencing and appropriate housekeeping measures. A minimum stand off from all watercourses and waterbodies will be adopted where possible on a site by site specific basis. Construction practices will comply with SEPA's GPPs / PPGs with a view to preventing the pollution of ground and surface waters. Construction will be subject to standard best practice mitigation measures employed to avoid and minimise potential indirect pollution effects on running water and standing water under the supervision of an appointed project ecologist, or ECoW.

6.5.2.28 Running water and standing water are receptors of **high importance**, potentially subject to a short term and temporary direct negative impact of **negligible magnitude**, not affecting the FCS. This results in an effect of **minor significance** which is **not significant**. The embedded mitigation would ensure no legal breaches would result.

Intertidal Ecology

Loss of, or Disturbance to, Intertidal Habitat and Species

Importance of Receptor

6.5.2.29 The species and habitats identified during the intertidal characterisation survey (**LS.LSa.MoSa.BarSa**, **LS.LSa.MoSa.AmSco.Eur**, **LS.LSa.MoSa.AmSco.Sco** and **LS.LSa.FiSa.Po**) are typical of the soft sediment habitats found in the wider region of the surrounding area. Rocky shore habitats and their associated communities dominate the coastline in the vicinity of Redhythe Point and are considered commonplace within the Onshore Landfall Area and the wider area. All the intertidal biotopes (both rocky and soft substrate) have been assessed according to the MarESA criteria as having a high resilience to direct disturbance and are therefore classified as being either not sensitive or having a low sensitivity (Table 6.5.2).

6.5.2.30 While it is likely that the characterising species of the intertidal and rocky shore biotopes would be damaged or removed by the physical impacts of the trench excavation in the intertidal area, a high proportion of the intertidal species that characterise these biotopes are highly mobile and/or opportunistic in nature and are therefore able to recolonise disturbed habitat quickly. Recolonisation would also take place for any species damaged or removed.

6.5.2.31 For the purpose of this assessment, the intertidal species and habitats within the Onshore Landfall Area are considered to have **negligible** to **low** importance.

Magnitude of Impact

6.5.2.32 The potential effects from trench excavations are identified as being worst case for this impact assessment, with less potential for effects arising from the application of HDD. Disruption to intertidal habitats will occur as a result of cable circuit laying and installation. The cable construction corridor for surface trenching will be a maximum of 3 m either side of the export cables (BERR, 2008) (see Chapter 2: Proposed Development). The corridor will support vehicle traffic, provide adequate space for cable assembly, sufficient space for excavation of the cable trenches as well as sufficient space for the removed sediment. The intertidal cable circuits may, however be installed through HDD, which will limit the footprint of any habitat disturbance.

6.5.2.33 Once seabed preparation works are complete and all cables have been installed, any disturbance to the seabed and associated habitats will cease, allowing intertidal species to start to recolonise previously disturbed areas. Therefore, given the temporary nature of the impact and taking into consideration that further Phase 1 / Phase 2 intertidal surveys will be completed as necessary and that the total area of intertidal habitat affected during construction is minimal, the overall magnitude of the impact is considered to be **low.**

6.5.2.34 The magnitude of the impact has been assessed as low on the basis that the impact is of temporary duration, reversible, and localised, with the maximum importance of the intertidal receptors being low. Therefore, the significance of effects from direct disturbance occurring as a result of landfall cable installation activities in the intertidal area is **negligible or minor**, which is **not significant** in EIA terms.

6.5.2.35 No mitigation is required as there are no significant effects as a result of the construction of the OnTI within the intertidal area.

Table 6.5.2: Importance assessment for the intertidal habitats to temporary habitat loss / disturbance				
Biotope Code	**Biotope Name**	**MarESA Sensitivity Assessment**	**Assessment Confidence**	**Assessment Sensitivity (as defined in Section 6.2.4)**
LS.LSa.MoSa.BarSa (upper shore)	Barren littoral coarse sand	Not sensitive (based on high resistance and high resilience)	Confidence in the quality of the evidence is high, in the applicability is medium and the agreement confidence is low	**Negligible**
LS.LSa.MoSa.AmSco.Eur (upper shore)	*Eurydice pulchra* in littoral mobile sand	Very low sensitivity (based on low intolerance and high recoverability)	Confidence in the quality of the assessment is moderate	**Low**
LS.LSa.MoSa.AmSco.Sco (mid shore)	*Scolelepis* spp. in littoral mobile sand	Low sensitivity (based on low resistance and high resilience)	Confidence in the quality of the evidence is high, in the applicability is low and the agreement confidence is high	**Low**
LS.LSa.FiSa.Po (mid shore & an impoverished version in the low shore)	Polychaetes in littoral fine sand	Low sensitivity (based on low resistance and high resilience)	Confidence in the quality of the evidence is high, in the applicability is medium and the agreement confidence is medium	**Low**

Table 6.5.3: MarESA assessment for the sedimentary intertidal biotopes for increased SSC and associated sediment deposition (smothering)				
Biotope Code	**Biotope Name**	**MarESA Sensitivity Assessment**	**Assessment Confidence**	**Assessment Importance**
LS.LSa.MoSa.BarSa (upper shore)	Barren littoral coarse sand	Not sensitive to changes in SSC Not sensitive to light smothering (<5 cm)	Confidence in the quality of the evidence is high for SSC, in the applicability is medium and the agreement confidence is low. The confidence in the quality of the evidence is high for light smothering, in the applicability is medium and the agreement confidence is low.	**Negligible**
LS.LSa.MoSa.AmSco.Eur (upper shore)	*Eurydice pulchra* in littoral mobile sand	Not relevant to increase in SSC Not sensitive to light smothering (<5cm)	Confidence in the quality of the evidence is low for SSC and smothering as the assessment has been derived from sources that only cover aspects of the biology of the species (or biotope) or from a general understanding of the species or biotope.	**Negligible**
LS.LSa.MoSa.AmSco.Sco (mid shore)	*Scolelepis* spp. in littoral mobile sand	Low sensitivity to changes in SSC Not sensitive to light smothering (<5 cm)	Confidence in the quality of the evidence is low for SSC, in the applicability and the agreement confidence is also low. The confidence in the quality of the evidence is high for light smothering, in the applicability is medium and the agreement confidence is high.	**Negligible** to **Low**
LS.LSa.FiSa.Po (mid shore & an impoverished version in the low shore)	Polychaetes in littoral fine sand	Not sensitive to changes in SSC Not sensitive to light smothering (<5 cm)	Confidence in the quality of the evidence is low for SSC, in the applicability and the agreement confidence is also low. The confidence in the quality of the evidence is low for light smothering, in the applicability and the agreement confidence is also low.	**Negligible**

Increased Suspended Sediment Concentrations / Sediment Deposition

Importance of Receptor

6.5.2.36 The species and habitats identified during the intertidal characterisation survey (LS.LSa.MoSa.BarSa, LS.LSa.MoSa.AmSco.Eur, LS.LSa.MoSa.AmSco.Sco and LS.LSa.FiSa.Po) (see Table 6.5.3) are typical of the wider region of the surrounding area. The intertidal biotopes recorded during intertidal survey and expected to be encountered throughout the Onshore Landfall Area are considered to have negligible to low vulnerability to the effects of sediment re-suspension and smothering by 5 cm of sand (MarLIN benchmark), owing to their high tolerance and adaptability to the continual turbulence naturally occurring within this zone from storm events and/or hydrodynamic exposure (tides and wave action). In addition, owing to the ephemeral nature of the floral and faunal organisms typically found in this intertidal zone, recoverability of these biotopes is likely to be very rapid following cessation of disturbance. For the purpose of this assessment, the intertidal species and habitats are considered to have negligible to low importance for increased SSC and associated sediment (smothering).

Magnitude of Impact

6.5.2.37 Temporary increases in SSC and associated sediment deposition in the intertidal area are expected from the cable circuit installation works. Cable installation by open cut trenching is considered to represent the realistic worst case in terms of the potential to cause elevated levels of SSC and localised changes in seabed level during the construction phase (Table 6.5.1). The relevant findings presented in Volume 2: Chapter 6: Physical Processes and Water Quality of the Offshore EIA Report are summarised below.

6.5.2.38 The potential impact of changes in suspended sediment concentrations are summarised as follows:

- Where cable installation is carried out above the level of the water, there will be very limited potential for the disturbed material to enter into suspension in the water column;
- Based on the sediment grab samples from the Onshore Landfall Area, the seabed is characterised by sands and gravels in varying proportions, which will likely form the majority of the sediment being disturbed. These sediment types (if disturbed to the point of resuspension) will redeposit rapidly to the seabed (in a matter of seconds to minutes) and will cause only a very localised and temporary effect on suspended sediment concentrations. Any fines that are present may persist in suspension for longer, but only at relatively low concentrations due to the very low proportion of such sediment present; and
- In the shallow waters near the Onshore Landfall Area, the same sands and any fines present are likely to be resuspended naturally by occasional storm events, generating a similar or even higher magnitude of naturally occurring suspended sediment concentrations than the cable installation activity, but over much larger areas and longer durations.

6.5.2.39 The potential impact of changes in seabed levels (including the presence of cable protection) are summarised as follows:

- Cables in the Onshore Landfall Area will not be surface laid and therefore no surface mounted cable protection will be required. Cable installation via trenching in nearshore and intertidal areas may result in the displacement of some sediment from the trench, forming a trough or depression. Some of the displaced material will enter into suspension, although, in practice and by design, the majority is expected to remain in or immediately adjacent to the trench, forming a raised mound. Once the cables have been laid it is anticipated that sidecast material would be returned to the trench as backfill, thereby accelerating the natural processes of recovery;

- The dimensions of seabed level changes associated with the cable trench near and in the Onshore Landfall Area will depend upon several factors including the cable installation method, trench width, cable burial depth and the nature of the excavated material. For immediate use, the maximum trench dimensions are depth 3 m, width 3 m, with a 'V' shape profile. If left open for longer, a wider trench (order of 10 m) may be required to accommodate stable side slope angles. The displaced sediment may form temporary side berms or a sidecast mound with comparable dimensions to the trench (above the seabed level); and
- Given that the trenches and any sidecast mounds would only be present for a relatively short period of time (maximum of a few weeks), any resulting changes in the wider distribution of beach sediments would be localised, of limited magnitude, and would recover to a natural equilibrium state (through tidal inundation and wave action) rapidly following completion of the works.

6.5.2.40 The potential impact of cable protection measures and / or any ancillary structures used for cable installation in the Onshore Landfall Area is summarised as follows:

- Cables will be buried below the seabed by trenching or HDD and cable protection will not be used in nearshore areas. Therefore, there would be no interaction with the naturally occurring patterns of waves or currents. There is therefore no potential for cable protection measures to affect naturally occurring patterns of sediment transport or morphological change in the Onshore Landfall Area during the construction phases of the Development; and
- No large ancillary structures are anticipated to be required in the nearshore environment, other than the temporary presence of cable lay vessels, which have little or no potential to impact the coastal morphology. The shallow nature of the site and the presence of easily mobilised sandy seabed sediments mean that any residual depressions from jack-up legs and anchors would be rapidly infilled and smoothened by normal sediment transport processes.

6.5.2.41 Once seabed preparation works are complete and cables have been installed, any disturbance to the intertidal area will cease, allowing species to start to recolonise previously disturbed areas. Therefore, given the temporary nature of the impact, and the relatively small intertidal area affected, the overall magnitude of the impact is considered to be **negligible** to **low.**

6.5.2.42 The magnitude of the impact has been assessed as negligible to low, with the maximum importance of the receptors being low. Therefore, the significance of effect from changes in suspended sediment concentrations and associated sediment deposition occurring as a result of cable installation activities in the intertidal area is **negligible to minor**, which is **not significant** in EIA terms.

6.5.2.43 A low confidence score was attributed to a number of specific assessments within the MarESA assessments, with this predominantly due to the information sources being based on expert judgement, being based on proxies for pressures (e.g. natural disturbance events) or that there is a low degree of concordance between studies. However, the intertidal zone within the Onshore Landfall Area experiences sediment transported in during storm surges and consequently, the habitats will have a tolerance to these events which are similar to the increased suspended sediments / sediment deposition impacts associated with cable installation. As such, the assessment of the significance of effects as not significant remains valid.

6.5.2.44 No mitigation is required as there are no significant effects as a result of the construction of the OnTI within the intertidal area.

Barn Owl

Land Take / Land Cover Change

6.5.2.45 During construction, land take / land cover change impacts could result in disturbance to foraging and nesting habitats for barn owl. As described in Table 6.5.1, excavations, the establishment of construction compounds, access tracks and soil storage areas will result in temporary loss of habitat during construction. These impacts will result in the loss of areas terrestrial habitats such as tussocky grassland, hedges, dense and scattered scrub.

6.5.2.46 Embedded mitigation in the form of MSs and best practice approaches will be implemented during construction to reduce the potential for removal of / changes to key habitats and reduce the magnitude of impacts. This will include for pre-construction barn owl surveys and the avoidance of key habitats.

6.5.2.47 Barn owl is a receptor of **high importance** and could be subject to a negative direct impact of **negligible magnitude** (negative and short term), therefore not affecting the FCS of this species. This results in an effect of **minor significance**. Thus, the effects of land take / land cover change are **not significant** in relation to the EIA Regulations. The embedded mitigation (pre-construction barn owl surveys and avoidance of nest sites) will ensure no legal breaches would result.

Increase in Light, Noise or Vibration

6.5.2.48 Noise or vibration could result from the movement of machinery, vehicles or construction activities during installation of the cable circuits and compounds in or near to potential breeding barn owl sites. Impacts could result in disturbance to nesting barn owl whilst on the nest or nearby. Under Schedule 1 of the Wildlife & Countryside Act 1981 (as amended in Scotland) it is an offence to disturb breeding barn owl. Therefore, should a nest be identified within 100 m of proposed works areas, a barn owl specific MS will be adopted. This will detail a 100 m disturbance buffer for works during the key nesting period plus methodologies for capping artificial nest boxes and the provision of alternative nest boxes if required.

6.5.2.49 The implementation of embedded mitigation will limit the indirect impacts of noise and vibration on barn owl to a negligible magnitude (negative and short term).

6.5.2.50 Barn owl is a receptor of **high importance** and potentially subject to a negative direct impact of **negligible magnitude**, therefore not affecting the FCS of this species. This results in an effect of **minor significance** that is **not significant**. The embedded mitigation will ensure no legal breaches would result.

Quail

Increase in Light, Noise or Vibration

6.5.2.51 Construction disturbance could also impact nesting quail. Under Schedule 1 of the Wildlife & Countryside Act 1981 (as amended in Scotland) it is an offence to disturb breeding quail; therefore should a nest be identified within 50 m of proposed works areas, a quail MS statement will be adopted. This will detail a 50 m disturbance buffer for works during the key nesting period plus techniques for general disturbance minimisation such as screening or barriers.

6.5.2.52 The implementation of embedded mitigation would limit the indirect impacts of noise and vibration on quail to negligible magnitude (negative and short term).

6.5.2.53 Quail is a receptor of **high importance** and potentially subject to a negative direct impact of **negligible magnitude**, therefore not affecting the FCS of this species. This results in an effect of **minor significance** that is **not significant**. The embedded mitigation will ensure no legal breaches would result.

Reptiles

6.5.2.54 The desk study has confirmed that slow worm, adder and common lizard are known to be present in the wider area (and potentially within the PAB).

Land Take / Land Cover Change

6.5.2.55 During construction, land take / land cover change impacts could result in disturbance to foraging or hibernating reptiles, destroy habitat and / or kill or injure reptiles.

6.5.2.56 The embedded mitigation (Section 6.4) states that the design of the OnTI will be refined to relocate (microsite) those works away from the more important or legally protected habitat and species receptors such reptile hibernacula. Construction will be subject to standard best practice mitigation measures detailed in Section 6.4 employed to avoid and minimise potential effects on reptiles under the supervision of an appointed project ecologist or ECoW. The implementation of embedded mitigation within all working areas during construction will reduce the temporary and direct impacts of land take / land cover change to a negligible level.

6.5.2.57 Reptiles are receptors of **high importance**, potentially subject to a negative direct impact of **negligible magnitude** (negative and short term), not affecting the FCS. This results in an effect of **minor significance** that is **not significant**. The embedded mitigation will ensure no legal breaches will result.

Increased Vehicle Movements

6.5.2.58 There is a risk of increased vehicle movements causing injury or fatalities to reptiles. Construction will be subject to standard best practice mitigation measures detailed in Section 6.4 employed to avoid and minimise potential effects on reptiles under the supervision of an appointed project ecologist or ECoW. Vehicle movements will be subject to a limited speed. Operatives will be warned of the presence of reptiles in order to reduce the risk of death or injury through vehicle collision.

6.5.2.59 The implementation of embedded mitigation within all working areas during construction will reduce the temporary and direct impacts of land take / land cover change to a negligible level.

6.5.2.60 Reptiles are receptors of **high importance**, potentially subject to a negative direct impact of **negligible magnitude**, not affecting the FCS. This results in an effect of **minor significance** that is **not significant**. The embedded mitigation will ensure no legal breaches will result.

Badgers, Red Squirrel, Pine Marten and Scottish Wildcat

6.5.2.61 Badgers, red squirrel, pine marten and Scottish wildcat are addressed together in this section in view of similar sensitives to construction impacts.

Land Take / Land Cover Change

6.5.2.62 During construction, direct land take / land cover impacts could result in damage / death of individuals, and damage / disturbance to setts, dens, and dreys.

6.5.2.63 The embedded mitigation (Section 6.4) states that the design of the OnTI will be refined after targeted ecological surveys, to relocate (microsite) those works away from the more important or legally protected habitat and species receptors such badger setts, otter holts, pine marten dens and red squirrel drey, water vole burrow (minimum 30 m buffer) and Scottish wildcat dens (minimum 100 m buffer).

6.5.2.64 Construction will be subject to standard best practice mitigation measures detailed in Section 6.4 employed to avoid and minimise potential effects on badgers, red squirrels, pine martens and Scottish wildcats under the supervision of an appointed project ecologist or ECoW and in accordance with any SNH licence conditions.

6.5.2.65 The land take from construction will not be of sufficient area or located exclusively within suitable habitat to notably reduce foraging opportunities for badger, red squirrel, pine marten or Scottish wildcat. This, together with the implementation of embedded mitigation within all working areas during construction, will reduce the temporary and direct impacts of land take / land cover change to a negligible level

6.5.2.66 Red squirrel, Scottish wildcat and pine marten are all receptors of **high importance**, and potentially subject to a negative direct impact of **negligible magnitude**, not affecting the FCS. This results in an effect of **minor significance** that is **not significant**. The embedded mitigation will ensure no legal breaches will result.

6.5.2.67 Badgers are receptors of **negligible importance**, potentially subject to a negative direct impact of **negligible magnitude**. This results in an effect of **negligible significance** which is **not significant**. The embedded mitigation will ensure no legal breaches will result.

Increase in Noise or Vibration

6.5.2.68 Noise or vibration could result from the movement of machinery, or construction activities during installation of the cable circuits and compounds in or near to suitable resting or foraging habitats for these species.

6.5.2.69 Construction will be subject to standard best practice mitigation measures detailed in Section 6.4 employed to avoid and minimise potential noise and vibration effects on badgers, red squirrels, pine martens and Scottish wildcats under the supervision of an appointed project ecologist or ECoW and in accordance with any SNH licence conditions. Cable circuit installation and general construction methods will aim to minimise noise, ground vibrations and disturbance to a negligible level through the use of non-percussive methods where possible particularly near sensitive species.

6.5.2.70 The implementation of embedded mitigation will limit the indirect impacts of noise and vibration (negative and short term), and at most, impacts would be limited to small numbers of individuals.

6.5.2.71 Red squirrel, Scottish wildcat and pine marten are receptors of **high importance**, and subject to a negative direct impact of **negligible magnitude**, not affecting the FCS. This results in an effect of **minor significance** which is **not significant**. The embedded mitigation will ensure no legal breaches will result.

6.5.2.72 Badgers are receptors of **negligible importance**, potentially subject to a negative direct impact of **negligible magnitude**. This results in an effect of **negligible significance** which is **not significant**. The embedded mitigation will ensure no legal breaches will result.

Increased Vehicle Movements

6.5.2.73 There is a risk of increased vehicle movements causing injury or fatalities. Construction will be subject to standard best practice mitigation measures detailed in Section 6.4 employed to avoid and minimise potential vehicle collision effects on badgers, red squirrels, pine martens and Scottish wildcats under the supervision of an appointed project ecologist or ECoW and in accordance with any SNH licence conditions. Vehicle movements will be subject to a limited speed. Operatives will be warned of the potential presence of badgers, red squirrels, pine martens and Scottish wildcats in order to reduce the risk of death or injury through vehicle collision.

6.5.2.74 The implementation of embedded mitigation within all working areas during construction will reduce the direct impacts associated with increased vehicle movements on populations of these species within the area to negligible magnitude (negative and short term) and these will be limited to small numbers of individuals at most.

6.5.2.75 Red squirrel, Scottish wildcat and pine marten are receptors of **high importance**, and potentially subject to a negative direct impact of **negligible magnitude**, not affecting the FCS. This results in an effect of **minor significance** that is **not significant**. The embedded mitigation will ensure no legal breaches will result.

6.5.2.76 Badgers are receptors of **negligible importance**, potentially subject to a negative direct impact of **negligible magnitude**. This results in an effect of **negligible significance** which is **not significant**. The embedded mitigation will ensure no legal effects will result.

Bat Assemblages

6.5.2.77 The desk study data provided by NESBReC returned records of common pipistrelle, soprano pipistrelle and Daubenton's bat. Within and immediately adjacent to the PAB, a number of buildings / structures / trees have potential to support bat roosts (see Technical Appendix 6.1). Throughout the PAB, scrub and tree lines and watercourses connecting to woodland habitat create commuting routes for bats, with foraging habitat throughout (as illustrated on Figure 3.3 of Technical Appendix 6.1). Figure 3.3 of Technical Appendix 6.1 also illustrates built structures and trees with the potential to support roosting bats.

Land Take / Land Cover Change

6.5.2.78 During construction of the OnTI, land take / land cover impacts, including the removal of trees, scrub and grassland habitats in areas of cable circuit installation, access tracks or for site compounds, could result in disturbance to foraging and commuting bats, destroy habitat and / or kill or injure bats.

6.5.2.79 The embedded mitigation (Section 6.4) states that the design of the OnTI will be refined after targeted ecological surveys, to relocate (microsite) those works away from the more important or legally protected habitat and species receptors such as bat roosts (minimum 100 m buffer).

6.5.2.80 As a worst case scenario, it is assumed that any roosts present within buildings that lie within a 60 m buffer to the PAB could comprise a maternity colony and / or a hibernation roost, and could be composed of the above described species. It is also assumed that any suitable trees that lie within a 60 m buffer to the PAB could support a bat roost / multiple roosts comprising a population of the species described above.

6.5.2.81 No roosts within buildings will be lost as a result of land take / land cover change during the construction phase as no buildings will be altered or demolished, therefore only disturbance effects are considered for buildings within a 60 m[17] buffer to the PAB. The species considered most likely to roost in trees in the study area are common pipistrelle, soprano pipistrelle and Nathusius pipistrelle, brown long-eared bat, Noctule, and Natterer's bat, which are common and widespread species in the UK (Bat Conservation Trust, 2015).

6.5.2.82 The construction works will also result in the temporary clearance, degradation / loss of scrub, ruderal and grassland habitats that offer potential for foraging bats. These works will result in a short term localised change of foraging resources. The majority of habitats across the PAB are not considered notable for foraging, with bats predominantly recorded foraging and commuting along boundary features. Extensive areas of similar habitat occurs elsewhere in the wider landscape, which is contiguous with the construction working areas, and will be retained unaffected by the works.

6.5.2.83 Construction will be subject to standard best practice mitigation measures detailed in Section 6.4 employed to avoid and minimise potential land take / land cover change effects on bats

[17] There is little research on the effects of noise and vibration on fauna; however recent studies indicate that bats' foraging ability can be negatively affected by road noise up to a distance of at least 50 – 60 m (Berthinussen, A. and Altringham, J., 2012).

under the supervision of an appointed project ecologist or ECoW and in accordance with any SNH licence conditions.

6.5.2.84 The implementation of embedded mitigation within all working areas during construction, will reduce the direct impacts of land take / land cover change on bat populations within the PAB to a negligible level (negative and short term) and is likely to be limited to small numbers of individuals.

6.5.2.85 Bat roosts are receptors of **high importance**, potentially subject to a direct negative impact of **negligible magnitude**, not affecting the FCS. This results in an effect of **minor significance** which is **not significant**. The embedded mitigation would ensure no legal breaches would result.

Increase in Light, Noise or Vibration

6.5.2.86 Increase in artificial light, noise or vibration levels during construction of the OnTI could result in direct disturbance to roosting bats in buildings and trees up to ~100 m[18] from any works. Most construction activities are likely to occur during daylight hours, thereby exposing roosting bats to potential noise and vibration effects.

6.5.2.87 Construction will be subject to standard best practice mitigation measures to avoid and minimise light, noise or vibration effects on bats under the supervision of an appointed project ecologist or ECoW and in accordance with any SNH licence conditions. A lighting strategy will be implemented to minimise the extent to which lighting associated with construction activity affects areas of habitat on or in the vicinity of the PAB. This strategy will be informed by the latest bat research and guidance. Measures incorporated will include: the lights installed will be of the minimum brightness and / or power rating capable of performing the desired function; light fittings will be used that reduce the amount of light emitted above the horizontal; light will be positioned correctly and directed downwards; and the direction of lights will seek to avoid spillage and will make use of motion sensors, avoiding light spill onto vegetated areas or potential bat roost sites.

6.5.2.88 External lighting, including security lighting, will be minimised during the hours of darkness, where possible, particularly in the vicinity of any confirmed roosts. Should site compounds require security lighting, these will be on a timer and be motion sensitive. If the trees or structures that may potentially be used by bats will be affected by light, advice will be sought from a suitably qualified ecologist, and additional bat survey, assessment and mitigation may be required. Such embedded mitigation will limit the impact of light to a negligible level.

6.5.2.89 During construction of the OnTI, increased noise levels could result in direct disturbance to roosting bats in buildings and trees up to ~60 m from the works. Noise and vibration will be minimised through best practice mitigation methods, with mufflers and auditory shields employed if required.

6.5.2.90 However, the implementation of embedded mitigation within all working areas during construction will reduce the direct impacts of disturbance on bat populations within the PAB to a negligible level (negative and short term), and will be expected to be limited to small numbers of individuals.

6.5.2.91 Bat roosts are receptors of **high importance**, potentially subject to a negative indirect impact of **negligible magnitude**, not affecting the FCS. This results in an effect of **minor significance** that is **not significant**. The embedded mitigation will ensure no legal breaches will result.

Water Vole and Otter

6.5.2.92 Otter and water vole are addressed together in this section in view of similar sensitives to construction impacts.

[18] Headlights from vehicles within the PAB will typically cast light up to a distance of approximately 100 m.

Land Take / Land Cover

6.5.2.93 During the construction phase of the OnTI, land take / land cover change impacts could result in disturbance to otter and water vole or could kill / injure otter and water vole or lead to the destruction of habitat affecting dispersal and distribution potentially reducing breeding success.

6.5.2.94 The embedded mitigation (Section 6.4) states that the design of the OnTI will be refined after targeted ecological surveys, to relocate (microsite) those works away from the more important or legally protected habitat and species receptors such as otter holts or water vole burrows (minimum 30 m buffer). Construction will be subject to standard best practice mitigation measures detailed in Section 6.4 employed to avoid and minimise potential effects on water vole and otter under the supervision of an appointed project ecologist or ECoW and in accordance with any SNH licence conditions.

6.5.2.95 The implementation of embedded mitigation within all working areas during construction, will reduce the temporary and direct impacts of land take / land cover change on water vole and otter populations within the PAB to a negligible level (negative and short term).

6.5.2.96 Water vole and otter are receptors of **high importance**, and potentially subject to a negative direct impact of **negligible magnitude**, not affecting the FCS. This results in an effect of **minor significance**. Thus, the effects of land take / land cover change are **not significant** in relation to the EIA Regulations. The embedded mitigation would ensure no legal effects would result.

6.5.3 Pollution (aquatic)

6.5.3.1 There is potential for construction works, particularly the installation and removal of culverts, trenching, and soil storage areas, to cause pollution and siltation of aquatic habitats which would damage and disturb water vole and otter habitat.

6.5.3.2 Best practice mitigation guidelines will be used to prevent pollution and siltation to water receptors during all construction works, including, stand-off buffers, temporary soakaways appropriately discharged dewatering, soil stockpiles at appropriate locations, silt fencing and appropriate housekeeping measures. A minimum stand off from all watercourses and waterbodies will be adopted where possible on a site by site specific basis. Construction practices will comply with SEPA's GPPs / PPGs with a view to preventing the pollution of ground and surface waters. Construction will be subject to standard best practice mitigation measures employed to avoid and minimise potential indirect pollution effects on running water and standing water under the supervision of an appointed project ecologist, or ECoW.

6.5.3.3 The implementation of embedded mitigation within all working areas during construction, will reduce the direct impacts of pollution on water vole and otter populations within the PAB to a negligible level (negative and short term).

6.5.3.4 Water vole and otter are receptors of **high importance**, and potentially subject to a negative indirect impact of **negligible magnitude**, not affecting the FCS. This results in an effect of **minor significance** that is **not significant**. The embedded mitigation would ensure no legal breaches would result.

Aquatic Fauna

Land Take / Cover Change

6.5.3.5 During the construction phase of the OnTI, land take / land cover change impacts could result in injury / killing / disturbance to the listed aquatic fauna (e.g. salmon spawning grounds or redds, freshwater pearl mussels), or could lead to the destruction of habitat affecting dispersal and distribution potentially reducing spawning success.

6.5.3.6 The embedded mitigation (Section 6.4) states that the design of the OnTI will be refined after targeted ecological surveys, to relocate (microsite) those works away from the more important

or legally protected habitat and species receptors such as optimal salmonid spawning habitat or redds or freshwater pearl mussels. Construction will be subject to standard best practice mitigation measures detailed in Section 6.4 employed to avoid and minimise potential effects on aquatic fauna under the supervision of an appointed project ecologist or ECoW and in accordance with any SNH licence conditions.

6.5.3.7 The implementation of embedded mitigation within all working areas during construction, will reduce the temporary and direct impacts of trenching/culverts on the listed aquatic fauna within the PAB to a negligible level (negative and short term).

6.5.3.8 The aquatic fauna listed are receptors of **high importance**, and potentially subject to a negative direct impact of **negligible magnitude**, not affecting the FCS. This results in an effect of minor significance that is **not significant**. The embedded mitigation would ensure no legal breaches would result.

Pollution (aquatic)

6.5.3.9 There is potential for construction works, particularly the installation and removal of culverts, trenching, and soil storage areas to cause pollution and siltation of aquatic habitats which would damage and disturb aquatic fauna.

6.5.3.10 Best practice mitigation guidelines will be used to prevent pollution and siltation to water receptors during all construction works, including, stand-off buffers, temporary soakaways appropriately discharged dewatering, soil stockpiles at appropriate locations, silt fencing and appropriate housekeeping measures. A minimum stand off from all watercourses and waterbodies will be adopted where possible on a site by site specific basis. Construction practices will comply with SEPA's GPPs / PPGs with a view to preventing the pollution of ground and surface waters. Construction will be subject to standard best practice mitigation measures employed to avoid and minimise potential indirect pollution effects on running water and standing water under the supervision of an appointed project ecologist, or ECoW.

6.5.3.11 The implementation of embedded mitigation within all working areas during construction will reduce the direct impacts of pollution on aquatic fauna within the PAB to a negligible level (negative and short term).

6.5.3.12 The aquatic fauna listed are receptors of **high importance**, and potentially subject to a negative indirect impact of **negligible magnitude**, not affecting the FCS. This results in an effect of **minor significance** that is **not significant**. The embedded mitigation would ensure no legal breaches would result.

Non-native Invasive Species

6.5.3.13 Giant hogweed and monkeyflower have been recorded within the PAB; however, there is potential for other non-native invasive species to be recorded within construction areas of the final OnTI.

Land Cover/ Land Change

6.5.3.14 During the construction phase, land take or land change during the construction of the OnTI could result in the spread of invasive species into adjacent habitats. Construction will be subject to standard best practice mitigation measures detailed in Section 6.4 employed to avoid and minimise potential effects relating to the spread of non-native invasive species via pre-construction verification checks under the supervision of an appointed project ecologist or ECoW. These measures would reduce the potential for disturbance and spread of invasive species. The MS would include details of the recommended working methods to avoid such a spread of invasive species, including site hygiene and demarcation.

6.5.3.15 Such measures will be developed in line with CoCP guidelines, which will set out published guidelines and best working practice for the prevention of spreading invasive species (including

avoidance of work and vehicular movements within areas known to support invasive species). Where this is not possible, it will be necessary to establish a species appropriate buffer around any affected areas, demarcated by fencing as appropriate.

6.5.3.16 Invasive species are **not a valued receptor** and importance relates only to not facilitating their spread. Halting their spread is considered to be a positive impact of **low magnitude**, resulting in an effect of **negligible significance** that is **not significant**. The embedded mitigation will ensure no legal breaches would result.

6.5.4 Potential Operational and Maintenance Effects

6.5.4.1 The environmental impacts arising from the O&M are described in Table 6.5.1 along with the maximum negative scenario against which each O&M phase impact has been assessed. It has been determined and documented in Technical Appendix 6.4 that in consideration of limited O&M works proposed, and taking account of embedded mitigation (including pre-construction surveys and adoption of MSs) set out in section 6.4, O&M effects have been scoped out of the assessment for all terrestrial ecology and ornithological receptors.

Intertidal Area - Loss of, or Disturbance to, Habitat and Species and Increased Suspended Sediment Concentrations / Sediment Deposition

6.5.4.2 Following cable circuit installation, it is envisaged that the disturbed seabed within the intertidal area will be backfilled and reinstated and it is considered that their operation will largely be maintenance free. Testing will ensure that faults can be located and in turn, any excavations or cable replacement will be isolated. It is therefore envisaged that no major refurbishment works will be required during operation of the OnTI. For any minor maintenance work, it is likely that any excavations or cable replacement will be isolated to areas of ground previously disturbed during construction and that access to the intertidal area will follow pre-identified routes, or follow routes taken during construction and that any temporarily disturbed intertidal habitat will be replaced in a similar manner to that applied during construction. The magnitude of impact of O&M work is considered to be **low** and with a receptor importance of **negligible to low**, the overall significance of effect is considered to be **negligible to minor**, which is **not significant** in EIA terms.

6.5.4.3 No mitigation is required as there are no significant effects as a result of the O&M of the OnTI within the intertidal area.

6.5.5 Potential Decommissioning Effects

6.5.5.1 The impacts of the onshore decommissioning have been assessed on ecology and nature conservation. The environmental impacts arising from the decommissioning phase are described in Table 6.5.1 along with the maximum negative scenario against which each decommissioning phase impact has been assessed. It has been determined and documented in Technical Appendix 6.4 that in consideration of limited decommissioning works proposed (at the onshore substation site only) and taking account of embedded mitigation set out in Section 6.4, decommissioning effects have been scoped out of the assessment for all terrestrial ecology and ornithological receptors.

Intertidal Area - Loss of, or Disturbance to, Habitat and Species and Increased Suspended Sediment Concentrations / Sediment Deposition

6.5.5.2 During decommissioning, it is envisaged that the most likely scenario will be that all buried cabling present within the intertidal area will remain in-situ, but in accordance with Chapter 4: Development Description of the Offshore EIA Report, it is also considered that buried cables below MHWS may be removed. The cabling itself will be disconnected from any power source. It is therefore envisaged that some decommissioning works may be required within the intertidal area. Limited activities may impinge upon the intertidal area in relation to the removal of joint bays and exit / entrance points associated with any HDD requirements, depending upon the exact location of these structures (currently proposed to be above MHWS). The magnitude of impact of decommissioning work if cables are left in-situ is considered to be **low.** Effects similar to those of construction would be associated with removal of cables and have been assessed as **low** on the basis that the impact is of temporary duration, reversible, and localised. With a receptor importance of **negligible to low**, the overall significance of effect is considered to be **negligible to minor**, which is **not significant** in EIA terms.

6.5.5.3 No mitigation is required as there are no significant effects as a result of the decommissioning of the OnTI within the intertidal area.

6.5.6 Inter-Relationships

6.5.6.1 Inclusive of the embedded mitigation described in Section 6.4, there is no potential for inter-related effects resulting from the OnTI. Consequently, inter-related effects on biodiversity assets are not anticipated.

6.5.6.2 Loss of cultural heritage remains or landscape features which also function as the habitat of a valued ecological receptor will not give rise to any inter-related effects as effects on biodiversity will be mitigated or offset.

6.5.6.3 Traffic, hydrological, air quality and noise effects arising as a result of construction, O&M or decommissioning impacts, insofar as they relate to the impacts on biodiversity assets, have already been considered within the assessment. Consequently. there would be no increase in the magnitude of impacts, and thus no additional inter-related effects are anticipated.

6.6 Additional Mitigation and Enhancement Measures

6.6.1.1 The OnTI has been designed, where possible, to mitigate or off-set negative ecological effects and, where possible, to deliver ecological enhancements. This will be achieved through a range of embedded mitigation (see Section 6.4), all of which are part of the OnTI for which consent is being sought. No other mitigation or other environmental mitigation measures are proposed in relation to the effects that are identified in this EIA Report.

6.7 Summary of Effects

6.7.1.1 Table 6.7.1 presents the magnitude of overall impacts, whether that is negative, positive or neutral and the resultant overall predicted effect.

Table 6.7.1: Summary of Assessment						
Potential Effect	**Nature**	**Probability**	**Importance of Receptor**	**Magnitude of Impact**	**Significance of Effect**	**Rationale**
Construction						
Den of Pitlurg SSSI: Upland birch woodland and valley fen Pollution	Indirect Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	Best practice approaches will be implemented during the construction phase to reduce the potential for accidental pollution events and to provide a process to deal with any should they occur. This will include the adoption of best working practice for the prevention of pollution events.
Cullen to Stake Ness Coast SSSI: lowland dry, heath, saltmarsh, shingle and springs (including flushes). Land-take / land cover change	Indirect / Direct Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	NVC surveys will be conducted to confirm the nature and potential sensitivities of the habitats within and surrounding the working width for the landfall and onshore cable circuits; the extent of surveys would be agreed with SNH. Works will only go ahead within the SSSI subject to written agreement with SNH.
Cullen to Stake Ness Coast SSSI: lowland dry, heath, saltmarsh, shingle and springs (including flushes). Pollution	Indirect Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	Best practice approaches will be implemented during the construction phase to reduce the potential for accidental pollution events and to provide a process to deal with any should they occur. This will include the adoption of best working practice for the prevention of pollution events.
Mill Wood SSSI: upland birch woodland Pollution	Indirect Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	Best practice approaches will be implemented during the construction phase to reduce the potential for accidental pollution events and to provide a process to deal with any should they occur. This will include the adoption of

Table 6.7.1: Summary of Assessment						
Potential Effect	**Nature**	**Probability**	**Importance of Receptor**	**Magnitude of Impact**	**Significance of Effect**	**Rationale**
						best working practice for the prevention of pollution events.
Cullen to Whitehills Coast LNCS: Habitats Land-take / land cover change	Direct Temporary	Possible	Moderate (District)	Low	Minor (Not Significant)	Embedded mitigation will avoid most sensitive habitats within site in and adjacent to the PAB and, where at all possible, avoid / reduce the impacts on the intertidal and terrestrial habitats and the plants, insects and birds of importance to the LNCS designation. Prior to detailed design of the OnTI, NVC survey will be conducted to confirm the nature and potential sensitivities of the habitats within and surrounding the OnTI (at the Onshore Landfall Area) within the LNCS; the extent of surveys will be agreed with SNH and AC. Consultations will be undertaken with SNH and AC relating to any proposed activities to ensure that proposed methods and the location of the final OnTI design will be agreed with AC and SNH and secured via MSs to the agreement of all parties.
Cullen to Whitehills Coast LNCS: Habitats SESAs (Redhythe Point, Craibstone Quarry and Mill Wood) Pollution	Indirect Temporary	Possible	Moderate (District)	Negligible	Minor (Not Significant)	Best practice approaches will be implemented during the construction phase to reduce the potential for accidental pollution events and to provide a process to deal with any should they occur. This will include the adoption of best working practice for the prevention of pollution events.

Table 6.7.1: Summary of Assessment						
Potential Effect	**Nature**	**Probability**	**Importance of Receptor**	**Magnitude of Impact**	**Significance of Effect**	**Rationale**
SESAs Redhythe Point, Craibstone Quarry and Mill Wood Land Take / Land Cover Change	Direct Permanent / Temporary	Possible	Moderate (District)	Low	Minor (Not Significant)	Embedded mitigation will avoid most sensitive habitats within SESAs in and adjacent to the PAB. Prior to detailed design of the OnTI, NVC survey will be conducted to confirm the nature and potential sensitivities of the habitats within and surrounding the OnTI where SESAs are proposed to be directly / indirectly affected. Consultations will be undertaken with SNH, AC and MC relating to any proposed activities to ensure that proposed methods and the location of the final OnTI design will be agreed with MC, AC and SNH and secured via MSs to the agreement of all parties.
Woodland including ancient woodland; Broadleaved woodland - semi-natural; Broadleaved woodland – plantation and Mixed woodland – plantation and marshy grassland Land-take / land cover change	Direct Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	Embedded mitigation proposes that where at all possible impacts on these habitats would be avoided / reduced. Should woodland or marshy grassland be proposed to be directly affected by the OnTI, Phase 1 habitat and / or NVC surveys will be conducted to confirm the nature and potential sensitivities of the habitats (including GWDTEs) within and surrounding the OnTI at those locations prior to detailed design. Best practice approaches will be implemented during the construction phase within ancient woodland, broadleaved woodland (semi-natural and plantation) and mixed woodland (plantation) areas, including methods being put in place to protect tree roots.

Table 6.7.1: Summary of Assessment						
Potential Effect	**Nature**	**Probability**	**Importance of Receptor**	**Magnitude of Impact**	**Significance of Effect**	**Rationale**
G1: Standing water G2: Running Water. Land-take / land cover change	Direct Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	Embedded mitigation will include surveys to determine the best route through (or HDD underneath) watercourses / waterbodies. Any construction activities within or adjacent to 10 m of a watercourse or waterbody will be conducted in line with best practice. Where in-channel culverts are to be installed, they will be specifically designed to be as narrow as possible and fit existing channel dimensions, thereby ensuring that flow conveyance is maintained or enhanced relative to current conditions.
G1: Standing water G2: Running Water Pollution	Indirect Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	The best practice mitigation guidelines used to prevent pollution and siltation to water receptors during all construction works will be employed, including stand off buffers, temporary soakaways appropriately discharged dewatering, soil stockpiles at appropriate locations, silt fencing and appropriate housekeeping measures. These measures will reduce the levels of pollution and siltation and comply with legislation. These measures will be included in the adoption of best working practice for the prevention of pollution events.
Loss of, or disturbance to, intertidal habitat and species	Direct Temporary	Possible	Negligible to Low	Low	Negligible to Minor (Not Significant)	Embedded mitigation of either HDD or backfilling of trenching with original material will result in temporary disturbance, with habitats and species recolonising the intertidal area over time due to tidal cycles.

Table 6.7.1: Summary of Assessment						
Potential Effect	**Nature**	**Probability**	**Importance of Receptor**	**Magnitude of Impact**	**Significance of Effect**	**Rationale**
						No protected or PMF habitats or species are present within the sandy / shingle areas and if landfall is taken within an area of rocky coastline, further Phase 1 / Phase 2 surveys will be undertaken to ensure no effect upon SSSI features.
Increased suspended sediment concentrations / sediment disturbance	Direct Temporary	Possible	Negligible to Low	Negligible to Low	Negligible to Minor (Not Significant)	Trenching above the level of water will take place where possible, or HDD used. Physical Processes assessment indicated localised and short-term effects from suspended sediments. Embedded mitigation includes a MPCP.
Barn Owl Land-take / land cover change	Direct Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	Best practice approaches will be implemented during the construction phase to reduce the potential for removal of / changes to key habitats and reduce the magnitude of impacts. This will include for pre-construction barn owl surveys, avoidance of key habitats.
Barn Owl Increase in light, noise or vibration	Direct Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	Should a nest be identified within 100 m of proposed works areas a barn owl specific MS will be adopted. This barn owl specific MS will detail a 100 m disturbance buffer for works during the key nesting period plus methodologies for capping artificial nest boxes and the provision of alternative nest boxes if required.
Barn Owl	Direct Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	Should a nest be identified within 100 m of proposed works areas a barn owl specific MS will be adopted. This barn owl specific MS will

Table 6.7.1: Summary of Assessment						
Potential Effect	**Nature**	**Probability**	**Importance of Receptor**	**Magnitude of Impact**	**Significance of Effect**	**Rationale**
Increased vehicle movements						detail a 100 m disturbance buffer for works during the key nesting period plus methodologies for capping artificial nest boxes and the provision of alternative nest boxes if required.
Quail Increase in light, noise or vibration	Direct Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	Should a nest be identified within 50 m of proposed works areas a quail specific MS will be adopted. This quail specific MS will detail a 50 m disturbance buffer for works during the key nesting period.
Reptiles Land-take / land cover change	Direct Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	A MS will be prepared which may include installation of fencing, displacement / vegetation manipulation and / or trapping and translocation of reptiles to a receptor site, followed by a destructive search of the works area.
Reptiles Increased vehicle movements	Direct Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	Vehicle movements will be subject to a limited speed. Operatives will be warned of the presence of reptiles in order to reduce the risk of death or injury through vehicle collision. Where necessary, reptiles will have been displaced or translocated away from development areas prior to works commencing and reptile movements across access roads will likely be very low with activity retained within suitable vegetated habitat making the likelihood of collision negligible.

Table 6.7.1: Summary of Assessment						
Potential Effect	**Nature**	**Probability**	**Importance of Receptor**	**Magnitude of Impact**	**Significance of Effect**	**Rationale**
Badger Land-take / land cover change	Direct Temporary	Possible	Negligible	Negligible	Negligible (Not Significant)	Embedded mitigation measures will be in the form of avoidance of any areas with known badger setts, plus a buffer of 30 m (if required). To ensure compliance with legislation, a MS and tool-box talk will be prepared that will include details of pre-construction surveys to check on the presence of badgers and the approach that will be followed during construction to avoid contravening legislation. Where required, this will involve obtaining a SNH licence with respect to development. Throughout the construction phase, any steep-sided excavations will be covered at night, or an escape ramp provided to avoid badgers falling in and becoming trapped. These works will be conducted under MS and ecological supervision.
Badger Increase in noise or vibration	Indirect Temporary	Possible	Negligible	Negligible	Negligible (Not Significant)	Should a sett be identified within 30 m of proposed works areas, construction methods will aim to minimise noise, ground vibrations and disturbance to a negligible level through the use of non-percussive methods where possible. The timings of any activities that could be constructed as disturbing within 30 m of a sett would be restricted to daylight hours.
Badger	Direct Temporary	Possible	Negligible	Negligible	Negligible (Not Significant)	A maximum speed limit will be specified in the construction phase. Operatives will also be warned of the presence of badgers in order to reduce the risk of death or injury through

Table 6.7.1: Summary of Assessment						
Potential Effect	**Nature**	**Probability**	**Importance of Receptor**	**Magnitude of Impact**	**Significance of Effect**	**Rationale**
Increased vehicle movements						vehicle collision. The majority of construction work will be completed in daylight hours, therefore the number of vehicles using the area after dark will be limited, sufficiently reducing the risk of coming into contact with badgers and making the likelihood of fatalities from collision low / negligible.
Bat assemblage Land-take / land cover change	Direct Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	A MS in line with best practice and tool box talks will be prepared that will include details of pre-construction verification surveys for bats, and describe the approach that will be followed to avoid contravening legislation. Where required, this will involve obtaining an SNH licence with respect to development. The MS, which will detail removal and compensation habitats, will also describe any habitat enhancements that may need to be implemented as part of the OnTI (including the installation and monitoring of bat boxes) if required. No roosts within buildings will be lost as a result of land take / land cover change during the construction phase as no buildings will be altered or demolished. Losses or disturbance of any tree bat roosts will be achieved via embedded licensed mitigation where effects cannot be reduced sufficiently by non-licensed MSs.
Bat assemblage	Direct	Possible	High (National)	Negligible	Minor	A lighting strategy will be implemented. This strategy will be informed by the latest bat

Table 6.7.1: Summary of Assessment						
Potential Effect	**Nature**	**Probability**	**Importance of Receptor**	**Magnitude of Impact**	**Significance of Effect**	**Rationale**
Light / noise / vibration	Temporary				(Not Significant)	research and guidance. External lighting, including security lighting will be minimised during the hours of darkness, where possible, particularly in the vicinity of any confirmed roosts. Noise and vibration will be minimised through best practice mitigation methods, with mufflers, and auditory shields employed if required. Most construction activities are proposed during daylight hours. Should night time working be required, these locations and occasions are expected to be very limited to avoid impacts on the public. This limited night time working will also minimise the exposure of noise / vibration effects to bats and therefore any negative impacts will be short term and localised.
Water vole and Otter Land take / land cover	Direct Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	Surveys to support the detailed design of the OnTI, pre-verification checks prior to construction, avoidance of suitable habitat, and avoidance of fragmentation and isolation of habitats/ populations where possible. Any construction activities within or adjacent to 10 m of a watercourse will be conducted following a detailed MS. Where otter / water vole presence is confirmed, the works will be designed to avoid impacts on these according to specific MSs and licences from SNH if required. Where in-channel culverts are required, they will be specifically designed to

Table 6.7.1: Summary of Assessment						
Potential Effect	**Nature**	**Probability**	**Importance of Receptor**	**Magnitude of Impact**	**Significance of Effect**	**Rationale**
						be as narrow as possible and fit existing channel dimensions, thereby ensuring that flow conveyance is maintained or enhanced relative to current conditions. All culverts will also be fitted with mammal ledges to facilitate otter and water vole movement along ditches and through culverts.
Water vole and otter Pollution (aquatic)	Indirect Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	The best practice mitigation guidelines used to prevent pollution and siltation to water receptors during all construction works will be employed, including, stand off buffers, temporary soakaways appropriately discharged dewatering, soil stockpiles at appropriate locations, silt fencing and appropriate housekeeping measures. These measures will reduce the levels of pollution and siltation to water vole and otter habitats and comply with legislation. These measures will include the best working practice for the prevention of pollution events.
Red squirrel and Pine marten Land-take / land cover change	Direct Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	Embedded mitigation measures will be in the form of targeted surveys prior to final detailed design, avoidance of any areas with known dreys / dens, plus a buffer of 30 m (if required). To ensure compliance with legislation, a MS and tool-box talk will be prepared that will include details of pre-construction surveys to check on the presence of red squirrel / pine marten and the approach that will be followed during construction to

Table 6.7.1: Summary of Assessment						
Potential Effect	**Nature**	**Probability**	**Importance of Receptor**	**Magnitude of Impact**	**Significance of Effect**	**Rationale**
						avoid contravening legislation. Where required, this will involve obtaining an SNH licence with respect to development.
Red squirrel and Pine marten Increase in noise or vibration	Indirect Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	Should a drey / den be identified within 30 m of proposed works areas, construction methods will aim to minimise noise, ground vibrations and disturbance to a negligible level through the use of non-percussive methods where possible.
Red squirrel and Pine marten Increased vehicle movements	Direct Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	A maximum speed limit will be set during construction. Operatives will also be warned of the presence of red squirrel / pine marten in order to reduce the risk of death or injury through vehicle collision.
Scottish Wildcat Land-take / land cover change	Direct Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	Embedded mitigation measures will include targeted surveys prior to final detailed design. Should a confirmed or suspected den be identified within 100 m of proposed works areas, construction methods will aim to minimise noise, ground vibrations and disturbance to a negligible level through the use of non-percussive methods where possible.
Scottish Wildcat Increase in noise or vibration	Direct Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	Should a confirmed or suspected den be identified within 100 m of proposed works areas, construction methods will aim to minimise noise, ground vibrations and disturbance to a negligible level through the

Table 6.7.1: Summary of Assessment						
Potential Effect	**Nature**	**Probability**	**Importance of Receptor**	**Magnitude of Impact**	**Significance of Effect**	**Rationale**
						use of non-percussive methods where possible.
Scottish Wildcat Increased vehicle movements	Direct Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	A maximum speed limit will be set during construction. Operatives will also be warned of the presence of wildcat in order to reduce the risk of death or injury through vehicle collision.
Aquatic fauna Land take / cover change	Direct Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	Surveys to support the detailed design of the OnTI, adoption of trenchless techniques where suitable habitat for these species is recorded, avoidance of suitable habitat where possible and pre-verification checks prior to construction. Any construction activities within or adjacent to 10 m of a watercourse will be conducted following a detailed MS. Where presence is confirmed the works will be designed to avoid impacts on these species according to specific MSs and licences from SNH if required.
Aquatic fauna Pollution	Indirect Temporary	Possible	High (National)	Negligible	Minor (Not Significant)	The best practice mitigation guidelines used to prevent pollution and siltation to water receptors during all construction works will be employed, including, stand-off buffers, temporary soakaways appropriately discharged dewatering, soil stockpiles at appropriate locations, silt fencing and appropriate housekeeping measures. These measures will reduce the levels of pollution

Table 6.7.1: Summary of Assessment						
Potential Effect	**Nature**	**Probability**	**Importance of Receptor**	**Magnitude of Impact**	**Significance of Effect**	**Rationale**
						and siltation to aquatic fauna habitats and comply with legislation.
Non-native invasive species Land take / cover change	Direct Temporary	Possible	Negligible	Low	Negligible (Not Significant)	Best practice approaches will be implemented during the construction phase to reduce the potential for disturbance and spread of invasive species. Such measures would include the development of a CoCP which will set out measures to follow, published guidelines and best working practice for the prevention of invasive species, avoidance of work and vehicular movements within areas known to support invasive species, where this is not possible it will be necessary to establish a species appropriate buffer around any affected areas, demarcated by fencing as appropriate.
O&M						
Loss of, or disturbance to, intertidal habitat and species	Direct Temporary	Possible	Negligible to Low	Low	Negligible to Minor (Not Significant)	Only very limited O&M activities are likely to be required, with habitats and species recolonising the intertidal area over time due to tidal cycles. No protected or PMF habitats or species are known to be present within the sandy / shingle areas and if landfall is taken within an area of rocky coastline, further Phase 1 / Phase 2 surveys will be undertaken to ensure no effect upon SSSI features.

Table 6.7.1: Summary of Assessment						
Potential Effect	**Nature**	**Probability**	**Importance of Receptor**	**Magnitude of Impact**	**Significance of Effect**	**Rationale**
Increased suspended sediment concentrations / sediment disturbance	Direct Temporary	Possible	Negligible to Low	Low	Negligible to Minor (Not Significant)	Only very limited O&M activities are likely to be required, with habitats and species recolonising the intertidal area over time due to tidal cycles. Physical Processes assessment indicated localised and short-term effects from suspended sediments. Embedded mitigation includes a MPCP.
All terrestrial ecology and ornithological potentially significant effects have been scoped out.						
Decommissioning						
Loss of, or disturbance to, intertidal habitat and species	Direct Temporary	Possible	Negligible to Low	Low	Negligible to Minor (Not Significant)	Only very limited decommissioning activities are likely to be required, with habitats and species recolonising the intertidal area over time due to tidal cycles.
Increased suspended sediment concentrations / sediment disturbance	Direct Temporary	Possible	Negligible to Low	Low	Negligible to Minor (Not Significant)	Only very limited decommissioning activities are likely to be required, with habitats and species recolonising the intertidal area over time due to tidal cycles.
All other terrestrial ecology and ornithological potentially significant effects have been scoped out.						

6.8 Assessment of Cumulative Effects

6.8.1.1 As noted in Chapter 3: The Environmental Impact Assessment Process, there are two other proposed developments within 5 km of the PAB, the potential ecological effects of which could be significant when considered cumulatively with those of the OnTI. The other proposed developments are Aultmore Wind Energy Project and Lurg Hill Wind Farm, both of which will be close enough to the OnTI and / or linked hydrologically that cumulative effects could occur. All other developments outside of this area are not considered to be within the zone of influence for cumulative effects to occur.

6.8.1.2 Specific construction timelines for both of these wind energy developments are not known. However, Aultmore Wind Energy Project is consented and its construction is proposed to last 10 months. The planning application for Lurg Hill Wind Farm remains undetermined; its construction programme is proposed to last seven to eight months and it is preferred that this commences during 2019. It is considered likely that both of these other proposed developments will be constructed prior to the OnTI, the construction of which is proposed to commence in 2022. If this is the case, is not considered that there will not be any potential for significant cumulative effects.

6.8.1.3 However, should the construction programmes of one, or both of the wind energy developments overlap with that of the OnTI, there is the potential for cumulative ecological effects relating to habitats and / or species during the construction phase, which would also be dependent upon the final design of the OnTI.

6.8.1.4 Due to the distance between the sites, it is unlikely that construction activities at the onshore substation site will result in cumulative effects when combined with construction of the other two proposed developments. Depending upon the final location of the working width, installation of the onshore cable circuits may lead cumulative effects when combined with construction of the other two proposed developments, although these could be limited in duration.

6.8.1.5 The embedded mitigation and environmental measures included for the OnTI (Section 6.4), in combination with those being applied as part of the other two other proposed developments, are anticipated to avoid any significant cumulative effects on ecological features. Where potential significant residual effects remain, additional mitigation measures will be incorporated.

6.8.1.6 In conclusion, it is not anticipated that significant cumulative effects would occur.

6.9 References

Aberdeen City and Shire Strategic Development Planning Authority (2014). Aberdeen City and Shire Strategic Development Plan.

Aberdeenshire Council (2015). Planning Advice: Number 11/2015 Trees & Development.

Aberdeenshire Council (2015). Planning Advice: Protected Species Surveys.

Aberdeenshire Council (2015). Planning Advice: Biodiversity and Development.

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