Bellrock Offshore Wind Farm

Onshore Transmission Development Area

Scoping Report – Volume 1

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Executive Summary

Through the ScotWind leasing round managed by Crown Estate Scotland, Bellrock Offshore Wind Farm Limited (the **Applicant**) was successfully awarded an option to develop an area of seabed in the central North Sea, off the coast of Aberdeenshire, Scotland, to develop the Bellrock Offshore Wind Farm (the **Bellrock Project**).

The Bellrock Project is a proposed floating offshore wind farm, which will generate and transmit renewable electricity, exporting up to 1.8 gigawatts[1] to the National Electricity Transmission System via Scottish and Southern Energy Networks Transmission's Hurlie substation in Aberdeenshire, Scotland.

The Bellrock Project comprises the following three Development Areas for which separate consents and/or licence applications will be (or have been) sought by the Applicant:

- The Bellrock Onshore Transmission Development Area (OnTDA) within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OnTDA extends landward of Mean Low Water Springs to the Hurlie substation and partially overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) (from Mean Low Water Springs to Mean High Water Springs);
- The Bellrock Wind Farm Development Area (WFDA) within which the Bellrock Wind Farm Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock WFDA is located 120 km east of Stonehaven (116 km southeast of Peterhead), Aberdeenshire; and
- The Bellrock OfTDA within which the Bellrock Offshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OfTDA overlaps with the whole of the Bellrock WFDA and partially overlaps with the Bellrock OnTDA. The Bellrock OfTDA extends seaward of Mean High Water Springs.

The Bellrock OnTDA Scoping Boundary is shown in **Figure 1.1** (**Appendix A (Volume 1)**). The Bellrock Onshore Transmission Infrastructure includes:

- **Landfall:** located at Cowie, Aberdeenshire, where between two and six ducts are installed using trenchless techniques, allowing the offshore export cables to be brought ashore and connected to the onshore export cables within the transition joint bay;
- **Onshore export cables:** up to six underground High Voltage Alternating Current or High Voltage Direct Current onshore cable circuits, each up to 18 km in length, installed between the landfall and the onshore substation;

[1] Project capacities quoted throughout this **Bellrock OnTDA Scoping Report** are approximate. The final capacity will be confirmed within the Bellrock OnTDA EIA Report.

- **Onshore substation:** electrical equipment (such as converters, transformers, switchgear, and protection and control systems) enabling renewable electricity from the Bellrock Wind Farm received via onshore export cables to be exported to the National Electricity Transmission System, and ancillary infrastructure; and
- **Hurlie substation connection works:** infrastructure between the Bellrock onshore substation to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the National Electricity Transmission System.

The Bellrock Project will deliver significant supply chain expenditure within Scotland, have the potential to power the equivalent energy needs of over 1.7[2] million homes with renewable energy and will help achieve Scotland's net zero targets whilst improving energy security.

This **Bellrock OnTDA Scoping Report** accompanies a request for a formal Environmental Impact Assessment (EIA) Scoping Opinion from Aberdeenshire Council in relation to the construction, operation and maintenance, and decommissioning of the Bellrock Onshore Transmission Infrastructure located within the Bellrock OnTDA. The purpose of this **Bellrock OnTDA Scoping Report** is to provide Aberdeenshire Council and relevant stakeholders with information on the Bellrock Onshore Transmission Infrastructure to inform the Scoping Opinion, and to enable engagement with stakeholders on the baseline data sources, the assessment methodologies and key issues to be addressed within the Bellrock OnTDA EIA Report.

This **Bellrock OnTDA Scoping Report** therefore presents a brief description of the nature and purpose of the Bellrock Onshore Transmission Infrastructure and its likely impact on the environment, details of the baseline data sources and assessment methodologies proposed to be used in the Bellrock OnTDA EIA Report, a summary of the existing environment and justification for potential impacts to be scoped in or scoped out of the Bellrock OnTDA EIA Report. This **Bellrock OnTDA Scoping Report** includes the following technical chapters:

- **Chapter 5: Landscape and Visual Impact;**
- **Chapter 6: Geology and Ground Conditions;**
- **Chapter 7: Hydrology and Flood Risk;**
- **Chapter 8: Land Use and Agriculture;**
- **Chapter 9: Onshore Ecology and Nature Conservation:**
- **Chapter 10: Onshore Ornithology;**
- **Chapter 11: Onshore Archaeology and Cultural Heritage;**
- **Chapter 12: Traffic and Transport;**
- **Chapter 13: Noise and Vibration;**
- **Chapter 14: Air Quality;**
- **Chapter 15: Socioeconomics, Tourism and Recreation;**

[2] See www.bellrockwind.co.uk for further details.

- **Chapter 16: Greenhouse Gas Assessment;**
- **Chapter 17: Climate Change Risk Assessment;**
- **Chapter 18: Human Health;** and
- **Chapter 19: Major Accidents and Disasters.**

Alongside this **Bellrock OnTDA Scoping Report,** the **Bellrock OnTDA Habitats Regulations Appraisal Screening Report (Volume 2**) has also been provided. The Applicant invites consultees to consider the information provided in these documents and provide comments on the proposed approach and, in particular, whether they agree with the conclusions drawn.

Subsequent to obtaining a Scoping Opinion, the Bellrock OnTDA EIA Report will be produced in support of an application for Planning Permission in Principle for the construction, operation and maintenance, and decommissioning of the Bellrock Onshore Transmission Infrastructure under the following regulations:

- Planning Permission in Principle from Aberdeenshire Council for the Bellrock OnTDA under the Town and Country Planning (Scotland) Act 1997; and
- The associated EIA will be undertaken in accordance with the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017.

As the Bellrock OnTDA, WFDA and OfTDA are being considered as three separate applications, the Bellrock OnTDA EIA Report will include a Bellrock OnTDA Whole Project Assessment to ensure a robust assessment. All impacts identified in the Bellrock OnTDA-alone assessment with a level of effect of negligible or greater will be taken forward to the Bellrock OnTDA Whole Project Assessment. Within the Bellrock OnTDA Whole Project Assessment, consideration will be given to whether there are interactions between the Bellrock Onshore Transmission Infrastructure and the Bellrock Wind Farm Infrastructure and/or the Bellrock Offshore Transmission Infrastructure that have the potential to alter the magnitude of impacts or level of effects identified in the Bellrock OnTDA-alone assessment. A Cumulative Effects Assessment will then be undertaken, considering other projects and plans in the wider area.

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Glossary of Terminology

Term	Definition
Adaptive Capacity	The ability of a system to adjust to climate change (including climate variability and extremes), to moderate the potential damage from it, to take advantage of its opportunities, or to cope with its consequences.
Agri-Environment Climate Scheme	Schemes which protect and enhance Scotland's natural heritage, improve water quality, manage flood risk, preserve historic sites, and mitigate/adapt to climate change.
ALARP (As Low as Reasonably Practicable)	Involves weighing a risk against the trouble, time and money needed to control it. Thus, ALARP describes the level to which we expect to see risks controlled
Annex I species	A bird species listed on Annex I of the Birds Directive, for which special conservation measures, including site classification, may be required.
Annual Exceedance Probability	The annual probability of a flood occurring in any given year, expressed as a percentage.
Applicant	Bellrock Offshore Wind Farm Limited, the legal entity submitting the Planning Permission in Principle for the Bellrock Onshore Transmission Development Area.
Baseline Conditions	The existing environmental conditions used to characterise present-day environmental conditions.
Bathing Water Control Zones	Discharge control zones around designated bathing water areas at distances of 100 m and 1500 m, both within the sea and along water-courses flowing into a beach or surrounding zone.
Bathing Water Protected Area	Coastal and inland surface water areas where a large number of people bathe – can mean swimming, paddle boarding and other water-based activities.
Bellrock Offshore Wind Farm (or the Bellrock Project)	An offshore wind farm capable of exporting up to 1.8 GW of renewable energy to the National Electricity Transmission System. The Wind Farm Development Area is located 120 km east of Stonehaven and will connect to the National Electricity Transmission System at the proposed SSEN Transmission Hurlie substation, west of Stonehaven in Aberdeenshire. The Bellrock Offshore Wind Farm comprises of the following Development Areas: ▪ Wind Farm Development Area; ▪ Offshore Transmission Development Area; and ▪ Onshore Transmission Development Area.
Bellrock OnTDA PPP Application Boundary	The boundary that will accompany the Planning Permission in Principle Application following design refinement.
Bellrock OnTDA Scoping Boundary	The boundary used to define the extent of the environmental scoping exercise.
Bird assemblage	The group of bird species recorded within a defined area or habitat, usually considered together because they occur in the same place or ecological setting.
Breeding bird	A bird recorded during the breeding season that is nesting, holding territory, displaying, singing, feeding young, or otherwise showing evidence of breeding activity.
Breeding seabird assemblage	A group of seabird species breeding within a defined site or area, considered collectively as a conservation feature.

Term	Definition
Cascading Risk	The risk that one or more hazard event(s) may precipitate subsequent risks and events.
Climate Change Impact	Climate Change Impact is defined as an impact from a climate Hazard, such as asset damage or failure, which affects the ability of the receptor to maintain its function or purpose.
Climate Change Risk Assessment (CCRA)	A systematic process used to identify, assess and evaluate the potential impacts of climate change on operations, assets and stakeholders.
Climate hazard	Climate hazard is defined as a weather or climate-related event or trend in climate variable, such as storms or heatwaves, which has potential to do harm to receptors.
Climate resilience	Climate resilience refers to the ability of a system, community, or asset to anticipate, prepare for, respond to, and recover from significant climate-related threats with minimal damage to social well-being, the economy, and the environment.
Climate Variable	Climate variable is defined as a measurable, monitorable aspect of the weather or climate such as temperature or wind speed.
Collision risk	The potential for birds to collide with built structures, vehicles, overhead infrastructure or other project elements.
Combined Sewer Overflows	Drainage/Sewerage infrastructure located at the downstream end of a drainage network designed to manage surface water runoff and effluent in a combined system.
Commencement of construction	Commencement of construction to install the Onshore Transmission Infrastructure as authorised by the Onshore Transmission Development Area Planning Permission in Principle (excluding site preparation works), being the earlier of: ▪ Creation of new access points; ▪ Site clearance and preparation, including topsoil stripping; ▪ Creation of construction compounds.
Commercial Operation Date	The date that the site is fully transferred to the operations team which is likely to be the date of the taking over certificate of the last wind turbine generator to be installed.
Connectivity	The ecological link between a bird population or designated site and habitats within or near a proposed development area, such as through foraging, roosting or movement.
Construction compound	Temporary area used during construction for storage of materials, plant, welfare facilities and site management activities.

Term	Definition
Construction works	Works to install the Onshore Transmission Infrastructure as authorised by the Onshore Transmission Development Area Planning Permission in Principle, such as: ▪ Site preparation works undertaken after commencement of construction; ▪ Creation of new access points; ▪ Installation, diversion or reinstatement of land drainage or irrigation systems; ▪ Site clearance and preparation, including topsoil stripping; ▪ Creation of temporary construction compounds; ▪ Creation of onshore substation platform; ▪ Installation of onshore substation electrical equipment; ▪ Tie-in works to SSEN grid connection point; ▪ Excavation of cable trenches; ▪ Installation of buried cables, including through the use of horizontal direction drilling techniques; ▪ Backfilling of trenches and land reinstatement; ▪ Establishment of landscaping and/or habitat enhancement areas; ▪ Final commissioning following cable connections and snagging; and ▪ Post-construction surveys.
Core foraging range	The area around a breeding, roosting or designated site that a species is expected to use regularly for feeding.
Core Paths	Core paths are paths that facilitate, promote and manage the exercise of access rights under the Land Reform (Scotland) Act 2003.
Critical Level	The concentration of an air pollutant above which direct adverse effects on vegetation and other sensitive organisms are expected to occur.
Critical Load	The quantitative estimate of pollutant deposition (nitrogen or acid), below which significant harmful effects on sensitive ecological receptors are not expected to occur.
Cultural Heritage	Cultural heritage is an expression of the ways of living developed by a community and passed on from generation to generation. It can include customs, practices, places, objects, artistic expressions and values, aesthetic, historic, scientific, social or spiritual aspects.
Cultural Significance	Cultural significance means aesthetic, historic, scientific or social value for past, present or future generations. Cultural significance can be embodied in a place itself, its fabric, setting, use, associations, meanings, records, related places and related objects.
Designated Ecological Site	A site protected for its nature conservation value under national or international legislation or policy.
Development Area	For consenting purposes, the area for which separate consents and/or Marine Licence will be sought by the Applicant, comprising: ▪ Wind Farm Development Area; ▪ Offshore Transmission Development Area; and ▪ Onshore Transmission Development Area.

Term	Definition
Direct Impacts	Economic activity (employment headcounts and GVA) generated directly by the project's developer and its primary tier-one contractors.
Disaster	May be a natural hazard (e.g. earthquake) or a man-made/external hazard (e.g. act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident
Displacement	The movement of birds away from an area because of disturbance, habitat change, development activity or other pressures.
Disturbance	A change in bird behaviour caused by human activity or other external stimuli, such as displacement, alert behaviour, reduced feeding, or abandonment of a nest or roost.
Drinking Water Protected Area	Categorised as surface water or groundwater areas protected for the abstraction of potable water supply.
Dust	Particulate material that may become airborne through activities such as earthworks, excavation, vehicle movements and material handling.
Embedded Mitigation	Measures incorporated into the project design or standard working practices to avoid or reduce environmental effects.
Epicentre of Impact	The core geographic locations (such as specific construction/O&M ports, landfall communities, or key construction sites) that experience the most concentrated demographic, employment, or service demands from the project.
Exposure	The extent to which a receptor, asset or system is subject to a climate hazard due to its location and interaction with that hazard, irrespective of its sensitivity or adaptive capacity.
Foraging	The act of searching for, locating and feeding on food resources.
Greenhouse gas	A gas in the Earth's atmosphere that traps heat by absorbing and emitting infrared radiation, a process known as the greenhouse effect. Also known by the collective shorthand "carbon".
Gross Value Added (GVA)	A measure of economic value added by an organisation, industry or region and is typically estimated by subtracting the non-staff operational costs from the turnover of an organisation.
Heritage Asset	Is a physical element of the historic environment – a building, monument, site, place, area or landscape identified as having cultural significance.
Highway Authorities	Aberdeenshire Council and Transport Scotland.
Historic Environment Record (HER)	A historic environment record is the store for systematically organised information about the historic environment in a given area and can be accessed by anyone. It is maintained and updated for public benefit.
Horizontal directional drill	Trenchless technique to bring the offshore export cables ashore at landfall. The technique will also be the primary trenchless technique used for installation of the onshore export cables at sensitive areas of the onshore export cable route.
Horizontal Directional Drilling (HDD)	A method of cable installation where the cable is drilled beneath a feature without the need for trenching.

Term	Definition
Hurlie substation	The onshore substation to be developed by SSEN Transmission, which will receive renewable electricity from the Bellrock Project onshore substation and allow supply of renewable electricity from the wind turbine generators to the National Electricity Transmission System.
Hurlie substation connection	Infrastructure required between the Bellrock onshore substation to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the Hurlie substation.
Hurlie substation connection works	Infrastructure connecting the Bellrock OnSS to the Hurlie substation and National Electricity Transmission System.
Indirect (Supply Chain) Impacts	Economic activity supported further down the supply chain as a result of the procurement of goods and services required by the project.
Induced Impacts	Economic activity stimulated in the wider consumer economy by the personal spending of wages by direct and indirect project employees.
Intertidal area	The area of shore between the level of high tide and low tide, exposed at low tide and submerged at high tide.
Intertidal wintering bird survey	A survey designed to record birds using intertidal and adjacent coastal habitats during the non-breeding season.
Joint bay	Underground structure constructed at intervals along the onshore export cable route to join sections of onshore export cables.
Land Capability for Agriculture	Land Capability for Agriculture is a grading system used to assess and compare the quality of agricultural land in Scotland. A combination of climate, topography and soil characteristics and their unique interaction determines the class of the land. The classes range from 1 (land capable of producing a wide range of crops) to 7 (land of very little agricultural importance).
Landfall	The area in which the offshore export cables come ashore and transition between the offshore export cables and the onshore export cables. For the purpose of the Onshore Transmission Development Area, the landfall includes the area landward of Mean Low Water Springs.
Landfall compound	Used temporarily to support the construction and commissioning of the landfall construction works, which may include (but not limited to) office, welfare and workshop facilities; vehicle parking; spoil, material and equipment laydown and/or storage; drainage infrastructure; wheel washing facilities; and lighting, fencing and security.
Landfall scoping area	The area considered at the scoping stage within which the offshore export cables come ashore, and the transition bays are located. The landfall scoping area extends from Mean Low Water Springs to transition bay(s), and their associated infrastructure, including construction compounds and access points. The landfall scoping area will be further refined to a landfall prior to submission of the planning application for the Onshore Transmission Development Area.
Link box	Underground chamber accessed by manhole, or an above ground cabinet located close to the onshore export cables, housing low voltage electrical earthing links and allowing periodic access for testing of the onshore export cables. A fence may be installed around the access manhole or link box for protection.

Term	Definition
Major Accident	Events that threaten immediate or delayed serious environmental effects to human health, welfare and/or the environment and require the use of resources beyond those of the client or its appointed representatives to manage. Whilst malicious intent is not accidental, the outcome (e.g. train derailment) may be the same and therefore many mitigation measures will apply to both deliberate and accidental events.
Mean High Water Springs (MHWS)	The average, over a year, of the heights of two successive high waters during those periods of 24 hours (once every fortnight) when the range of the tide is greatest.
Mean Low Water Springs (MLWS)	The average, over a year, of the heights of two successive low waters during those periods of 24 hours (once every fortnight) when the range of the tide is greatest.
National Electricity Transmission System	The high-voltage electricity power transmission network serving Great Britain which receives electricity from generators (such as offshore wind farms) and transmits that electricity to anywhere on the National Electricity Transmission System to satisfy demand.
Nitrogen Deposition	The transfer of nitrogen compounds from the atmosphere to the ground or vegetation through wet and dry deposition processes.
Non-breeding bird	A bird present outside the breeding season, including wintering, passage or roosting individuals.
Odour	The property of a substance that is capable of being detected by the human sense of smell.
Offshore Transmission Development Area (OfTDA)	The offshore area within which offshore transmission infrastructure is proposed.
Onshore export cable corridor	The planning application boundary within which the onshore export cables route will be located.
Onshore export cable route	The area within the onshore export cable corridor where construction and commissioning of the onshore export cables will be undertaken, and which may include (but not limited to) the onshore export cables and trench(es); link boxes and associated fencing; temporary haul road; spoil, material and equipment laydown and/or storage; drainage infrastructure; wheel washing facilities; lighting, fencing and security; and environmental mitigation area(s).
Onshore export cables	Electrical and fibre optic cables between the transition joint bay(s) at landfall to the onshore substation and onward to the Hurlie substation which may be laid directly within cable ducts or protective troughs.
Onshore substation (OnSS)	Onshore substation which will be fenced and house electrical equipment (such as transformers, reactive compensation equipment, harmonic filters, switchgear, and protection and control systems), thereby enabling renewable electricity from the wind farm to be received via the onshore export cables and exported to the National Electricity Transmission System.
Onshore substation area	The area within which the onshore substation and its ancillary infrastructure, including access, drainage, landscaping and environmental enhancements, and temporary works will be located.
Onshore Transmission Development Area (OnTDA)	The boundary within which the Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned (and overlaps partially with the Offshore Transmission Development Area).

Term	Definition
Onshore Transmission Development Area Scoping Boundary	The area considered at the scoping stage within which the Onshore Transmission Development Area and its associated infrastructure is expected to be developed.
Onshore Transmission Infrastructure	Infrastructure located within the Onshore Transmission Development Area including transition joint bay(s); onshore export cables; onshore substation; temporary construction compounds; temporary working areas; environmental mitigation areas; drainage/irrigation infrastructure; access works; and any other associated infrastructure (including activities associated with the Onshore Transmission Infrastructure construction, operation and maintenance, and decommissioning).
Passage	The movement of migratory birds through an area between breeding and wintering grounds, typically during spring or autumn migration.
Preferred Landfall Area of Search	The Landfall preferred Area of Search is the area of search adopted to identify potential landfall location(s).
Preferred Onshore Substation Area of Search	The preferred Area of Search adopted to identify potential onshore substation locations.
Prehistoric Period	Broad term encompassing the Palaeolithic, Mesolithic, Neolithic, Bronze Age and Iron Age.
Project Design Envelope	Includes all relevant technical, spatial and temporal elements of the Onshore Transmission Infrastructure, and the proposed methodology to be employed for construction, operations and maintenance, and decommissioning.
Qualifying ornithological feature	A bird species, population or assemblage for which a designated site has been selected or classified.
Raptor	A bird of prey, such as a hawk, falcon, eagle, kite or owl, which hunts or scavenges animal prey.
Representative Concentration Pathway (RCP)	Different possible trajectories of atmospheric concentrations based on socioeconomic and policy assumptions used in climate change projection modelling. The RCP scenarios are related to the concentrations of GHG that would result in target amounts of radiative forcing (measured in watts per square meter (W/m^2)) at the top of the atmosphere by 2100, relative to pre-industrial levels. Radiative forcing is a measure of the influence of factors (like GHG) on the energy balance of the Earth's atmosphere. The RCP scenarios are: ▪ RCP2.6: Pathway where radiative forcing peaks at approximately 3 W/m^2 mid-century and then declines to 2.6 W/m^2 by 2100. This would require significant reductions in greenhouse gas emissions and aims to limit global warming to below 2°C. ▪ RCP4.5: Represents a stabilisation of radiative forcing at 4.5 W/m^2 by 2100 without overshooting. It assumes that emissions will peak around 2040 and then decline. ▪ RCP6.0: Pathway stabilises radiative forcing at 6 W/m^2 by 2100. Emissions peak around 2080 and then decline. ▪ RCP8.5: Radiative forcing reaches 8.5 W/m^2 by 2100. It assumes continued increases in greenhouse gas emissions throughout the 21st century.
Return Period	Measure of the frequency of a storm or flood event in years.
Risk Event	An identified, unplanned event, which is considered relevant to the development and has the potential to result in a major accident and/or disaster, subject to assessment of its potential to result in a significant adverse effect on an environmental receptor.

Term	Definition
Roosting bird	A bird using a site for resting or sleeping, often communally and outside active feeding periods.
Schedule 1 species	A bird species listed on Schedule 1 of the Wildlife and Countryside Act 1981, receiving additional legal protection against disturbance while nesting or with dependent young.
Scoping Boundary	The area considered at the scoping stage within which the relevant Development Area and its associated infrastructure is expected to be developed.
ScotWind	A Crown Estate Scotland leasing round for offshore wind projects in which the process enabled developers to apply for seabed rights to plan and build wind farms in Scottish waters.
Seabird	A bird species that depends primarily on marine or coastal environments for feeding, breeding or roosting.
Seabird colony	A location where seabirds gather to breed, often in high densities on cliffs, islands, beaches or other suitable nesting habitats.
Sensitivity	Sensitivity is the degree to which a receptor is affected, either adversely or beneficially, by climate variability or change.
Setting	Setting is that which encompasses an asset's surroundings in which it is experienced. The extent of setting is not fixed and can contribute both positively and negatively to the heritage significance of an asset.
Shared socioeconomic pathways	Climate change scenarios that project socioeconomic global changes up to 2100. They are used to derive greenhouse gas emissions scenarios based on different climate policies and socioeconomic developments. SSPs provide narratives describing alternative pathways for human society, particularly in relation to fossil fuel use and the social and economic factors driving it.
Site preparation works	Preparatory activities undertaken within the Onshore Transmission Development Area prior to the commencement of construction of the Onshore Transmission Infrastructure, which may comprise (and which may require separate consents): ▪ Geophysical surveys, geotechnical surveys; ▪ Pre-construction archaeological surveys; ▪ Vegetation removal; ▪ Pre-construction ecological surveys and mitigation; ▪ Habitat creation and enhancement and advance planting; ▪ Ground investigation and remedial work with respect to contaminated land; ▪ Other pre-construction environmental surveys; ▪ Erection of temporary fencing; ▪ Creation of temporary hardstanding where required to facilitate construction; ▪ Creation of temporary means of access; ▪ Temporary display of site notices, signage or advertisements.
Skein	A flock of geese, ducks or other large birds flying together, typically in a V-shaped or line formation during migration or local movements.

Term	Definition
Soil Management Plan	A plan which will detail soil stripping, excavation, handling, storage, reinstatement and aftercare measures to safeguard soil resources during the construction works.
Source	The original cause of the hazard, which has the potential to cause harm.
Stonehaven Bathing Water Protected Area	SEPA designated coastal bathing water area.
Surface Water Flooding	Flooding resulting from pluvial runoff (rainfall), associated with small watercourses, ditches, drainage channels and changes in surface topography.
Target bird species	Bird species selected for focused survey or assessment because of their conservation importance, legal protection, sensitivity to disturbance, or relevance to designated sites.
Temporary construction compound	Area within the Onshore Transmission Development Area used temporarily to support the construction and commissioning, which may include (but not limited to) office, welfare and workshop facilities; vehicle parking; spoil, material and equipment laydown and/or storage; drainage infrastructure; wheel washing facilities; and lighting, fencing and security.
Temporary haul road	Temporary track(s) along the onshore export cable route used by construction traffic to access different sections of the onshore export cable route.
Trackout	The transfer of dust and dirt from a construction site onto the public highway by vehicles, which then dries out and can be resuspended as dust by other vehicles.
Transect survey	A survey method in which observers follow a defined route and record birds seen or heard within or near the route.
Transition joint bay	An underground structure at the landfall accessed by manhole or other means which accommodates the jointing of the offshore export cables and the onshore export cables. A fence may be installed around the access manhole for protection.
Trenchless technique	A trenchless technique is a subsurface construction method, such as horizontal directional drilling, which are used to install cables with minimal surface excavation.
UK Climate Projections 2018 (UKCP18)	The UK Climate Projections 2018 (UKCP18) are a set of climate change projections produced by the UK Met Office on behalf of the UK Government. UKCP18 provides probabilistic and scenario-based projections of future changes in climate variables (such as temperature, precipitation, sea level rise, and extreme weather) for the UK under different greenhouse gas emissions scenarios.
Vantage point	A fixed survey location selected to provide a clear view over a defined area for recording bird activity.
Vulnerability	Describes the potential for harm as a result of an event, for example due to sensitivity or value of receptors. In the context of the EIA Directive, the term refers to the ‘exposure and resilience’ of the development to the risk of an impact. Vulnerability is influenced by sensitivity, adaptive capacity and magnitude of impact.
Vulnerability (to climate hazards)	Vulnerability is the degree to which a receptor (e.g. people, infrastructure, ecosystems) is susceptible to, or unable to cope with, adverse effects of climate change. It is typically a function of: ▪ Exposure (presence in areas affected by climate hazards); ▪ Sensitivity (degree to which it is affected); and ▪ Adaptive capacity (ability to adjust, cope, or recover).

Term	Definition
Wader	A bird typically associated with shorelines, wetlands or intertidal habitats, often feeding by probing mud, sand or shallow water for invertebrates belonging to the order of Charadriiformes.
Walkover survey	A field survey involving systematic inspection of an area to record habitats, species or ecological features.
Waterbird	A broad term for birds associated with wetland, coastal, intertidal or aquatic habitats, including wildfowl, waders, gulls, terns and divers.
Wind Farm Development Area	The boundary within which the wind farm infrastructure will be constructed, operated and decommissioned.
Wind farm infrastructure	Infrastructure located within the Wind Farm Development Area including wind turbine generators; floating substructures, station keeping systems and associated scour protection; inter-array cables and associated cable protection; and subsea cable hubs.
Wintering bird	A bird that uses an area during the winter or non-breeding period for feeding, roosting or shelter.

Glossary of Abbreviations

Term	Definition
AILs	Abnormal indivisible load
ALARP	As Low As Reasonably Practicable
BEP	Biodiversity Enhancement Plan
BGS	British Geological Survey
BS	British Standard
BTO	British Trust for Ornithology
CCR	Climate Change Risk
CEA	Cumulative Effects Assessment
CEMP	Construction Environmental Management Plan
CH_4	Methane
CIEEM	Chartered Institute of Ecology and Environmental Management
CTMP	Construction Traffic Management Plan
DBA	Desk-based Assessment
Defra	Department for Environment, Food and Rural Affairs
DESNZ	Department for Energy Security and net zero *(formally BEIS/DECC)*
DMRB	Design Manual for Roads and Bridges
DWPA	Drinking water protected area
EASR	Environmental Authorisations (Scotland) Regulations
EATM	Environmental Assessment of Traffic and Movement
EIA	Ecological Impact Assessment
EMF	Electromagnetic field
EPUK	Environmental Protection United Kingdom
FLS	Forestry and Land Scotland
FPS	Forties Pipeline System
FRA	Flood Risk Assessment
GB	Great Britain
GCR	Geological Conservation Review

Term	Definition
GHG	Green House Gas
GLVIA3	Guidelines for Landscape and Visual Impact Assessment, 3rd Edition
GP	General Practitioner
GPP	Guidance for Pollution Prevention
GVA	Gross Value Added
GW	Gigawatt
GWDTE	Groundwater Dependent Terrestrial Ecosystems
HDD	Horizontal directional drilling
HER	Historic Environment Record
HES	Historic Environment Scotland
HFC	Hydrofluorocarbons
HGV	Heavy goods vehicle
HRA	Habitats Regulations Appraisal
HVAC	High voltage alternating current
HVDC	High voltage direct current
IAQM	Institute of Air Quality Management
ICCP	Impressed Current Cathodic Protection
IEMA	Institute of Environmental Management and Assessment
INNS	Invasive Non-Native Species
IPCC	Intergovernmental Panel on Climate Change
ISEP	Institute of Sustainability and Environmental Professionals
ISO	International Organisation for Standardisation
LAQM	Local Air Quality Management
LBAP	Local Biodiversity Action Plan
LCT	Landscape character type
LDP	Local Development Plan

Term	Definition
Leq,T LAeq,T	▪ Leq,T is the equivalent continuous sound pressure level over period T, where 'T' is the measurement time (e.g. LAeq,5min). ▪ LAeq,T is the A-weighted equivalent continuous sound pressure level over period T. ▪ This is effectively the average sound pressure level over a given period. As the decibel is a logarithmic quantity the Leq is not a simple arithmetic mean value. ▪ The Leq is calculated from the raw sound pressure data. It is not appropriate to include a reference to the FAST and SLOW time constants in the notation.
Lmax LAmax LAFmax	▪ Lmax is the maximum instantaneous sound pressure level. ▪ LAmax is the A-weighted maximum instantaneous sound pressure level. ▪ LAFmax is the A-weighted maximum instantaneous sound pressure level with a FAST time constant. ▪ This is the highest instantaneous sound pressure level reached during a measurement period.
LN,T LAN, LAFN,T	▪ LN,T is the percentage exceedance sound pressure level (N = %age value, 0 100; T = measurement time e.g. LA90, LA10, LAF90, 5 min). ▪ LAN,T is the A-weighted percentage exceedance sound pressure level. ▪ LAFN,T is the A-weighted percentage exceedance sound pressure level with a FAST time constant. ▪ This is the sound pressure level exceeded for N% of the time T. e.g. If an A-weighted level of x dB is exceeded for a total of six minutes within one hour, the level will have been above x dB for 10% of the measurement period. This is written as LA10,1hr = x dB. ▪ LA0 (the level exceeded for 0% of the time) is equivalent to the LAmax and LA100 (the level exceeded for 100% of the time) is equivalent to the LAmin. It is good practice to include the letter which identifies the time constant used as this can make a significant difference to the value.
LNCS	Local Nature Conservation Site
Lp LpA (or LA) LAF, LAS	▪ The instantaneous sound pressure level (Lp). ▪ The A-weighted instantaneous sound pressure level (LpA or LA). This is the root mean square size of the pressure fluctuations in the air. This level can fluctuate wildly even for seemingly steady sounds. To make sound level meters easier to read the values on the display are smoothed or damped out. This is effectively done by taking a rolling average of the previous 0.125 seconds (s) (FAST time constant) or the previous 1s (SLOW time constant). ▪ The letters F or S are added to the subscripts in the notation to indicate when the FAST or SLOW time constant has been used. These are often omitted but it is good practice to include them.
LUC	Land Use Consultants
LVIA	Landscape and Visual Impact Assessment
MAU	Marine Analytical Unit
MD-LOT	Marine Directorate - Licensing Operations Team
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs

Term	Definition
MSC	Matters Specified in Conditions
MW	Megawatt
N_2O	Nitrous oxide
NCN	National Cycle Network
NDC	Nationally Determined Contribution
NESBReC	Northeast Scotland Biological Records Centre
NF_3	Nitrogen trifluoride
NH_3	Ammonia
NO_2	Nitrogen dioxide
NOx	Nitrogen oxides
NPF	National Planning Framework
NPF4	National Planning Framework 4
NRMM	Non-Road Mobile Machinery
NRS	National Records of Scotland
NVC	National Vegetation Classification
NVSR	Noise and Vibration Sensitive Receptor
O&M	Operation and maintenance
OfTDA	Offshore Transmission Development Area
OH&S	Occupational Health and Safety
OHL	Overhead line
ONS	Office for National Statistics
OnSS	Onshore substation
OnTDA	Onshore Transmission Development Area
OS	Ordnance Survey
OWEKH	Offshore Wind Evidence Knowledge Hub
OWIC	Offshore Wind Industry Council
PAN	Planning Advice Note
PEA	Preliminary Ecological Appraisal

Term	Definition
PFC	Perfluorocarbons
PM	Particulate matter
PM_{10}	Particulate matter 10 micrometres or less in diameter
$PM_{2.5}$	Particulate matter 2.5 micrometres or less in diameter
PMP	Peat Management Plan
PPP	Planning Permission in Principle
PRA	Preliminary Risk Assessment
PWS	Private Water Supplies
RBMP	River Basin Management Plan
RCP	Representative Concentration Pathway
RNAS	Royal Naval Air Service
RSPB	Royal Society for the Protection of Birds
SAC	Special Areas of Conservation
SBL	Scottish Biodiversity List
SEIA	Socioeconomic Impact Assessment
SEPA	Scottish Environmental Protection Agency
SF_6	Sulphur hexafluoride
SFCC	Scottish Fisheries Coordination Centre
SIMD	Scottish Index of Multiple Deprivation
SLA	Special landscape area
SM	Scheduled Monument
SNH	Scottish Natural Heritage
SPA	Special Protection Area
SSI	Scottish Statutory Instrument
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Systems
TAN	Technical Advice Note
UK	United Kingdom

Term	Definition
UKCP	UK Climate Project
UNFCC	United Nations Framework Convention on Climate Change
WCPP	Woodland Compensatory Planting Plan
WFD	Water Framework Directive
WFDA	Wind Farm Development Area
ZoI	Zone of Influence
ZTV	Zone of Theoretical Visibility

1 Introduction

1. This Bellrock Offshore Wind Farm (the '**Bellrock Project'**) **Onshore Transmission Development Area (OnTDA) Scoping Report** accompanies a request for a formal Scoping Opinion from Aberdeenshire Council, the relevant planning authority for the construction, operation and maintenance (O&M) and decommissioning of the Bellrock Onshore Transmission Infrastructure located within the Bellrock OnTDA.

2. This **Bellrock OnTDA Scoping Report** is accompanied by the **Bellrock OnTDA Habitats Regulations Appraisal (HRA) Screening Report (Volume 2)**.

1.1 Bellrock Project Overview

3. In January 2022, as part of the ScotWind leasing round managed by Crown Estate Scotland (CES), Bellrock Offshore Wind Farm Limited (the 'Applicant') was successfully awarded an option to develop an area of seabed in the central North Sea, off the coast of Aberdeenshire, Scotland, to develop the Bellrock Project.

4. The Bellrock Project is a proposed floating offshore wind farm, which will generate and transmit renewable electricity, exporting up to 1.8 gigawatts (GW) to the National Electricity Transmission System via Scottish and Southern Electricity Transmission's (SSEN Transmission) proposed Hurlie substation[3] in Aberdeenshire, Scotland (See **Section 1.2** for further details). The Bellrock Project comprises the following three Development Areas (shown schematically in **Plate 1.1** for which separate consents and/or licence applications will be (or have been) sought by the Applicant (see **Section 1.5** for details on the consents strategy):

- The Bellrock OnTDA, within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OnTDA extends landward of Mean Low Water Springs (MLWS) to the Hurlie substation (located approximately 5 km west of Stonehaven) and partially overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) (from MLWS to Mean High-Water Springs (MHWS));
- The Bellrock Wind Farm Development Area (WFDA) within which the Bellrock Wind Farm Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock WFDA is located 120 km east of Stonehaven (116 km southeast of Peterhead), Aberdeenshire; and
- The Bellrock OfTDA, within which the Bellrock Offshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OfTDA overlaps with the whole of the Bellrock WFDA and partially overlaps with the Bellrock OnTDA. The Bellrock OfTDA extends seaward of MHWS.

[3] At the time of writing this Scoping Report, the Hurlie substation is subject to a planning appeal to the Scottish Ministers. The Hurlie substation remains the Bellrock Project's defined point of connection to the National Electricity Transmission System (as directed by NESO) and, therefore, the Applicant continues to progress the Bellrock Project on this basis.

5. The location of the Bellrock OnTDA Scoping Boundary is shown in **Figure 1.1** in **Appendix A: Figures (Volume 1)**.

6. This **Bellrock OnTDA Scoping Report** considers the Bellrock OnTDA only. The Bellrock Onshore Transmission Infrastructure is discussed in **Chapter 3: Project Description** and comprises:

- **Landfall**: located at Cowie, Aberdeenshire, where between two and six ducts are installed using trenchless techniques, allowing the offshore export cables to be brought ashore and connected to onshore export cables within the transition joint bay;
- **Onshore export cables:** up to six underground High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) onshore cable circuits, each up to 18 km in length, installed between landfall and the onshore substation;
- **Onshore substation (OnSS):** electrical equipment (such as converters, transformers, switchgear, and protection and control systems) enabling renewable electricity from the Bellrock WFDA received via the onshore export cables to be exported to the National Electricity Transmission System, and ancillary infrastructure; and
- **Hurlie substation connection works**: infrastructure between the Bellrock OnSS to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the National Electricity Transmission System.

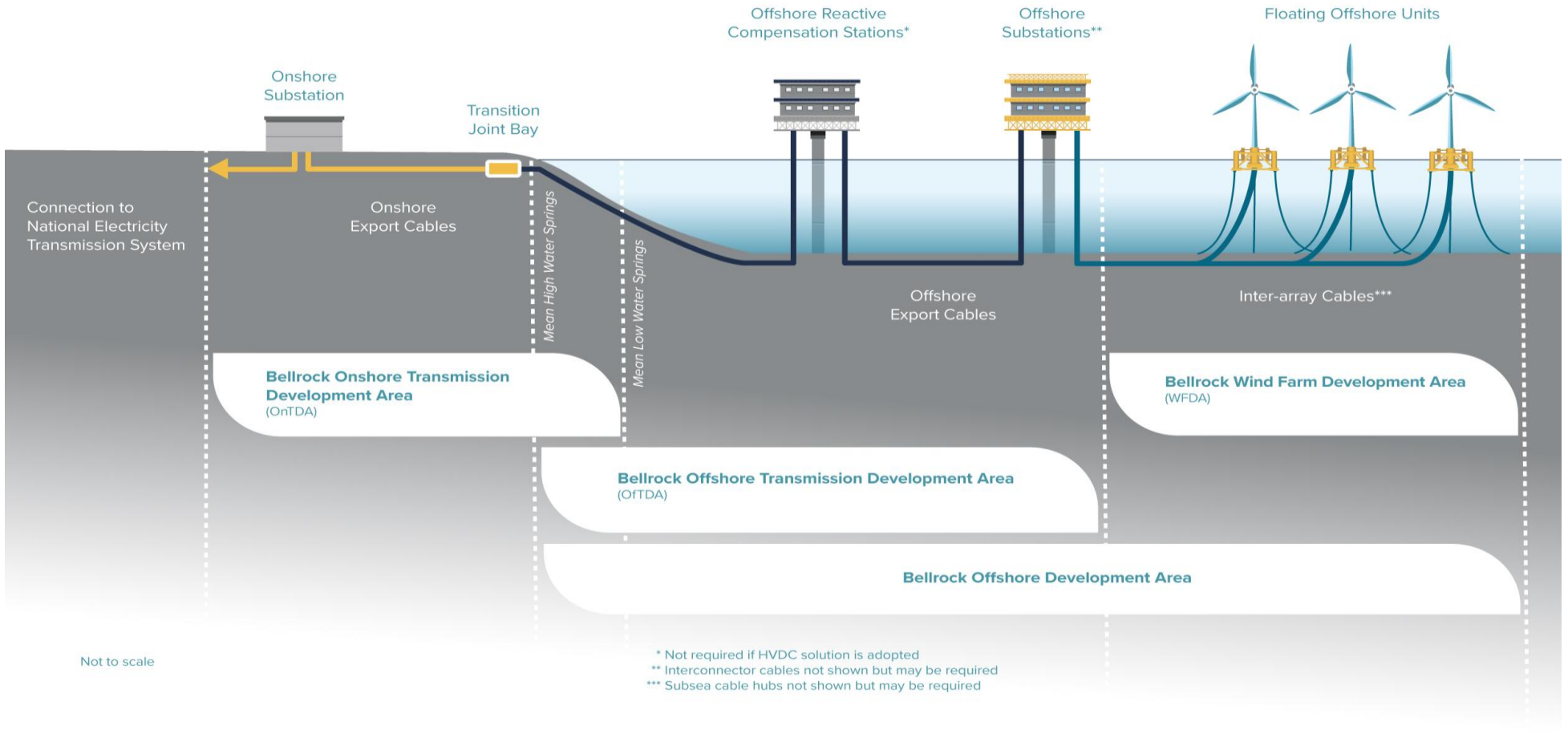
7. In addition, associated works are required to facilitate construction and O&M of the Onshore Transmission Infrastructure, including: access, signage, haul roads, spoil storage, material storage, fencing, borrow pits (if any), earthworks, welfare, security, landscape mitigation, ecological mitigation, biodiversity enhancement, operational lighting and drainage.

8. This **Bellrock OnTDA Scoping Report** considers all infrastructure and associated activities for the Bellrock OnTDA landward of MLWS. It is anticipated that the operational life of the Onshore Transmission Infrastructure will be up to 40 years[4].

9. The Bellrock Onshore Transmission Infrastructure (see **Section 3.6.1**) is defined as infrastructure located within the Bellrock OnTDA including transition joint bay(s); onshore export cables; OnSS; temporary construction compounds; temporary working areas; environmental mitigation areas; drainage/irrigation infrastructure; access works; and any other associated infrastructure including activities associated with the Onshore Transmission Infrastructure construction, O&M, and decommissioning.

[4] The operational life of the Onshore Transmission Infrastructure (up to 40 years) allows the Onshore Transmission Infrastructure to serve the Wind Farm Infrastructure during its construction and 35 year operational life.

Plate 1.1: Overview of the Bellrock Project Development Areas



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1.2 The Offshore Transmission Development Area and the Holistic Network Design Process

10. Under the National Grid Electricity System Operator's (NGESO) (now the National Energy System Operator (NESO)) Holistic Network Design (HND) process, the 'Pathway to 2030' workstream (NGESO, 2022) set out a road map to enable a coordinated and integrated approach for connecting 23 GW of offshore wind to the National Electricity Transmission System, while ensuring that the most appropriate approach is taken forward with regards to consumers, local communities, and the environment. It provided offshore and onshore connection recommendations that facilitate the UK Government's ambition for 50 GW of offshore wind by 2030, through equal consideration across the following four objectives to ensure the most appropriate approach is taken forward: cost to consumer; deliverability and operability; impact on environment; and impact on local communities (NGESO, 2022).

11. The HND (NGESO, 2022) recommended that the Bellrock Project, connect via an SSEN Transmission offshore substation. The Applicant's initial consultation with regulators, stakeholders and local community was based on connection to a proposed offshore substation. In April 2025, NESO imposed a change to the Bellrock Project, requiring it to connect to the Hurlie substation in Aberdeenshire. Following this decision, the Applicant has undertaken a site selection process and stakeholder consultation activities for a connection into the Hurlie substation. See **Section 1.4** for details on the Bellrock OnTDA Scoping Boundary and **Section 4.3** of **Chapter 4: Approach to Scoping and Environmental Impact Assessment** for details on consultation.

12. Additional details on the HND are provided in **Table 2.1** of **Chapter 2:** Legislative and Policy Context, and on the site selection process in **Section 3.6** in **Chapter 3: Project Description**.

1.3 Objectives of the Bellrock Project

13. The key ambition of the Bellrock Project is to successfully build and operate an offshore wind farm to help reach Scotland's and the United Kingdom's net zero targets in the face of the climate emergency (see **Chapter 2: Legislative and Policy Context**) and realise the benefits of a sustainable energy source which improves Scotland's energy security and reduces costs to the consumer. The objectives of the Bellrock Project are set out in **Table 1.1** below.

Table 1.1: Objectives of the Bellrock Project

Theme	Objective
Drive offshore wind growth in Scottish waters	To contribute to the delivery of a significant volume of operational offshore wind in Scottish waters in the 2030s which will generate low carbon electricity in support of the decarbonisation of the Scottish electricity supply as part of Scottish and United Kingdom (UK) climate change targets and the Scottish Government's ambition of developing up to 40 GW of new offshore wind in Scottish waters by 2040.

Theme	Objective
Improve energy security	To improve energy security and stability in Scotland and the UK by providing significant renewable energy generation within Scottish waters.
Optimise renewable energy within infrastructure limits	To optimise renewable energy generation and supply capacity at scale within the constraints of available Scottish seabed and onshore transmission infrastructure.
Unlock deep-water offshore wind potential	To generate renewable power on the Scottish seabed at greater depths by deploying floating wind technology at scale.
Maximising socioeconomic benefits for Scotland	To deliver significant socioeconomic benefits and investment within the Scottish supply chain and realise the associated economic development, skills and employment benefits for Scotland.

14. The Applicant is collaborating with local and national agencies to train and upskill the workforce by formulating specific enterprise and skills development programmes. The initiatives that the Applicant is currently engaged in at the time of writing are listed in **Table 1.2** below.

Table 1.2: Ongoing Skills Initiatives Supported by the Applicant

Provider	Initiative Sponsored
Scottish Association for Marine Science	▪ Funding a part-time science, technology, engineering and mathematics Officer with a focus on marine technology and engineering to engage young people with physical oceanography, robotics, technology, engineering and blue careers (commitment of two years); ▪ Sponsorship of five places on a full day robotics training course; ▪ Paid marine mammal data analysis student internship; and ▪ Creation of five to seven bursaries/or a hardship fund to help students facing financial barriers secure funding to ensure they can participate in studies.
Stemovators	▪ Sponsorship of a Stemovators pilot project “ScotWind for Schools”, providing equipment to 10 schools and shaping lesson planning for a module to educate P6 – S2 pupils about offshore wind.
Powering Futures	▪ National Partner of this programme; ▪ Students have opportunity to gain the Scottish Credit and Qualifications Framework Level 6 Powering Futures qualification; and ▪ Members of the Bellrock project team are engaged in volunteering opportunities at various schools taking part in the programme.
North East Scotland College	▪ Sponsorship of 12 places on a school-leaver pre-apprenticeship programme; ▪ Provision of personal protective equipment, site visits, participant bursary and access to employability resources; and ▪ Delivery of careers talks.

15. The Bellrock Project will deliver significant supply chain expenditure within Scotland, has the potential to power the equivalent energy needs of over 1.7 million homes[5] with renewable energy and will help achieve Scotland's net zero targets whilst improving energy security.

1.4 Bellrock OnTDA Scoping Boundary

16. The Bellrock OnTDA Scoping Boundary presented within this **Bellrock OnTDA Scoping Report** is shown within **Figure 1.1** in **Appendix A (Volume 1)**. The Bellrock OnTDA Scoping Boundary defines the area within which the Bellrock Onshore Transmission Infrastructure and associated activities will be located (see **Section 1.1**).

17. The site selection process for the Bellrock OnTDA is ongoing at the time of writing and is taking account of environmental and engineering considerations and constraints (see **Section 3.6** in **Chapter 3: Project Description** for details). The Bellrock OnTDA Scoping Boundary has been defined for the purpose of this **Bellrock OnTDA Scoping Report** to include a preferred landfall Area of Search at Cowie (north of Stonehaven), and preferred OnSS Area of Search for an OnSS[6] in proximity to the Hurlie substation, as shown in **Figure 1.2** in **Appendix A (Volume 1)**. The Bellrock OnTDA Scoping Boundary defines the area within which the Bellrock Onshore Transmission is located. These preferred Areas of Search are presented to aid the reader of this Scoping Report and may be subject to refinement.

18. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process to form the boundary of the Bellrock OnTDA, which will be the subject of the Bellrock OnTDA Environmental Impact Assessment (EIA) and Application for Planning Permission in Principle (PPP). Receptor specific study areas (see **Chapter 5** to **Chapter 19**) will be updated in the Bellrock OnTDA EIA Report to reflect this refinement.

1.5 Consents Strategy

19. The Applicant will seek PPP under The Town and Country Planning (Scotland) Act 1997 (the '1997 Act') for the construction and O&M of the Bellrock Onshore Transmission Infrastructure. The PPP Application for the Bellrock OnTDA will be submitted to Aberdeenshire Council.

20. The PPP Application will be accompanied by the Bellrock OnTDA EIA Report, which will present an assessment of likely significant effects on the environment for the construction, O&M and decommissioning of the Bellrock Onshore Transmission Infrastructure. Further details of the EIA Report structure are outlined in **Section 4.9** of **Chapter 4: Approach to Scoping and Environmental Impact Assessmen**t.

21. Separate applications for Section 36 Consent and Marine Licence Application under the Electricity Act 1989 and a Marine Licence under the Marine and Coastal Access Act (MCAA) 2009 (in

[5] See www.bellrockwind.co.uk for further details.

[6] Temporary works, drainage, landscaping and access works may be located outside the preferred OnSS Area of Search.

consideration of the Wind Farm Infrastructure) for the Bellrock WFDA (in consideration of the Wind Farm Infrastructure) were submitted to Marine Directorate Licensing and Operations Team (MD-LOT), on behalf of Scottish Ministers on 2 April 2026. Additionally, separate Marine Licence Application(s) will be submitted under the MCAA 2009 and Marine (Scotland) Act 2010 for the Bellrock OfTDA (in consideration of the Offshore Transmission Infrastructure).

22. To ensure a robust assessment, a Bellrock OnTDA Whole Project Assessment will be included within the Bellrock OnTDA EIA Report, which will consider potential effects from the Bellrock Onshore Transmission Infrastructure that may occur in-combination with the Bellrock Wind Farm Infrastructure and the Offshore Transmission Infrastructure (see **Chapter 4: Approach to Scoping and Environmental Impact Assessmen**t). A Cumulative Effects Assessment will then be undertaken, considering the Bellrock OnTDA Whole Project Assessment alongside other projects and plans in the wider area.

23. Further details on the methodology for the EIA, including the approach to Whole Project Assessment and Cumulative Effects Assessment are discussed in **Chapter 4: Approach to Scoping and Environmental Impact Assessmen**t (**Section 4.7**).

24. Following the granting of PPP, the Applicant will refine the design of the Onshore Transmission Infrastructure and further develop associated mitigation measures, allowing submission of Applications for Approval of Matters Specified in Conditions (MSC) to Aberdeenshire Council, where relevant. Such Applications will confirm the detailed design parameters which will fall within the design envelope parameters assessed at the EIA stage. The project is, therefore, requiring 'multi-stage consent'[7] under The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (the 'EIA Regulations') (Regulation 2(1)).

1.6 Purpose of this Scoping Report

25. This **Bellrock OnTDA Scoping Report** has been prepared to support a request for a Scoping Opinion in relation to the Bellrock Onshore Transmission Infrastructure from Aberdeenshire Council. Responses received by Aberdeenshire Council from statutory and non-statutory consultees to this **Bellrock OnTDA Scoping Report** are expected to inform the Scoping Opinion, which will in turn inform the Bellrock OnTDA EIA Report.

26. The purpose of this **Bellrock OnTDA Scoping Report** is to provide stakeholders with information on the Bellrock Onshore Transmission Infrastructure and facilitate engagement with stakeholders on the key issues to be addressed in the Bellrock OnTDA EIA Report, as well as the baseline data sources and assessment methodologies to be used to inform the Bellrock OnTDA EIA Report.

27. **Table 1.3** summarises the information requirements set out in the EIA Regulations and where these can be found in this **Bellrock OnTDA Scoping Report**.

[7] A multi-stage consent, involves conditions imposed on planning permission, where the approval, consent or agreement of the local planning authority must be obtained before all or part of the development permitted by the PPP may be begun.

Table 1.3: Scoping Requirements of the EIA Regulations and where the Information is Included in this Bellrock OnTDA Scoping Report

EIA Regulation Topic Requirement	Location in this Bellrock OnTDA Scoping Report
A description of the location of the development, including a plan sufficient to identify the land;	**Chapter 3: Project Description** provides a description of the Bellrock OnTDA and a plan of the Bellrock OnTDA is provided in **Figure 1.1** in (**Appendix A (Volume 1)**).
A brief description of the nature and purpose of the development and of its likely significant effects on the environment; and	**Chapter 3: Project Description** includes a description of the nature and purpose of the Bellrock Onshore Transmission Infrastructure, and **Chapter 2: Legislative and Policy Context** provides a description of the purpose. **Chapter 5** to **Chapter 19** then provide a description of the Bellrock Onshore Transmission Infrastructure's likely significant effects on the environment.
(c) such other information or representations as the developer may wish to provide or make.	Further detail regarding the proposed approach to EIA is provided in each **Chapter 5** to **Chapter 19**, including plans detailing the location of the Bellrock OnTDA with respect to environmental receptors which are provided in **Appendix A: Figures (Volume 1)**. Details of project embedded mitigation proposed at this stage can be found in **Appendix B: Mitigation and Monitoring Register (Volume1)**. The conclusion of a HRA Screening Assessment for the Bellrock OnTDA can be found in **Bellrock OnTDA HRA Screening Report (Volume 2)**.

28. Within this **Bellrock OnTDA Scoping Report**, potential environmental impacts associated with the Bellrock Onshore Transmission Infrastructure are considered. These include impacts which are proposed to be 'scoped out' of the Bellrock OnTDA EIA Report due to no likely significant effect in EIA terms or no impact-receptor pathways identified. Agreement with stakeholders will be sought through this **Bellrock OnTDA Scoping Report** to determine final impacts to be 'scoped in' and 'scoped out' of the Bellrock OnTDA EIA Report and agree methods and approaches to be used when undertaking the assessments (see **Chapter 4: Approach to Scoping and Environmental Impact Assessmen**t).

29. The potential impacts and mitigation proposed within this **Bellrock OnTDA Scoping Report** are based on the Bellrock OnTDA Scoping Boundary. As noted above, as the site selection process for the Bellrock OnTDA further develops, the boundary of the Bellrock OnTDA will be reduced to reflect the refinement of the Bellrock onshore export cable corridor and location of the OnSS and this will be reflected in the EIA. Subsequent to receiving the Scoping Opinion, any project refinements which are considered to potentially change the context of the Scoping Opinion (i.e. works outside the Bellrock OnTDA Scoping Boundary or un-scoped infrastructure or methodology) will be discussed with Aberdeenshire Council and highlighted in the Bellrock OnTDA EIA Report.

30. Scoping occurs before the Bellrock OnTDA is at an advanced or fixed stage of engineering design. This ensures that relevant stakeholder feedback obtained via the Scoping Opinion can be used to inform the ongoing design evolution of the Bellrock Onshore Transmission Infrastructure. The resultant Bellrock OnTDA EIA Report will be based upon the Scoping Opinion received in response to the formal request.

31. Guidance on the approach to EIA has been provided to date through ongoing consultation with Aberdeenshire Council. Details of pre-scoping consultation on various aspects of the Bellrock OnTDA is presented in **Section 4.3**. Consultee feedback received to date has been considered in drafting this **Bellrock OnTDA Scoping Report**. The information presented in this **Bellrock OnTDA Scoping Report** aims to inform stakeholders on the Bellrock Onshore Transmission Infrastructure and the approach to assessment to assist in undertaking a robust and proportionate EIA.

32. The Applicant welcomes the opportunity for engagement with stakeholders and feedback on the approach and the scope of the Bellrock OnTDA EIA Report as part of the formal Scoping Opinion and throughout the EIA process.

1.7 The Applicant and Environmental Impact Assessment Project Team

1.7.1 The Applicant

33. The Bellrock Project is being developed by Bellrock Offshore Wind Farm Limited, a wholly owned subsidiary of Nadara Limited (Nadara), a leading UK-based renewables company and one of the largest non-utility independent power producers in Europe.

34. Nadara aims to contribute to a world leading floating offshore wind industry in the UK, combining innovative technology with a plan to attract and grow a skilled Scottish workforce and stimulate a thriving local supply chain and is well placed to deliver world class floating offshore projects.

35. In support of this aim, Nadara is also developing the 900 megawatt (MW) Broadshore Offshore Wind Farm[8], the 100 MW Sinclair Offshore Wind Farm[9], the 100 MW Scaraben Offshore Wind Farm[10] (collectively referred to as the Broadshore Hub), as well as the 1.5 GW Stromar Offshore Wind Farm[11], all of which are also located in the northern North Sea.

[8] Development is being undertaken through Broadshore Offshore Wind Farm Limited, a wholly owned subsidiary of Nadara Limited.

[9] Development is being undertaken through Sinclair Offshore Wind Farm Limited, a wholly owned subsidiary of Nadara Limited.

[10] Development is being undertaken through Scaraben Offshore Wind Farm Limited, a wholly owned subsidiary of Nadara Limited.

[11] Development is being undertaken through Stromar Offshore Wind Farm Limited, a wholly owned subsidiary of Nadara Limited.

1.7.2 Environmental Impact Assessment Project Team

36. Haskoning has been appointed by the Applicant to lead (through their Edinburgh office) the EIA for the Bellrock OnTDA. This includes informing and preparing the initial review of the key environmental issues associated with the construction, O&M and decommissioning of the Bellrock Onshore Transmission Infrastructure as part of the scoping process and reports.

37. Pursuant to the EIA Regulations, the Bellrock OnTDA EIA Report will be prepared by competent experts and will outline the relevant expertise or qualifications of the experts.

38. Haskoning is registered with the Institute of Sustainability and Environmental Professionals (ISEP) and its EIA Quality Mark scheme, which independently reviews and recognises organisations committed to excellence in their EIA practice.

39. A number of specialist consultancies have also provided expert input into this **Bellrock OnTDA Scoping Report**, and will do so for the Bellrock OnTDA EIA Report, as presented in **Table 1.4** and **Section 1.8** below:

- **Chapter 5: Landscape and Visual Impact** - Land Use Consultants (LUC) Limited. LUC's Edinburgh-based landscape team of Chartered Members of the Landscape Institute has extensive experience of EIA for a wide range of development types. LUC is one of the UK's leading consultancies in the field of landscape and visual impact assessment for onshore and offshore wind development, with experience on projects across the UK over the last 15 years;
- **Chapter 15: Socioeconomics, Tourism and Recreation** - BiGGAR Economics Limited is an economic development consultancy based in Edinburgh, that has assessed the socioeconomic impact of over two hundred renewable energy projects across Scotland, the UK and Ireland.

1.8 Structure of this Scoping Report

40. The structure of this **Bellrock OnTDA Scoping Report** is set out in **Table 1.4** below.

41. Alongside the submission of this **Bellrock OnTDA Scoping Report**, a **Bellrock OnTDA HRA Screening Report (Volume 2)**, which has also been prepared by Haskoning, is submitted for the Bellrock OnTDA. Questions to consultees are posed at the end of relevant Chapters, where applicable.

Table 1.4: Structure of this Bellrock OnTDA Scoping Report

Chapter	Author	Overview
Volume 1: Bellrock OnTDA Scoping Report		
Chapter 1 – Introduction	Haskoning	Introduces the Bellrock OnTDA, the Applicant, and the EIA team, provides an overview of the Bellrock Project along with its objectives, and outlines the purpose of this **Bellrock OnTDA Scoping Report**.

Chapter	Author	Overview
Chapter 2 – Legislative and Policy Context	Haskoning	Sets out the need for the Bellrock OnTDA, and the legal, policy and strategic framework governing the Bellrock OnTDA and its EIA.
Chapter 3 – Project Description	Haskoning	Provides a description of the key components that comprise the Bellrock Onshore Transmission Infrastructure and associated activities.
Chapter 4 – Approach to Scoping and Environmental Impact Assessment	Haskoning	Describes the proposed EIA methodology and demonstrates the measures taken to progress a proportionate EIA. This Chapter also details the approach to consultation.
Chapter 5 – Landscape and Visual Impact	LUC	Each technical chapter covers: ▪ An outline of the relevant legislation, policy and guidance; ▪ Consultation undertaken to date; ▪ The proposed assessment methodology; ▪ An outline of the baseline characterisation; ▪ Scoping in or scoping out of potential impacts and significant effects, including embedded mitigation measures; ▪ Consideration of an appropriate Bellrock OnTDA Whole Project Assessment where relevant; ▪ Identification of potential cumulative and transboundary effects; and ▪ Questions posed to consultees.
Chapter 6 – Geology and Ground Conditions	Haskoning	
Chapter 7 – Hydrology and Flood Risk	Haskoning	
Chapter 8 – Land Use and Agriculture	Haskoning	
Chapter 9 – Onshore Ecology and Nature Conservation	Haskoning	
Chapter 10 – Onshore Ornithology	Haskoning	
Chapter 11 – Onshore Archaeology and Cultural Heritage	Haskoning	
Chapter 12 – Traffic and Transport	Haskoning	
Chapter 13 – Noise and Vibration	Haskoning	
Chapter 14 – Air Quality	Haskoning	
Chapter 15 – Socioeconomics, Tourism and Recreation	BiGGAR Economics	
Chapter 16 – Greenhouse Gas	Haskoning	
Chapter 17 – Climate Change Risk	Haskoning	
Chapter 18 – Human Health	Haskoning	
Chapter 19 – Major Accidents and Disasters	Haskoning	

Chapter	Author	Overview
Chapter 20 – Summary	Haskoning	Provides a summary of the approach taken to scoping and the key outcomes of the **Bellrock OnTDA Scoping Report**.
Appendix A - Figures	Haskoning	Contains supporting figures.
Appendix B – Mitigation and Monitoring Register	Haskoning	Sets out the mitigation proposed for the Bellrock Onshore Transmission Infrastructure.
Appendix C – Interim Preliminary Ecological Appraisal Report	Cura Terrae	Details of the interim results from the Preliminary Ecological Appraisal (PEA) of the Bellrock OnTDA which is being undertaken during 2026 and 2027, based on the area surveyed to date. The full findings of the PEA will be provided alongside the Bellrock OnTDA EIA Report.
Appendix D – Wintering Bird Survey at Cowie Landfall Area of Search 2025/2026 Technical Report	Atlantic Ecology	Details the results on overwintering intertidal bird surveys (2025-2026) at the proposed landfall for the Bellrock Offshore Transmission Infrastructure.
Volume 2: Bellrock OnTDA HRA Screening Report		
All chapters	Haskoning	Provides a screening potential Likely Significant Effects (LSE) on Special Protection Areas (SPAs), Special Areas of Conservation (SAC) and Ramsar sites.
Appendix A - Figures	Haskoning	Contains supporting figures.

1.9 Scoping Questions to Consultees

42. The following question is posed to consultees to help frame and focus their response to the introduction of the **Bellrock OnTDA Scoping Report**, which would in turn inform the EIA:

- Due to site selection and design refinement of the onshore export cable corridor and location of the OnSS, the Bellrock OnTDA Scoping Boundary will be refined before the Bellrock OnTDA EIA begins. Are you content that all potential receptors that are no longer within a Zone of Influence for a potential pathway can be subsequently scoped out of the Bellrock OnTDA EIA, noting than an explanation for this will be provided in the Bellrock OnTDA EIA Report?

1.10 References

MD-LOT (2024). Bellrock WFDA Scoping Opinion. Available at: www.marine.gov.scot/node/25450

National Grid Electricity System Operator (NGESO) (2022). Pathway to 2030: Holistic Network Design. Available at: https://www.neso.energy/document/262676/download.

2 Legislative and Policy Context

2.1 Introduction

43. This Chapter provides an overview of the legislative and policy context for the Bellrock Onshore Transmission Development Area (OnTDA) as it applies to the Environmental Impact Assessment (EIA) and consenting process. The Applicant is adopting a policy-led approach to EIA and consenting by providing an overview of the applicable legislative framework, identifying this within the strategic policy context for the Bellrock OnTDA, and outlining the applicable policy framework to guide proportionate assessment in the Bellrock OnTDA EIA Report.

44. The purpose of this Chapter is to explain the need for the Bellrock OnTDA, to help inform the scope of the Bellrock OnTDA EIA Report and demonstrate compliance with all legislative and policy requirements. Specifically, this chapter sets out:

- Scottish, United Kingdom (UK) and international obligations and policy relating to climate change and the role of reducing greenhouse gas emissions (**Section 2.2**);
- Scottish consenting legislation, including the legal and regulatory framework governing the consent and licence applications required for the construction, operation and maintenance (O&M), and decommissioning of the Bellrock OnTDA (**Section 2.3**), and supporting EIA (**Section 2.4**); and
- Other nature conservation legislation and consenting requirements relevant to the Bellrock OnTDA (**Section 2.5**).

45. Any legislation referred to in this **Bellrock OnTDA Scoping Report** is currently in force, including all amendments, as of the date of issue of this **Bellrock OnTDA Scoping Report**.

46. Chapter specific legislation and policy is provided in the relevant technical chapters within this **Bellrock OnTDA Scoping Report**. Any updated legislation, policy and guidance will be considered within the Bellrock OnTDA EIA Report as appropriate

2.2 Need for the Project

47. The UK requires a range of energy generation infrastructure to ensure it has a secure, economical and efficient energy supply and can meet its binding commitments to address climate change and adopt renewable technologies as a significant proportion of its energy generation mix. Offshore wind, as a source of renewable energy, offers Scotland a wide range of benefits including reducing greenhouse gas emissions, supporting economic growth, and improving Scotland's energy security.

48. The emissions of greenhouse gases have been identified as a significant source of anthropogenic climate change (Intergovernmental Panel on Climate Change, 2018). The burning of fossil fuels,

such as coal and gas for electricity production has been established as a significant greenhouse gas emission source. Development of renewable energy for electricity production is presented as a solution to reducing carbon dioxide (CO_2) emissions and the resulting anthropogenic climate change. To enable the development of renewable energy for electricity production, numerous climate change protocols and agreements and renewable energy policies and legislation have been implemented. These are discussed in **Section 2.2.2**, and include:

- The Kyoto Protocol, 1997;
- The Paris Agreement, 2015;
- The Climate Change (Scotland) Act 2009, the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, and the Climate Change (Emissions Reduction Targets) (Scotland) Act 2024; and
- The Climate Change Act 2008 and the Climate Change Act 2008 (2050 Target Amendment) Order 2019.

49. The Scottish Government, along with many other governments across the world, declared a climate emergency in 2019, outlining the need for swift and decisive action to limit the warming of our planet by 1.5 degrees Celsius compared to 1990 levels. In Scotland, the Climate Change (Scotland) Act 2009 introduced the target to reduce greenhouse gas emissions by 80% by 2050, with the Climate Change (Emissions Reduction Targets) Scotland) Act 2019 strengthening this to net zero by 2045. This ambitious 2045 target reflects the Scottish Government's acknowledgement of the climate change emergency.

50. Acknowledging the available wind resource and offshore wind development opportunity, the Scottish and UK Governments have committed to ensuring that offshore wind is a leading contributing source of renewable electricity to the National Electricity Transmission System. Under the National Energy System Operator's (NESO's) Clean Power 2030 Plan, "*offshore wind must be the bedrock of that [clean power] system, providing over half of Great Britain's generation*" (NESO, 2024). Significant growth in offshore wind (from 15 gigawatt (GW) in 2023 to 43 – 50 GW in 2030) alongside onshore wind, solar and battery storage is needed to displace gas for electricity production.

51. In October 2021, the UK Government published the Net Zero Strategy: Build Back Greener (Her Majesty's (HM) Government, 2021a), which sets out its intended pathway for decarbonisation over the period until 2035, in the later years of the Sixth Carbon Budget period (Climate Change Committee (CCC), 2020) and outlining progress towards achieving the UK Government's overarching target of net zero by 2050. The Net Zero Strategy sets a clear and credible range for emissions reduction in each sector of the economy, while prioritising clean growth and energy security. The Seventh Carbon Budget was published on 25 February 2025, outlining the pathway towards decarbonisation between 2038 and 2042 (CCC, 2025).

52. The UK is one of the few countries with emissions targets in line with the long-term temperature goal of the Paris Agreement. The CCC's most recent progress report (CCC, 2024) confirmed that the UK achieved the Third Carbon Budget (2018 – 2022) and recorded an increase in the rate of emissions reductions, with emissions falling 5.4% from 2022 to 2023 (excluding aviation and

shipping). The report also tracks progress and highlights risks to the delivery of the UK net zero Strategy (Department of Energy Security and Net Zero (DESNZ) and Department for Business, Energy and Industrial Strategy (BEIS), 2021).

53. The Bellrock Project will export up to 1.8 GW of renewable electricity to the National Electricity Transmission System, contributing to Scotland's renewable energy generation and wider decarbonisation objectives, including the Scottish Government's target of achieving net zero emissions by 2045. Increasing renewable energy generation is a key component of addressing the climate emergency, with the Bellrock Project forming part of the solution by contributing to emissions reduction over time.

54. The scale of the climate challenge requires a range of renewable options to be utilised. By using floating wind turbine technology, the Bellrock Project can access deeper, more productive offshore areas, which will drive innovation, support supply chain development, and align with Scotland's ambition to lead in advanced renewable technologies. Further, the Bellrock Project supports a just transition away from fossil fuels, particularly benefiting communities in northeast Scotland that have historically relied on the oil and gas sector.

55. The Bellrock Project will contribute to Scotland's and the UK's energy security and a diverse energy mix, helping to reduce dependence on imported fossil fuels. The Bellrock Project will contribute towards Scottish and UK renewable energy demands and targets, with the potential to power the equivalent energy needs of over 1.7 million homes[12] and displace over 2.3 million tonnes[13] of CO_2 per year which could otherwise have been produced from natural gas.

56. The Bellrock Project supports a just transition away from fossil fuels, particularly benefiting communities in northeast Scotland that have historically relied on the oil and gas sector. By using floating wind turbine technology, the Bellrock Project can access deeper, more productive offshore areas which will drive innovation, support supply chain development, and align with Scotland's ambition to lead in advanced renewable technologies. The Bellrock OnTDA is an essential component of the overall Bellrock Project and, therefore, the legislative and policy context of the Bellrock Project applies equally to the Bellrock OnTDA. Background information on the Bellrock Project and relevant climate change and renewable energy policy to the Bellrock Offshore Transmission Development Area (OfTDA) are set in **Sections 2.2.1** and **Section 2.2.2**.

2.2.1 ScotWind Leasing

57. The ScotWind Offshore Wind leasing round (hereafter referred to as 'ScotWind') managed by Crown Estate Scotland (CES) is a major milestone in Scotland's journey towards net zero. ScotWind's objective was to help Scotland achieve its net zero emissions target by 2045, by granting property rights for the seabed in Scottish waters for new commercial scale offshore wind project development in a way that was fair and transparent. In doing so, ScotWind facilitates and encourages development of the low-carbon energy generation needed to meet the world-leading targets committed to in The Climate Change (Scotland) Act 2009.

[12] See www.bellrockwind.co.uk for further details.

[13] See www.bellrockwind.co.uk for further details.

58. CES announced 17 ScotWind projects in January 2022 and entered seabed Option to Lease Agreements with these projects (including Bellrock Offshore Wind Farm Limited) in April 2022. Following the ScotWind clearing process in August 2022, a further three projects were offered Option to Lease Agreements. The Campion Wind offshore wind farm Option to Lease Agreement was subsequently relinquished in November 2025. At the time of writing, 19 ScotWind projects hold Option to Lease Agreements or Lease Agreements. The latest Supply Chain Development Statement Outlooks published by CES indicate that the 16 projects currently included within the Supply Chain Development Statement update are forecast to generate approximately £25.5 billion of expenditure within Scotland across all phases of development up to and including O&M (CES, 2026).

59. CES will offer a full seabed lease to each ScotWind project once developers have secured the necessary consents, grid connection and finance. The ScotWind process is 'plan-led', therefore, all projects were located in areas defined within the Sectoral Marine Plan (SMP) for Offshore Wind Energy (Scottish Government, 2020a), which was subject to plan-level Strategic Environmental Assessment (Scottish Government, 2019a), Habitats Regulations Appraisal (HRA) (Scottish Government, 2019b) and socioeconomic assessment (Scottish Government, 2019c) throughout its preparation.

60. The Bellrock Wind Farm Development Area (WFDA) seabed lease is up to 60 years, while the operational life is up to 35 years. At the end of operational life, any repowering will be subject to a further consenting process. It is anticipated the operational life of the Bellrock OfTDA will be up to 40 years to allow for seasonal construction and decommissioning of the Bellrock Wind Farm Infrastructure.

61. Whilst the ScotWind leasing round provides a full seabed lease for the Bellrock WFDA, a separate lease from CES for the Bellrock OfTDA is required and will be obtained in due course. Land agreements will also be required for the Bellrock OnTDA and will be obtained in due course. As discussed in **Section 1.2** in **Chapter 1: Introduction**, in April 2025 NESO confirmed that the Hurlie substation in Aberdeenshire would be the grid connection location for the Bellrock Project.

2.2.2 Climate Change and Renewable Energy Policy

62. **Table 2.1** sets out the relevant legislation, policy, guidance and directives at Scottish, UK, European and international level relevant to the Bellrock Project with respect to climate change and energy needs.

63. A greenhouse gas assessment will be provided as part of the Bellrock OnTDA EIA Report, setting out the contribution the Bellrock Project will make to the aims and targets set out in the policy documents below. See **Chapter 16: Greenhouse Gas Assessment** for more details.

Table 2.1: Climate Change and Renewable Energy Legislation, Policies, and Directives

Legislation, Policy and Guidance	Summary
Scotland	
Climate Change (Scotland) Act 2009 Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 Climate Change (Emissions Reduction Targets) (Scotland) Act 2024	The Climate Change (Scotland) Act 2009 was implemented to reduce the greenhouse gas emissions in Scotland by at least 80% from 1990 levels by 2050. The Climate Change (Scotland) Act 2009 and The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 accelerate Scotland's overall target in the 2009 Act to net zero by 2045. In November 2024, the Climate Change (Emissions Reduction Targets) (Scotland) Act 2024 modifies the Climate Change (Scotland) Act 2009 to introduce limits on the amount of GHGs emitted in Scotland over a five-year period. This replaces the requirements for annual targets as outlined in the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 with a system of targets based on carbon budgets. However, the overall target of net zero by 2045 will remain in place.
Electricity Generation Policy Statement (Scottish Government, 2013)	The Electricity Generation Policy Statement 2013 examines the way in which Scotland generates electricity. The Scottish Government's policy states that Scotland's generation mix should deliver a secure source of electricity supply at an affordable cost which can be largely decarbonised by 2030 and achieves the greatest possible economic benefit and competitive advantage for Scotland.
Scottish Energy Strategy (Scottish Government, 2017)	In 2017, the Scottish Government published its Energy Strategy: The Future of Energy in Scotland, which sets out a vision for how the energy system in Scotland would look in 2050. Since the publication, the Scottish Government has committed to achieving targets of net zero greenhouse gas emissions by 2045 and a 75% reduction by 2030. This involves supplying 50% of Scotland's energy requirements from renewable sources and increasing energy productivity by 30% across the Scottish economy by 2030.
Energy Strategy: Position Statement (Scottish Government, 2021)	Scotland's Energy Strategy Position Statement provides an overview of the Scottish Government's key priorities for the short to medium-term that support a green economic recovery from COVID-19 that aligns with net zero ambitions. The Position Statement further examines how the Scottish Government has continued to abide by the principles set out in Scotland's Energy Strategy published in 2017, which were: a whole system view; an inclusive energy transition; and a smarter local energy model. The Position Statement sets out a programme of work required to support energy targets and outlines key energy priorities, which include priorities for offshore wind.
National Planning Framework 4 (NPF4) (Scottish Government, 2023a)	NPF4 sets out Scotland's spatial principles, regional priorities, national developments and national planning policy. NPF4 presents Sustainable Places, Liveable Places and Productive Places to achieve national outcomes including benefits to the environment, communities, and

Legislation, Policy and Guidance	Summary
	health. The NPF4 contains a notable focus on tackling both the climate and nature crises. There is a strong preference for developments which meet the Scottish Government's aims for net zero emissions by 2045, and halting biodiversity loss by 2030/restoring and regenerating biodiversity by 2045. Projects which evidence low and zero-carbon design and expansion of renewable energy generation will therefore be encouraged, such as the Bellrock Project. Strategic renewable electricity generation and transmission infrastructure is highlighted as a key national strategic development, required to support the delivery of 'sustainable places'. Renewable energy and transmission infrastructure (such as the Bellrock OnTDA) is highlighted to improve energy security and reduce emissions, whilst providing employment and opportunities for local communities.
Draft Energy Strategy and Just Transition Plan (Scottish Government, 2023b)	The Draft Energy Strategy and Just Transition Plan sets out policy positions and key ambitions for Scotland's energy security, by developing more than 20 GW additional renewable electricity onshore and offshore by 2030. The Plan aims to build in flexibility to the system with the use of tools such as energy storage to adjust fluctuations associated to variations in levels of supply and demand. The Plan contains a route map of actions to deliver a net zero energy system to supply affordable, resilient, and clean energy to Scotland by 2045 and benefit employment. The Plan aims to transform and expand the energy generation sector in Scotland by working with the UK Government.
Offshore Wind Focus (Scottish Government, 2024a)	Strategic assessment of the market opportunities and next steps that will underpin the public sector's collective investment decisions in offshore wind, supporting delivery of Scotland's green industrial strategy.
Update to the 2020 Offshore Wind Policy Statement: Scotland's Offshore Wind Ambition (Scottish Government, 2026b)	The update to the 2020 Offshore Wind Policy Statement presents how Scottish Government is now resetting its offshore wind policy ambition to up to 40 GW of new offshore wind capacity by 2040, in addition to the already operational or consented capacity (as of August 2025 when the consultation ended). This updated ambition: ▪ Reaffirms commitment to supporting the delivery of the existing project pipeline, including ScotWind and Innovation and Targeted Oil and Gas projects; ▪ Clarifies that no further offshore wind leasing rounds are planned in the near term; and ▪ Establishes a clear and realistic timescale – 2040 – rather than 2035-2040.

Legislation, Policy and Guidance	Summary
Scotland's Climate Change Plan 2026-2040 (Scottish Government, 2026a)	The Climate Change Plan sets out the path to a low carbon economy while helping to deliver sustainable economic growth. It sets out how Scotland can achieve net zero by 2045. The Climate Change Plan presents proposals and policies to meet Scotland's annual emissions targets to 2040 with decarbonisation related to pathways including the electricity system.
Sectoral Marine Plan for Offshore Wind Energy (Scottish Government (2020))	The SMP aims to identify sustainable plan options for the future development of commercial-scale offshore wind energy in Scotland, including deep water wind technologies, and covers both Scottish inshore and offshore waters.
United Kingdom	
Energy Act 2004	The Energy Act 2004 (as amended by the Energy Act 2008 and the Scotland Act 2016) established a Renewable Energy Zone adjacent to the UK's territorial waters to enable The Crown Estate to create designated leasing areas for developers to bid for the development of renewable energy. The Act additionally implemented statutory decommissioning requirements for offshore renewable energy installations and associated transmission infrastructure.
Climate Change Act 2008 and Climate Change Act 2008 (2050 Target Amendment) Order 2019	The Climate Change Act 2008 sets legally binding targets for the UK to reduce CO_2 emissions by at least 80% by 2050, from 1990 levels. This was amended by the Climate Change Act 2008 (2050 Target Amendment) Order 2019 which introduced a target for at least 100% reduction in greenhouse gas emissions (compared to 1990 levels) in the UK by 2050.
Energy Act 2013	The Energy Act 2013 aims to facilitate investment in electricity generation contributing towards the legally binding emissions reduction targets, to meet statutory 2030 decarbonisation targets. The Act also aimed to reform the electricity market. The reformed electricity market aims to deliver the low carbon energy and reliable supplies that the UK needs, while minimising costs to consumers. This Act introduced the Contracts for Difference (CfD) funding mechanism and transition arrangement for investments under the Renewables Obligation scheme.
Energy White Paper: Powering our Net Zero Future (BEIS, 2020a)	The Energy White Paper addresses the transformation of the energy system to promote clean, resilient economic growth and deliver net zero emissions by 2050. The Energy White Paper puts in place a strategy for the wider energy system that transforms energy for a cleaner greener future, supports a green recovery and grows the economy, and creates a fair deal for consumers.
Offshore Wind Sector Deal, (BEIS, 2020b)	The Offshore Wind Sector Deal will drive the transformation of offshore wind generation, making it part of a low-cost, low-carbon, flexible grid system. Offshore wind may be able to contribute up to 30 GW of export capacity by 2030.

Legislation, Policy and Guidance	Summary
Net Zero Strategy (BEIS, 2021)	Sets out the UK's intended pathway for decarbonisation over the period until 2037 (the end of the UK Government's Sixth Carbon Budget), on the way to net zero by 2050. The Net Zero Strategy sets a clear and credible range for emission reductions in each sector of the economy.
UK Climate Change Strategy 2021 - 2024 (HM Government, 2021)	The UK Climate Change Strategy will support UK exporters and suppliers through the transition to net zero by increasing support to clean growth and climate adaptation, reducing greenhouse gas emissions and understanding and mitigating climate-related financial risks. The Strategy highlights the importance of transforming the financial system to boost innovation and transition away from high carbon sectors.
British Energy Security Strategy (BEIS, 2022)	The British Energy Security Strategy (published April 2022) outlines a plan for creating a resilient energy system in response to rising global energy prices partly attributed to geopolitical events such as the war in Ukraine. The statement outlined the UK Government's ambition to deliver up to 50 GW of offshore wind by 2030, including 5 GW of floating wind technology. The UK Government also presented amendments to the planning process for offshore wind projects to reduce the consenting process.
Energy Act 2023	The Energy Act 2023 aims to transform the UK's energy system by strengthening energy security, supporting the delivery of net zero and ensuring household bills are affordable in the long-term. The Act will help the government deliver net zero by 2050 in a pragmatic, proportionate and realistic way. The Energy Act 2023 also established the legislative framework for creating and regulating the NESO through transferring ownership of the Electricity Systems Operator (ESO) to His Majesty's (HM) Government. In addition, the Energy Act 2023, through its Part 13 provisions, which are designed to empower the UK Government to customise Habitats Regulations Assessments/appraisals and deliver compensatory measures at a strategic level when offshore wind activities have an adverse effect on marine protected areas.
Strategy and Policy Statement for Energy Policy in Great Britain (HM Government, 2024)	This statement provides guidance to the energy sector on the actions and decisions that are needed to deliver government's policy goals, and places emphasis on where government expects a shift in the energy industry's strategic direction. Through powers from the Energy Act 2023, the Government established a new, publicly owned NESO (referred to as the Independent System Operator and Planner (ISOP) in legislation). NESO's roles, responsibilities and statutory duties that will enable it to meet its statutory objectives which include: ▪ Enabling Clean Energy and Net Zero Infrastructure; ▪ Ensuring Energy Security and Protecting Consumers; and ▪ Ensuring the Energy System is Fit for the Future.

Legislation, Policy and Guidance	Summary
Strategic Spatial Energy Plan (SSEP) (DESNZ, 2024)	The UK, Scottish and Welsh Governments jointly commissioned NESO to create a Strategic Spatial Energy Plan (SSEP) for the energy system, land and sea, across Great Britain. This first iteration of the SSEP will focus on electricity generation and storage, including hydrogen assets. NESO will establish a governance structure, consult on a methodology for the SSEP, and develop several 'pathway options' for the energy system. The SSEP outputs are expected to feed into the Centralised Strategic Network Plan.
Clean Power 2030: Advice on Achieving Clean Power for Great Britain by 2030 (NESO, 2024) and Clean Power 2030 Action Plan (DESNZ, 2024a)	The Clean Power 2030 Plan presents the NESO's advice to the Government on how to achieve clean power by 2030 and accelerate a coordinated grid rollout to meet the country's electrification goals. In December 2024, the UK Government published the Clean Power 2030 Action Plan which accepted the advice from NESO on the energy infrastructure required to deliver Clean Power 2030 and sets out a list of actions to accelerate the path to 2030. The plan places offshore wind as the backbone of the clean power system, with a central role in delivering 95% low carbon electricity by 2030. The plan's measures collectively boost offshore wind by securing capacity targets, streamlining procurement, accelerating planning and grid access, and unlocking public-private funding, ensuring it serves as the cornerstone of the UK's clean energy future.
UK's Modern Industrial Strategy (HM Government, 2025)	In June 2025 the UK Government published its updated Industrial Strategy which sets out a 10-year plan to "*increase business investment and grow the industries of the future in the UK*", including renewables, and provide stability and certainty for long-term economic development.
Clean Energy Industries Sector Plan (Department for Business and Trade (DBT) and DESNZ, 2025)	The Clean Energy Industries Sector Plan (published June 2025) sets out the UK Government's strategic approach to supporting investment, growth and job creation across the clean energy sector as part of the UK's modern Industrial Strategy. The Plan identifies offshore wind as a priority 'frontier' industry and outlines the Government's intention to increase investment in clean energy industries to over £30 billion per year by 2035. It also highlights measures to reduce barriers to deployment, strengthen domestic supply chains and support infrastructure required to accelerate delivery of low carbon energy.
UK Government Carbon Budget and Growth Delivery Plan (DESNZ, 2025)	The Carbon Budget and Growth Delivery Plan sets out how the government meets its statutory carbon budgets and secure the benefits of this transition for people and businesses, and includes details of the policies in place to ensure the development of the UK's offshore wind sector.
Planning and Infrastructure Act 2025	The Planning and Infrastructure Act 2025 streamlines pre-application statutory consultation requirements alongside other reforms designed to accelerate project delivery by removing barriers in the planning process. Additionally, the Act enables an extension of the Generator Commissioning Clause, which allows offshore generators to transmit electricity without an offshore transmission licence during the

Legislation, Policy and Guidance	Summary
	commissioning period, from 18 to 27 months. This intends to reduce the number of offshore wind farm projects requiring Government interventions to prevent them from shutting down due to non-compliance with the Act.
Great British Energy Act 2025	Establishes Great British Energy, a publicly owned energy company overseen by the Secretary of State for Energy Security and net zero aiming at accelerating the development of clean, domestically produced energy in the United Kingdom and supporting the nation's net zero commitments.
Holistic Network Design (HND) Pathway to 2030 (National Grid Electricity System Operator, NGESO, 2022) HND and Holistic Network Design Follow up Exercise (HNDFUE) Impact Assessments Ossian and North Cluster 2 Outcome Summary (NESO, 2025)	In 2022, NGESO (now NESO) recommended a new electricity network design - Pathway to 2030 HND. The HND connects 23 GW of offshore wind power and helps deliver the UK Government's target of 50 GW of offshore wind by 2030 by planning infrastructure to bring power to the grid cohesively, ensuring maximum benefit for consumers, local communities, and the environment. In April 2025, NESO confirmed in the HND and HNDFUE Impact Assessments Ossian and North Cluster 2 Outcome Summary that the Bellrock Project would connect into the Hurlie substation in Aberdeenshire.
European Union	
European Union (EU) (Withdrawal) Act 2018	Following the UK's exit from the EU, the UK Government committed to implement international environmental obligations in accordance with the European Union (Withdrawal) Act 2018 and to maintain environmental commitments and legislation already made. On this basis, the existing EU renewable energy targets for the UK, including the EU Renewable Energy Directive 2009/28/EC, will remain applicable.
European Union Renewable Energy Directive (Revised), 2018	The Revised Renewable Energy Directive (2018/2001/EU) entered into force in 2018 set the target to achieve a minimum of 32% share of renewable energy consumption within the EU. Member States commit to the renewable energy consumption target as part of integrated national energy and climate plans, pursuant to Regulation (EU) 2018/1999 of the European Parliament and of the Council.
International	
United Nations Framework Convention on Climate Change, 1992	The UNFCCC aims to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system, and is the foundation for later landmark agreements, including the Kyoto Protocol and Paris Agreement.
Kyoto Protocol, 1997	The Kyoto Protocol requires signatory countries to limit and reduce greenhouse gases in accordance with agreed individual targets. The Kyoto Protocol was formally adopted on 11 December 1997, first entering into force on 16 February 2005 (United Nations Framework Convention on Climate Change (UNFCC); UNFCCC, 2023).

Legislation, Policy and Guidance	Summary
	The UK and Scottish Parliaments adopted the commitments outlined in the Kyoto Protocol through the Climate Change Act 2008 and Climate Change (Scotland) Act 2009.
Paris Agreement (Conference of Parties; COP 21), 2015	The Paris Agreement had an overarching goal to hold the increase in the global average temperature to below 2°C above pre-industrial levels, and binds all parties to prepare, communicate and maintain a Nationally Determined Contribution to this effect. From 2023 and every five years thereafter, a global stock-take will assess collective progress. The commitment to the Paris Agreement was reaffirmed at the most recent COP30 in Belem, Brazil, albeit with an acknowledgment that achieving the target is now unlikely to be achieved.
COP28 UAE Consensus (2023)	The UAE Consensus contains the first explicit international agreement calling for a "*transition away from fossil fuels in energy systems*", supporting the UK and Scottish governments proposed energy-system wide decarbonisation plan.

2.3 Consenting Legislation and Policy

2.3.1 Legislative and Regulatory Framework

64. A PPP Application will be sought for the Bellrock OnTDA, under the Town and Country Planning (Scotland) Act 1997. The PPP Application will be applied for in line with the legislation presented in **Table 2.2** below.

Table 2.2: Planning Legislation and Regulatory Frameworks Relevant to the Bellrock OnTDA

Legislative and Regulatory Framework	Summary
Town and Country Planning (Scotland) Act 1997	The primary legislation in Scotland providing a comprehensive framework for regulating and managing development and land use. The key objectives of the Act are to ensure sustainable use of land, promote sustainable economic development, encourage regeneration, and maintain and enhance heritage assets, including those of natural and cultural description. The Act also covers the requirements for Pre-Application Consultation with communities and stakeholders for all major and national developments.
Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013	Provides detail on each of the steps in the planning process and the necessary requirements from pre-application through to post-determination.

Legislative and Regulatory Framework	Summary
Planning (Scotland) Act 2019	Modernised Scotland's planning system by strengthening development planning, community involvement, and the role of the National Planning Framework (see National Planning Framework 4 (NPF4) in **Table 2.5**). The plan-led system aims to support inclusive growth, housing delivery, infrastructure development and community empowerment. The Act requires alignment of local plans with national priorities and long-term spatial strategies.
Town and Country Planning (Pre-application Consultation) (Scotland) Amendment Regulations 2021	Provides details on the consultation requirements for major and national developments. These regulations provide information on the requirements for Pre-application Consultation, in particular the requirement for two public events to be held, with the second event taking place at least 14 days after the first event.

65. Following the granting of PPP, all Matters Specified in Conditions (MSC) will subsequently be considered by the Applicant (see **Section 2.3.2**).

2.3.2 Approach to the Planning Application

66. The key stages in the PPP Application and consenting process required under the Town and Country Planning (Scotland) Act 1997 and described in Planning circular 3/2022: development management procedures (Scottish Government, 2022c), for development defined as 'major' or 'national' developments (as defined in the Planning etc. (Scotland) Act 2006), are outlined in **Table 2.3**.

Table 2.3: Key Stages in the Planning Application and Consenting Process

Stage	Description
Pre-application Activity (the Applicant)	▪ Preparation of EIA Scoping Report (optional); ▪ Preparation of a HRA Screening (optional); ▪ Non-statutory pre-application engagement with Aberdeenshire Council, and statutory consultees; ▪ Submission of Proposal of Application Notice to Aberdeenshire Council; ▪ Statutory Pre-application Consultation (PAC) with communities and community councils (see **Section 4.3.4** for further details on the PAC requirements); ▪ Further non-statutory consultation (e.g. with EIA technical stakeholders, and public consultation events); ▪ Preparation of a PAC Report; and ▪ Preparation of an EIA Report, and accompanying Report to Inform Appropriate Assessment (if required).
PPP Application (the Applicant)	▪ Submission of PPP Application to Aberdeenshire Council. The requirements for the content of the application are detailed in Sections 3.4 and 3.7 – 3.9 of Planning circular 3/2022: development management procedures (Scottish Government, 2022c).

Stage	Description
Validation, publication and statutory and Non-statutory Consultation (Aberdeenshire Council)	▪ Application validation; ▪ Notification of application to neighbours and elected representatives; ▪ Publication of application by Aberdeenshire Council, including on the planning register; and ▪ Aberdeenshire Council requests feedback from statutory consultees, non-statutory consultees and members of the public on the PPP Application and supporting documentation (including the EIA Report). The consultation process may result in further information being requested from the Applicant.
Assessment and Recommendations (Aberdeenshire Council)	▪ Aberdeenshire Council considers all comments and responses to consultation on the PPP Application. ▪ Pre-determination Hearing is held, if required. ▪ Representations made during the public consultation, Aberdeenshire Council discussions or Pre-determination Hearing are addressed. ▪ Area Committee and/or Infrastructure Services Committee held to consider the PPP Application. ▪ Aberdeenshire Council assesses the application and makes recommendation for approval or refusal. ▪ Draft planning conditions are considered to control how the Bellrock OnTDA is developed and operated so that it remains acceptable in planning terms.
Determination (Aberdeenshire Council)	▪ Aberdeenshire Council Determination process is conducted and a decision is made. ▪ If the application is recommended for approval, planning conditions are finalised by Aberdeenshire Council to ensure to control how the Bellrock OnTDA is developed and operated so that it remains acceptable in planning terms.
Post-determination (the Applicant)	▪ The Applicant makes subsequent applications for approval of MSC to Aberdeenshire Council.

2.3.3 Planning Policy

67. The key planning policy that will inform the Bellrock OnTDA PPP Application under the Town and Country Planning (Scotland) Act 1997 is described in **Table 2.5**.

Table 2.4: Scottish Planning Policy Relevant to the Bellrock OnTDA

Planning Policy	Summary
Aberdeenshire Local Development Plan (LDP) (Aberdeenshire Council, 2023)	In support of delivery the NPF4, LDPs should identify and support national developments relevant to their areas. Under Policy 11, Local Development Plans should "*seek to realise their area's full potential for electricity and heat from renewable, low carbon and zero emission sources by identifying a range of opportunities for energy development*". The Aberdeenshire LDP sets out the long-term vision for change to the local authority area, which covers the whole of Aberdeenshire except for areas

Planning Policy	Summary
	that lie within the Cairngorms National Park. The Aberdeenshire LDP provides the framework for development management decisions on planning applications. The current Aberdeenshire LDP was formally adopted in 2023 and was written to accord with the National Planning Framework 3 (NPF3). However, since its publication in 2023, the NPF4 now forms part of the development plan for Aberdeenshire. Where there is any disagreement between the Aberdeenshire LDP and the NPF4, the NPF4 will take priority. Policy C2 Renewable Energy in the Aberdeenshire LDP highlights support for renewable energy developments, specifically the approval of wind energy developments in appropriate locations (Paragraph C2.2). Other relevant policies within the Aberdeenshire LDP include: ▪ Policy E2 – Landscape; ▪ Policy E3/E4 – Natural Heritage; ▪ Policy R1 – Special Rural Areas; ▪ Coastal Zone Policy (Appendix Coastal Zone); and ▪ Policy PR1/PR2 – Protecting Important Resources. At the time of writing, Aberdeenshire Council had started work on the next Aberdeenshire LDP, which is expected to be published in early 2029 and cover the period between 2029 and 2039. On publication, the draft LDP will be a material planning consideration.
NPF4 (Scottish Government, 2023a)	The NPF4 sets out six overarching spatial principles to inform future planning in Scotland: Just transition; Conserving and recycling assets; Local living; Compact urban growth; Rebalanced development; and Rural revitalisation. These principles will support planning and the delivery of Sustainable Places, Liveable Places, and Productive Places. To support the delivery of Sustainable Places, the NPF4 presents six national developments, which includes Strategic Renewable Electricity Generation and Transmission Infrastructure that supports electricity generation and associated grid infrastructure throughout Scotland. Under this definition, the Bellrock OnTDA is considered to be a 'national' project under NPF4. The NPF4 Natural Places Policy (Policy 4) aims to "*protect, restore, and enhance natural assets making best use of nature-based solutions*" and further states that "*development proposals which by virtue of type, location or scale will have an unacceptable impact on the natural environment, will not be supported*". The NPF4 Energy Policy (Policy 11) intends to "*encourage, promote, and facilitate all forms of renewable energy development onshore and offshore. This includes energy generation, storage, new and replacement transmission and distribution infrastructure and emerging low-carbon and zero emissions technologies*".
Community Wealth Building Strategy (Aberdeenshire Council, 2026)	The strategy sets out Aberdeenshire Council's plan to keep wealth in the local area by improving local supply chains, securing community benefits, ensuring that the workforce is supported, seeking to grow local economies, and encouraging shared local ownership. The strategy includes specific provision to ensure that nationally important energy infrastructure located in Aberdeenshire provides local benefits.

2.4 Environmental Impact Assessment Regulations

68. In Scotland, there are several regulations and associated legislation that relate to EIAs and the topics and receptors considered within them that are applicable to the Bellrock OnTDA EIA. These regulations are outlined in **Table 2.6**. Further details on the environmental legislation relevant to each EIA topic are set out in the relevant Chapters (**Chapter 5** to **Chapter 19**).

Table 2.5: Key Environmental Impact Assessment Regulations in Scotland Relevant to the Bellrock OnTDA

Legislation	Summary
Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017	Implements the requirements of the European Directive 2014/52/EU that ensure significant environmental effects of proposed developments are assessed before planning permission is granted.
Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) (See **Section 2.5.1**)	Implements the EU Habitats Directive in the UK. These regulations aim to: ▪ designate and protect European Sites (i.e. Special Areas of Conservation (SACs) and Special Protection Areas (SPAs)); ▪ ensure the conservation of habitats and species listed in the Habitats Directive, including providing a legal framework for species requiring strict protection (i.e. European Protected Species (EPS)); and ▪ regulate development and land use.
Environment Act 1995	Applies to Scotland primarily by establishing and defining the statutory role and functions of the Scottish Environment Protection Agency (SEPA); however, environmental regulation and control in Scotland is largely exercised through devolved Scottish legislation rather than direct reliance on the 1995 Act itself.
Water Environment and Water Services (Scotland) Act 2003	Establishes a framework to protect Scotland's water environment and regulate water and sewerage services.
Flood Risk Management (Scotland) Act 2009	Establishes a framework for assessing, managing, and reducing flood risk across Scotland. SEPA is the key authority for preparing flood risk assessment, hazard maps, and flood risk management plans for each flood risk management district.
Air Quality (Scotland) Regulations 2010	Establishes standards for air quality with the purpose of protecting human health and the environment from the adverse effects of air pollution.
Water Environment (Controlled Activities) (Scotland) Regulations 2011	Provides a regulatory framework for activities that have the potential to adversely affect Scotland's water environment.
Waste Management Licensing (Scotland) Regulations 2011	Establishes a framework for wate management licensing and exemptions in Scotland. Key provisions within the regulations include: ▪ Licensing requirements (i.e. Wate Management Licence or a Pollution Prevention Control permit);

Legislation	Summary
	▪ Identifying activities exempt from waste management licensing (outlined in Schedule 1 of the regulations); and ▪ Mandating the maintenance of public registers that document waste management activities and exempt activities.
Pollution Prevention and Control (Scotland) Regulations 2012	Establishes an integrated pollution control regime in Scotland aimed at preventing and controlling pollution by regulating certain industrial activities, such as energy production, waste management and chemical processing. The overarching purpose of the regulations is to protect the environment and human health by minimising emissions to air, water, and land.
Environmental Authorisations (Scotland) Regulations 2018 (as amended)	Establishes a streamlined and standardised framework for environmental authorisations in Scotland. The regulations bring together the processes for authorising, enforcing, and managing activities that may impact the environment, including water activities, waste management activities, industrial activities, and radioactive substances.

2.5 Nature Conservation Legislation and Policy

2.5.1 Habitats Regulations Appraisal

69. In 1992, the EU Directive 92/43/EEC, known as the 'Habitats Directive', was adopted to enable EU member states to meet obligations set out under the Bern Convention. The purpose of the Habitats Directive is to maintain or restore natural habitats and wild species listed in the Annexes (Annex I, II) to Favourable Conservation Status (FCS). Protection to meet FCS is given through designation of European Sites (Special Areas of Conservation (SACs)).

70. In addition, the EU Directive 2009/147/EC, known as the 'Birds Directive', was implemented to provide a framework for conservation and management of wild birds in the EU. Annex I of the Birds Directive provides a list of rare, vulnerable and migratory species, which are protected through the designation of Special Protection Areas (SPAs).

71. The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) implement the EU Habitats Directive in the UK and are known as the 'Habitats Regulations'. The Habitats Regulations require a competent authority[14] to undertake a HRA where a project could affect a designated site (SPAs, SACs, proposed or candidate SPAs and SACs or Ramsar sites (where these are co-located with an SPA or SAC)), either individually or in combination with other plans or projects, in view of the site's conservation objectives.

[14] For the purposes of the Habitats Regulations, the expression "competent authority" includes any Minister, government department, public or statutory undertaker, public body of any description or person holding a public office. For the Bellrock Onshore Transmission Infrastructure the competent authority is Aberdeenshire Council.

72. Full details of the approach to the HRA are provided in **Section 4.8.1** below. The Applicant has prepared a HRA Screening Report, the first stage of the HRA, and provided this alongside this Scoping Report (see **Bellrock OnTDA HRA Screening Report (Volume 2)**).

2.5.2 Biodiversity Enhancement

73. Scottish Government Policy, including the Scottish Biodiversity Strategy to 2045 (Scottish Government, 2024b) and NPF4 (Scottish Government, 2023a), contain an emphasis on addressing the nature crises through developments making a contribution towards both halting biodiversity loss and supporting biodiversity enhancement.

74. More specifically, Policy 3 of the NPF4 states that "*development proposals will contribute to the enhancement of biodiversity, including where relevant, restoring degraded habitats and building and strengthening nature networks and the connections between them*". For national or major developments, or those requiring an EIA, only proposals that will "*conserve, restore and enhance biodiversity, including nature networks so they are in a demonstrably better state than without intervention*", will be supported.

75. Engagement with local environmental groups and the appropriate authorities will be key to identifying key areas which could be subject to enhancement measures. With reference to guidance and policy in place at the time, nature-based solutions will be considered where appropriate.

76. The Applicant acknowledges the importance of contributing positively to biodiversity and supports the principle of including nature inclusive design and nature enhancement where feasible.

77. Please refer to **Chapter 9: Onshore Ecology and Nature Conservation**, where details of the proposed approach to considering biodiversity enhancement for the Bellrock OnTDA is provided.

2.6 Scoping Questions to Consultees

78. The following questions are posed to consultees to help frame and focus their response to the legislative and policy context for the Bellrock OnTDA, which will in turn inform the EIA:

- Is there any additional policy or legislation that stakeholders recommend with regard to the EIA/HRA that is not listed in this Chapter?
- Is there any forthcoming legislation or policy due to be published in the next 12-18 months that will be potentially relevant to the EIA which should be considered by the Applicant?

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3 Project Description

3.1 Introduction

79. This Chapter provides an overview of the Bellrock Onshore Transmission Development Area (OnTDA) and describes the Onshore Transmission Infrastructure to be included within the Bellrock OnTDA Planning Permission in Principle (PPP) Application. It also provides an overview of the main activities that will be undertaken during construction, O&M and decommissioning of the Bellrock Onshore Transmission Infrastructure.

80. The Bellrock OnTDA defines the area within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. **Figure 1.1** (**Appendix A (Volume 1)**) presents the Bellrock OnTDA Scoping Boundary. An overview of the Bellrock Onshore Transmission Infrastructure is provided in **Section 3.3** and **Section 3.4**.

81. The design of the Bellrock Onshore Transmission Infrastructure is currently at an early stage of development. The project description will continue to evolve through consideration of the Scoping Opinion, consultation feedback, EIA findings and ongoing design work, to reach the Project Design Envelope (PDE) (see **Section 3.2** below) for which the Applicant will be seeking PPP. The Bellrock OnTDA EIA Report submitted alongside an PPP Application will provide a full description of the refined PDE.

3.2 Design Envelope Approach

82. A parameter-based design envelope approach will be adopted within the Bellrock OnTDA EIA Report. The PDE will set out the minimum and maximum design scenario for each design parameter (where relevant) within which the final Bellrock Onshore Transmission Infrastructure design will fall. These parameters will be further refined once more detailed engineering studies (including acquisition of site-specific data) have been undertaken.

83. Retaining this flexibility is particularly important for large-scale renewable energy projects such as for the Bellrock Project, where design evolution, technological advances, stakeholder and community feedback and regulatory requirements may influence the final detailed design.

84. In each of the technical chapters of the Bellrock OnTDA EIA Report, a receptor-specific realistic worst-case scenario will be identified from the PDE parameters and then assessed. This is a standard approach widely accepted by stakeholders and regulators and is necessary to maintain design flexibility at this early stage of project development. Further details of the PDE approach are provided in **Chapter 4: Approach to Scoping and Environmental Impact Assessmen**t.

85. The information presented in this Chapter outlines the options and flexibility required by the Applicant, as well as the range of potential design, location, and activity parameters upon which the scoping of impacts is based. The final detailed design of the Bellrock Onshore Transmission

Infrastructure will lie within the parameters of the PDE, enabling detailed design work to be undertaken post-consent whilst retaining the validity of the Bellrock OnTDA EIA Report.

86. The need for flexibility in consents is a key aspect of any large development but is particularly necessary for offshore wind farm projects where technology is expected to evolve over long project development timescales. The PDE must, therefore, provide sufficient flexibility to allow the Applicant and their supply chain to use the most efficient and economical technology and techniques in the construction, O&M, and decommissioning of the Bellrock Onshore Transmission Infrastructure, without affecting the surrounding environment to a greater extent than the realistic worst-case scenario assessed within the Bellrock OnTDA EIA Report.

87. The PDE presented in this **Bellrock OnTDA Scoping Report** will continue to evolve as the Bellrock Project progresses, incorporating new information, regulatory requirements, and stakeholder feedback. The PDE presented in this **Bellrock OnTDA Scoping Report** reflects earlier refinement and will be subject to further refinement as the project progresses. The refinement of the design envelope will continue throughout the EIA process and into the post-consent stage, and will be described in the Bellrock OnTDA EIA Report.

3.3 Bellrock OnTDA Overview

88. For the purposes of this **Bellrock OnTDA Scoping Report,** the Bellrock OnTDA Scoping Boundary encompasses the area of land within which all Onshore Transmission Infrastructure will be constructed, operated and maintained, and ultimately decommissioned, with the exception of offsite landscaping (if required) and offsite road improvements (if required). The Bellrock OnTDA Scoping Boundary is located entirely in Aberdeenshire, to the north and west of Stonehaven, and extends landward from of Mean Low Water Springs (MLWS) at landfall to the Hurlie substation, located within the Fetteresso Forest.

89. The boundary overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) Scoping Boundary between Mean High Water Springs (MHWS) and MLWS.

The Bellrock OnTDA Scoping Boundary is shown in **Figure 1.1** (**Appendix A (Volume 1)**). To assist in understanding the nature of development within the Bellrock OnTDA Scoping Boundary, **Figure 1.2** (**Appendix A (Volume 1)**) also indicates:

- A preferred landfall Area of Search: an approximate area at Cowie, north of Stonehaven, within which the landfall is proposed to be located; and
- A preferred onshore substation (OnSS) Area of Search: an approximate area within the Fetteresso Forest within which the OnSS is proposed to be located.

3.4 Onshore Transmission Infrastructure

90. The Bellrock Onshore Transmission Infrastructure is separated into four key elements:

- Landfall;
- Onshore Export Cable Corridor;
- OnSS; and
- Hurlie substation connection works.

91. **Table 3.1** provides an overview of the key components of the Onshore Transmission Infrastructure. A description of the proposed construction activities associated with each element of the Onshore Transmission Infrastructure is provided in **Sections 3.4.1.1 - 3.4.1.4** below.

Table 3.1: Key Components of the Bellrock Onshore Transmission Development Area

Component	Indicative Parameters
Landfall	
Number of underground transition joint bays	2 - 6
Landfall installation method	Trenchless techniques (e.g. Horizontal Directional Drilling (HDD))
Temporary construction compound size (m^2)	10,000 – 30,000
Construction duration (months)	27
Onshore Export Cable Corridor (Landfall to OnSS)	
Electrical design	HVAC or HVDC
Cables burial method	Underground, in ducts
Cable route length (km)	12
Cable route width (m)	45 - 200
Number of circuits	1 – 6
Cables per circuit	4 – 7
Number of cable trenches	1 – 6
Number of circuits per trench	1 – 2
Target depth of cover (ground level to top of cables) (m)	0.9
Target depth of cable trench (m)	3.2
Cable trench dimensions (w x d) (m)	8 x 3.2

Component	Indicative Parameters
Number of trenchless crossings	13
Maximum cable depth at trenchless crossings (m)	30
Size of trenchless crossing compounds – Rig Site (per compound) (m^2)	1,250 – 20,000
Size of trenchless crossing compounds – Pipe Stringing Area (per compound) (m^2)	1,500 – 7,000
Number of primary construction compounds	1 – 3
Number of secondary construction compounds	2 – 7
Size of construction compound (m^2)	3,000 – 18,750
Cable joint bay dimensions (l x w x d) (m)	6 x 2 x 0.9 – 20 x 4 x 3
Number of link boxes/joint bays	8 – 90
Construction duration (months)	27
Onshore Substation	
OnSS technology	HVAC or HVDC
OnSS switchgear type	AIS or GIS
OnSS platform footprint (excluding drainage, access and landscaping) (m^2)	100,000 – 135,000
Maximum height of OnSS equipment and buildings above platform height, exclusive of lightning masts (m)	HVAC AIS design: 15 HVAC GIS design: 18 HVDC design: 29
Temporary construction compound footprint (m^2)	18,000 – 40,000
Construction duration (months)	42
Hurlie Substation Connection Works	
Electrical design	HVAC
Cables burial method	Underground, in ducts
Cable route length (km)	6
Cable route width (m)	45 – 100
Number of circuits	2
Cables per circuit	4 – 10
Number of cable trenches	2 – 4

Component	Indicative Parameters
Number of circuits per trench	0.5 – 1
Target depth of cover, ground level to top of cables (m)	0.9
Target depth of cable trench (m)	3.2
Cable trench dimensions (w x d (m)	8 x 3.2
Number of trenchless crossings	1 – 3
Cable depth at trenchless crossings (m)	15
Number of primary construction compounds	1
Number of secondary construction compounds	1 – 3
Size of construction compounds (m^2)	3,000 – 18,750
Size of trenchless crossing compounds – Rig Site (per compound; m^2)	1,250 – 10,000
Size of trenchless crossing compounds – Pipe Stringing Area (per compound; m^2)	1,500 – 7,000
Cable joint bay dimensions (l x w x d; m)	6 x 2 x 0.9 – 20 x 4 x 3
Number of link boxes/joint bays	2 – 28
Construction duration (months)	27

3.4.1 Landfall

92. The offshore export cables will be brought ashore and connected to the onshore export cables at landfall. The landfall works will take place within a temporary construction compound located landward of MLWS within the preferred landfall Area of Search, as shown in **Figure 1.2, Appendix A (Volume 1)**. An overview of the key components of the landfall is provided in **Table 3.1.** The realistic worst-case scenario parameters for the landfall will be set out in the EIA Report.

93. A trenchless technique will be utilised at landfall to install underground ducting between the onshore entry point and the offshore exit point (the latter being seaward of MHWS). HDD is the reference trenchless method, while Microtunnelling/Pipe Jacking and Direct Pipe are recognised alternatives that may be utilised depending on bore length, geology, duct configuration, constructability and environmental constraints (which will all be confirmed at a future stage of design development). For the purpose of this **Bellrock OnTDA Scoping Report**, details of the

construction process for HDD are provided, as an example of the landfall construction process[15]. The Bellrock OnTDA EIA Report will describe in more detail the trenchless technique(s) which will be subject to the PPP Application.

94. The HDD construction compound will accommodate excavation of the HDD entry pit, which may require temporary shuttering or piling to ensure the stability of the excavation. Material storage, welfare and office facilities will also be required. Each offshore export cable will require a dedicated HDD bore and duct, i.e. up to six in total[16]. Each HDD bore will be drilled from an entry point within the temporary construction compound to the exit point, seaward of MLWS. HDD activities will be 24-hours/day. The temporary construction compound will be reinstated after completion of construction. The HDD entry point, alignment and exit point will be determined post-consent, during the detailed design stage. The HDD design will depend upon several factors, including ground conditions, water depth, seabed topography and local environmental constraints.

95. The offshore and onshore export cables will be joined within underground transition joint bay(s) located within the landfall temporary construction compound. There will up to six underground transition joint bays, with the ground reinstated on completion of construction.

96. Typical activities associated with the landfall works are outlined below:

- Creation of temporary construction access;
- Installation, diversion or reinstatement of land drainage or irrigation systems;
- Site clearance and preparation, including vegetation clearance and topsoil stripping;
- Creation of temporary construction compounds and temporary haul roads;
- Excavation of (e.g.) HDD entry pit;
- Installation of ducting through trenchless techniques (e.g. HDD) where required;
- Pulling of the cables through the pre-installed ducts;
- Installation and jointing of offshore and onshore export cables;
- Land reinstatement;
- Testing and commissioning; and
- Post-construction surveys.

[15] Microtunnelling/Pipe Jacking is a trenchless installation method where a remotely controlled microtunnel boring machine excavates soil while prefabricated pipes are hydraulically jacked in behind it. Direct Pipe is a trenchless technique which uses a large cutting head to excavate the bore while the pipe is pushed in simultaneously.

[16] Where a HDD cannot be completed during construction, a new HDD (or other trenchless technique) will be established.

3.4.2 Onshore Export Cable Corridor (Landfall to Onshore Substation)

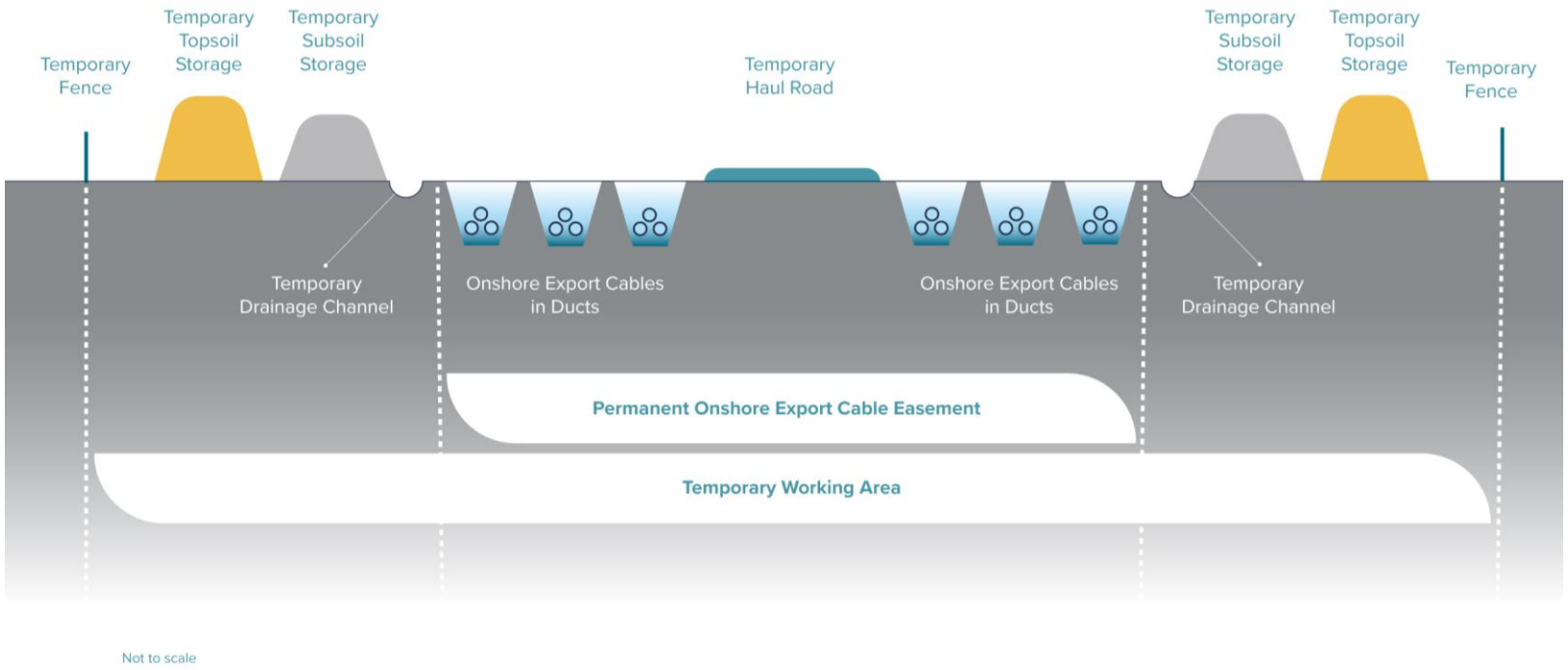
97. The onshore export cables will connect the landfall to the OnSS within the onshore export cable corridor. The onshore export cable route will accommodate the onshore export cable installation works and will be located entirely within the onshore export cable corridor. Consent is sought for the wider onshore export cable corridor to provide flexibility for micro-siting of the final onshore export cable route during detailed design and construction. An overview of the key components of the onshore export cable corridor is provided in **Table 3.1**. The realistic worst-case scenario parameters will be presented in the Bellrock OnTDA EIA Report.

98. The onshore export cables will be installed underground by ducting aid within a trench or, where appropriate, installation at crossing points (e.g. watercourses or major roads) will be undertaken using trenchless techniques (e.g. HDD). Up to six onshore export cable circuits will be required (each comprising a bundle of up to three electrical cables and up to four other cables (fibre optic, DTS and earthing cables) within the onshore export route).

99. The onshore export cable route will provide sufficient space to accommodate the installation of the onshore export cables and all associated temporary works such as temporary haul roads, drainage, spoil storage, material storage and fencing. An indicative cable route cross section is provided in **Plate 3.1** below.

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Plate 3.1: Indicative Cable Cross-section



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100. Typical activities associated with the installation of onshore export cables are outlined below:

- Creation of temporary construction access;
- Installation, diversion or reinstatement of land drainage or irrigation systems;
- Site clearance and preparation, including vegetation clearance and topsoil stripping;
- Creation of temporary construction compounds and temporary haul roads;
- Excavation of cable trenches and establishment of surface water drainage controls;
- Laying of bedding, ducts and cable protection (i.e. tiles and marker tape), and backfilling of trenches;
- Installation of ducting through trenchless techniques (e.g. HDD) where required;
- Installation and jointing of onshore export cables by pulling of the cables through the pre-installed ducts;
- Land reinstatement;
- Testing and commissioning; and
- Post-construction surveys.

3.4.3 Onshore Substation

101. The OnSS will increase the voltage of the renewable electricity to 400 kV and control the quality of renewable electricity supplied to the Hurlie substation. The OnSS will also provide a means to isolate the Bellrock Onshore Transmission Infrastructure from the National Electricity Transmission System during periods of maintenance or repair. The OnSS may use HVAC or HVDC technology. An overview of the key components of the OnSS are provided in **Table 3.1**. The realistic worst-case scenario parameters for the OnSS (e.g. maximum height of equipment and buildings, and OnSS footprint) will be confirmed in the EIA Report.

102. As well as electrical equipment, the OnSS area will include ancillary infrastructure required for its construction and O&M including access, drainage, landscaping and environmental enhancements, laydown areas and temporary works.

103. Typical activities associated with the construction of the OnSS are outlined below:

- Creation of temporary construction access;
- Installation, diversion or reinstatement of land drainage or irrigation systems;
- Site clearance and preparation, including vegetation clearance and topsoil stripping;
- Creation of temporary construction compounds and temporary haul roads to the OnSS;
- Establishment of temporary surface water drainage controls;
- Creation of OnSS platform and permanent surface water drainage controls;
- Installation of buildings and electrical equipment;

- Establishment of landscaping and/or habitat enhancement areas;
- Testing and commissioning; and
- Post-construction surveys.

104. During operation, it is anticipated that the OnSS would be unmanned, requiring access for inspections and maintenance activities, and external lighting would only be activated when required for inspection/maintenance visits, emergency access or security purposes, with security lighting likely to be motion activated or remotely controlled.

3.4.4 Hurlie Substation Connection Works

105. The Hurlie substation connection works are required to connect the Bellrock OnSS to the National Electricity Transmission System at the Hurlie substation, and include the laying of 400 kV onshore export cables from the Bellrock OnSS to (and within) the Hurlie substation, and connection to the Hurlie substation equipment.

106. Given that the Applicant is required to lay and connect the onshore export cables to the Hurlie substation, including the construction of any ancillary equipment at the Hurlie substation required to achieve this, should it be required, the footprint of the Hurlie substation is likely to be included within the Applicant's PPP Application. This will ensure the Applicant will hold the rights to deliver the Hurlie substation connection works within the Hurlie substation.

107. Installation of the onshore export cables will be as described in **Section 3.4.1.2** above. An overview of the key components of the Hurlie substation connection works is provided in **Table 3.1**. The worst-case scenario parameters will be set out in the EIA Report.

3.5 Project Timeline and Activities

3.5.1 Construction

108. Site preparation works and construction works of the Bellrock Onshore Transmission Infrastructure are anticipated to start in 2029. Bellrock Onshore Transmission Infrastructure construction (excluding testing, snagging and commissioning) is anticipated to be completed by 2033. A breakdown of the Bellrock Onshore Transmission Infrastructure's anticipated construction programme (excluding site preparation works) is provided below:

- Site preparation works – undertaken in advance of and overlapping with the commencement of construction, and expected to take up to 12 months;
- Landfall – construction is expected to take up to 27 months;
- Onshore export cable corridor – construction is expected to take up to 27 months[17];

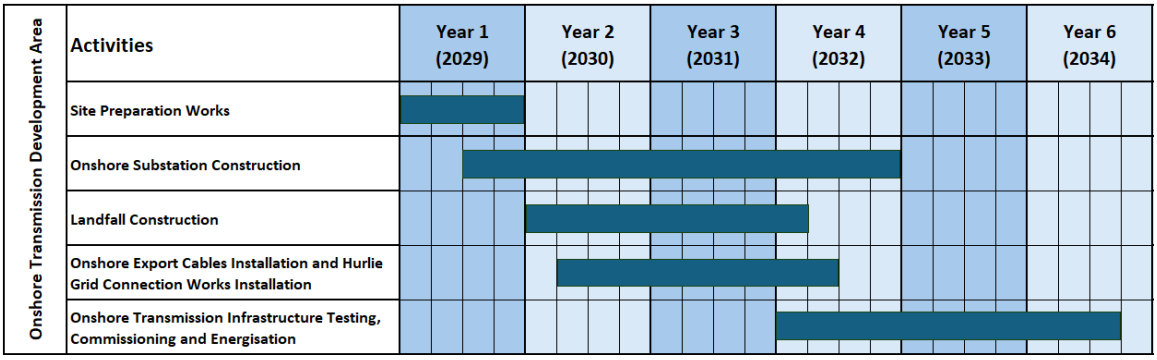
[17] Construction activity will take place periodically within the onshore export cable corridor throughout this construction period.

- OnSS – construction is expected to take up to 42 months;
- Hurlie substation connection works – construction is expected to take up to 27 months[18].

109. Overall construction for the Bellrock Onshore Transmission Infrastructure, including site preparation works, excluding testing, snagging and commissioning, is expected to take up to 48 months. An indicative construction programme is provided in **Plate 3.2** below.

110. The Bellrock OnTDA EIA Report will contain further detail regarding the expected construction duration for Bellrock Onshore Transmission Infrastructure.

Plate 3.2: Indicative Construction Programme



3.5.2 Operation and Maintenance

111. The Bellrock Onshore Transmission Infrastructure is expected to have an operational lifespan of up to 40 years.

3.5.3 Decommissioning

112. At the end of operational life, the Bellrock Onshore Transmission Infrastructure will be decommissioned. Details of the decommissioning of the Bellrock Onshore Transmission Infrastructure will be included in a Decommissioning, Restoration and Aftercare Strategy. The Decommissioning, Restoration and Aftercare Strategy will be subject to approval by the Aberdeenshire Council.

113. The Decommissioning, Restoration and Aftercare Strategy will consider good industry practice, guidance and legislation for decommissioning works.

114. Further details will be provided in the Bellrock OnTDA EIA Report.

[18] Construction activity will take place periodically within the Hurlie substation connection works throughout this construction period.

3.6 Site Selection and Consideration of Alternatives

115. This section provides an overview of the site selection process and consideration of alternatives to date for the Bellrock OnTDA. The Bellrock OnTDA EIA Report will present the stages of site selection and will set out any optioneering or refinements to the PDE (including, but not limited to technologies, infrastructure options, and onshore export cable corridor refinement) that have taken place as a result of the EIA process, engineering design development or in response to consultation and stakeholder feedback.

116. The main alternatives that have been considered as part of this process will also be presented in the EIA Report, including a 'no development option' (i.e. the scenario where the Bellrock Project will not be developed) and project infrastructure that has been considered and discounted. The Bellrock OnTDA EIA Report will set out the main reasons for selecting particular options, taking into account environmental sensitivities, technical feasibility and the Bellrock Project's objectives (see **Table 1.1**).

3.6.1 Site Selection for the Bellrock Project

117. The Applicant was awarded an Option to Lease Agreement for the Bellrock Wind Farm Development Area (WFDA) by Crown Estate Scotland (CES) in January 2022. Within their 'Pathway to 2030' (National Grid Electricity System Operator (NGESO), 2022), the National Energy System Operator (NESO) (formerly NGESO) recommended that the Bellrock Project connect to the National Electricity Transmission System via a new SSEN Transmission offshore substation (i.e. Onshore Transmission Infrastructure was not required to be developed by the Bellrock Project at that time). However, in April 2025, NESO imposed a change to the Bellrock Project requiring the Bellrock Project connect to the Hurlie substation in Aberdeenshire.

118. This change required the commencement of the Bellrock OnTDA site selection process (see **Section 3.6.2** below).

119. The Bellrock OnTDA Scoping Boundary has been informed by the OnTDA site selection process, which remains ongoing at the time of writing, and which will be refined for the EIA and PPP Application.

120. The site selection process has followed and will continue to follow a staged approach, firstly by considering landfall locations along the Aberdeenshire coastline to bring the Offshore Transmission Infrastructure ashore, and onwards towards the Hurlie substation, and secondly considering potential OnSS locations in proximity to the Hurlie substation. A further stage in the site selection process will be undertaken prior to the EIA commencing, to identify the boundary of the OnTDA which will be subject to the PPP Application. The EIA process itself may also allow for the refinement of the OnTDA.

121. For the landfall and OnSS, a number of options were considered before refining the Bellrock OnTDA Scoping Boundary and selecting the preferred landfall Area of Search and the preferred OnSS Area of Search (shown on **Figure 1.1 (Appendix A (Volume 1))**.

3.6.2 Site Selection Methodology

122. The Bellrock OnTDA site selection process has been informed by the following guidance on site selection for electrical infrastructure, and onshore development projects more generally:

- **Horlock Rules** – National Grid's guidance 'National Grid Company (NGC) Substations and the Environment: Guidelines on Siting and Design' (the 'Horlock Rules') (NGC, 2009) have been used as the basis for the approach to site selection for the Bellrock OnSS. The Horlock Rules state that site selection should consider environmental issues from an early stage, keeping adverse effects to a minimum where possible;
- **Holford Rules** – National Grid's Guidelines for the Routeing of New High Voltage Overhead Transmission Lines (NGC, 1992) (the 'Holford Rules') have been used to inform the site selection process for the Bellrock Onshore Transmission Infrastructure. Although directed towards overhead transmission, the Holford Rules can also apply to effective site selection for buried electrical transmission infrastructure;
- **NPF4** – as described in **Table 2.5**, NPF4 informs future planning in Scotland. Several of the policies are relevant to the OnTDA site selection, including Policy 3: Biodiversity, Policy 11: Energy and Policy 22: Flood Risk and Water Management. During the site selection process, the Applicant has aimed to minimise the impacts to habitats and avoid designated sites and areas of flood risk;
- **Electricity Act 1989** – Schedule 9 of the Electricity Act 1989 requires licence holders (i.e. the Applicant) to have regard to desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest, and shall do what can reasonably be done to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects. The Applicant has considered these requirements within the OnTDA site selection process; and
- **Aberdeenshire LDP** – The Aberdeenshire LDP contains relevant policies and sets out broad principles for development in Aberdeenshire, as described in **Table 2.5**, which are relevant to the site selection process.

123. The Bellrock OnTDA site selection process is an iterative, multi-disciplinary process involving environmental, engineering, land, planning and policy specialists providing a detailed review and comparative analysis of each option considered. The process has also involved community and stakeholder consultation. The site selection process undertaken to date has followed the process outlined below:

- Identification of the likely key project requirements for the Onshore Transmission Infrastructure (i.e. maximum number of onshore export cables, maximum footprint of OnSS);
- Definition of the preferred landfall Area of Search based on existing geotechnical and topographical information and considering the feasibility of deploying a trenchless technique to bring the offshore export cables ashore;
- Definition of the OnSS Area of Search based on the Applicant's acceptable proximity to the Hurlie substation;

- Definition of 'Design Principles' for the site selection process. These are based on the site selection guidance listed above, and include policy, engineering, environmental and land parameters;
- Constraint mapping exercises within the preferred landfall and OnSS Areas of Search to map potential environmental and technical constraints and identify potentially less-constrained areas which could potentially accommodate the landfall or OnSS;
- A 'Black-Red-Amber-Green' (BRAG) assessment of selected landfall and OnSS options against environmental, engineering, land, planning and community criteria, undertaken by specialists in each discipline. Each criterion was assessed as follows:
  - Black - Option may not be deliverable due to environmental, consenting or engineering risk;
  - Red - Option has a high environmental or engineering risk;
  - Amber - Option has a medium environmental or engineering risk; and
  - Green - Option has a low environmental or engineering risk.
- Site visits to view potential landfall and OnSS locations and their surroundings;
- Further consideration of environmental and technical matters;
- Refinement of the landfall and OnSS Areas of Search based on the above;
- Definition of the onshore export cable Area of Search based on the shortlisted landfall and OnSS Areas of Search;
- Constraints mapping exercise within the preferred onshore export cable corridor Area of Search to map potential environmental and technical constraints and identify potentially less-constrained areas which could potentially accommodate the onshore export cable corridor;
- Community engagement to receive feedback on the preferred landfall and OnSS Areas of Search. These were presented at consultation events, held between 3 March to 5 March 2026 (for further details on stakeholder engagement, see **Section 4.3**);
- Identification of the preferred landfall Area of Search and preferred OnSS Area of Search and refinement of preferred onshore export cable corridor Areas of Search based on the above; and
- Selection of OnTDA Scoping Boundary to reflect the refined landfall, OnSS and onshore export cable Areas of Search.

3.6.3 Site Selection Outcomes

124. This section presents an overview of the outcomes of the site selection process to date. Further refinement following receipt of the Scoping Opinion, accounting for environmental assessment, engineering refinement and landowner engagement, will inform the Bellrock OnTDA EIA Report.

3.6.3.1 Landfall

125. Thirteen potential landfall options between Findon and St Cyrus along the east coast of Aberdeenshire were originally identified following the initial constraints mapping exercise. During the site selection process, a number of sites were removed from the longlist stage for reasons

including unfeasible long length of trenchless crossing, inaccessibility and insufficient space, resulting in a landfall shortlist which comprised of options at Portlethen, Cowie and Tangleha.

126. Further workshops and BRAG assessments were undertaken for the above shortlisted sites, site visits were undertaken and community consultation events held to discuss the site selection process and provide an opportunity for community feedback.

127. Options at Portlethen were subsequently discontinued following the onshore export cable corridor BRAG which considered routing from the preferred landfall Area of Search to be unfeasible.

128. The preferred landfall Area of Search at Cowie was subsequently selected as the preferred option due to fewer overall environmental and technical constraints compared to the Tangleha landfall Area of Search, and closer proximity to the Hurlie substation. Further site selection work will be undertaken to inform the EIA to refine the location of the landfall temporary construction compound.

3.6.3.2 Onshore Substation

129. A 5 km area of search around the Hurlie substation planning application boundary was selected as the OnSS Area of Search. An indicative OnSS footprint of 13.5 ha for an AIS design 9 ha for a GIS design and 6.5 ha for a HVDC convertor station design respectively was assumed, albeit it is recognised that this footprint may be refined during the EIA or detailed engineering.

130. A constraints mapping exercise led to the identification of twelve OnSS Areas of Search. A number of sites were subsequently removed from the process at an early stage for reasons such as constrained space or proximity to other infrastructure.

131. In addition to the desk-based assessments, site visits were undertaken to further inform the consideration of potential OnSS Areas of Search. Desk-based landscape modelling was also undertaken. The BRAG assessment and further site selection workshops subsequently reduced the longlist to a shortlist of three OnSS Areas of Search, two located near to Drumlithie (OnSS options 5 and 6) and one located in Fetteresso Forest (OnSS option 2), was developed. Community consultation was undertaken to gain feedback on constraints and opportunities associate with these three OnSS Areas of Search.

132. Following further refinement workshops and stakeholder engagement, OnSS Area of Search option 2 (Fetteresso Forest) was selected to be taken forward for further design refinement. This selection was based on fewer environmental and technical constraints compared with other Areas of Search, consultation feedback received and proximity to Hurlie substation.

3.6.3.3 Onshore Export Cable Corridor

133. Following the refinement of landfall and OnSS Areas of Search, a similar exercise was undertaken to develop onshore export cable corridor Area of Seach, which forms part of the OnTDA Scoping Boundary. Community consultation was also undertaken to gain feedback on constraints and opportunities associate with the wider OnTDA Areas of Search within which the Onshore Transmission Infrastructure would be located.

134. This element of the site selection process will continue with a refined onshore export cable corridor being identified prior to preparation of the EIA Report.

3.6.3.4 Hurlie Substation Connection Works

135. As NESO, in fulfilling their regulatory function, has directed that the Applicant connect to the Hurlie substation, no site selection works were undertaken by the Applicant for the site selection of the Hurlie substation itself.

136. Following the refinement of the OnSS Areas of Search, the Applicant undertook a similar exercise to the onshore export cable corridor Area of Seach, to identify the Hurlie substation connection works, which forms part of the Bellrock OnTDA Scoping Boundary.

137. Community consultation was also undertaken to gain feedback on constraints and opportunities associate with the wider OnTDA Areas of Search within which the Hurlie substation connection works would be located.

138. This element of the site selection process will continue with a refinement of the onshore export cable corridor being identified prior to preparation of the Bellrock OnTDA EIA Report.

3.6.4 Scoping Boundary

139. The Bellrock OnTDA Scoping Boundary reflects the selected preferred landfall and OnSS Area of Search and the range of options currently being explored for the OnTDA Area of Search. The Bellrock OnTDA Scoping Boundary has also been defined to ensure that reasonable construction and operational access routes are included in the Scoping Boundary, prior to these being identified.

140. The Bellrock OnTDA Scoping Boundary has further been refined to exclude the town of Stonehaven, reflecting the intention that no Onshore Transmission Infrastructure will be located within the town itself. Areas of Cowie have been retained within the preferred landfall Area of Search where relevant to the Bellrock Onshore Transmission Infrastructure. With the exception of any interaction with the tie-in to the local road network, Stonehaven Golf Club has also been excluded from the Bellrock OnTDA Scoping Boundary.

3.6.5 Alternatives Considered for the Bellrock Onshore Transmission Infrastructure

141. Although in an early phase of design development, the Applicant has already considered and made a series of design decisions to seek to minimise the potential environmental effects of the Onshore Transmission Infrastructure during its construction, O&M and decommissioning. The alternatives considered and discounted to date are detailed in **Table 3.2**. Feedback received from the Scoping Opinion and through ongoing consultation and design refinement will identify further alternatives that will be considered prior to submission of the PPP Application.

Table 3.2: Alternatives Considered to Date for the Bellrock Onshore Transmission Infrastructure

Alternative	Reason for Discounting
Overhead lines	Overhead lines (OHLs) were considered as an alternative option to buried onshore export cables from landfall to the OnSS and onward to the Hurlie substation. The key consideration in regard to this decision was he potential visual impacts associated with OHLs. The benefit of burying cables as opposed to OHLs and pylons is a significant reduction of permanent visual impacts, therefore, buried cabling was selected.
No permanent operational lighting at the OnSS	The decision was made that, as an unmanned OnSS, external lighting at the OnSS should only be activated when required for inspection/maintenance visits, emergency access or security purposes, with no permanent 24-hour operational lighting. This decision was made to minimise the potential operational landscape and visual effects caused from unnecessary night time lighting.
Use of trenchless techniques at landfall	The Applicant has made the design decision to use trenchless techniques to install ducts underneath the cliff at landfall, thereby avoiding direct impacts to the surface features of the cliff and intertidal area, in particular the sensitive habitats and species and geological exposures of the Garron Point SSSI.

3.7 Scoping Questions to Consultees

142. The following questions are posed to consultees to help frame and focus their response to the proposed site selection process and inform the Bellrock OnTDA EIA Report:

- Do you agree that the onshore export cables should be underground as opposed to OHLs?
- Do you agree that the landfall should utilise trenchless techniques as opposed to open cut trenching?

3.8 References

National Grid Company, 2009. NGC SUBSTATIONS AND THE ENVIRONMENT: GUIDELINES ON SITING AND DESIGN. Available at: https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf

National Grid Electricity System Operator (NGESO) (2022). Pathway to 2030: Holistic Network Design. Available at: https://www.neso.energy/document/262676/download

4 Approach to Scoping and Environmental Impact Assessment

4.1 Overview of Environmental Impact Assessment

143. An Environmental Impact Assessment (EIA) is a process for identifying the potential impacts and likely significant environmental effects of the construction, Operation and Maintenance (O&M), and decommissioning of a proposed development, and outlining how the severity of a potential significant effect will be reduced, through mitigation, to an acceptable level. Effects can be positive or negative. An EIA Report will be submitted to Aberdeenshire Council setting out the Applicant's assessment of likely significant environmental effects, to support the Planning Permission in Principle (PPP) Application (see **Chapter 1: Introduction**) and acts to inform the decision-making process.

144. This Chapter describes the principles of EIA and the approach being taken to identify and evaluate likely significant effects of the Bellrock Onshore Transmission Infrastructure on the physical, biological and human environment. This Chapter also details the stakeholder consultation and engagement that will be undertaken as part of the EIA process. An overview of the proposed methodologies for the Bellrock Onshore Transmission Development Area (OnTDA) Whole Project Assessment, Cumulative Effects Assessment (CEA), and Habitats Regulations Appraisal (HRA) is also presented.

145. Where the assessment methodology for determining the significance of a potential impact on a receptor for a particular topic deviates from the assessment methodology presented in this Chapter (due to the relevant guidance or legislation), the topic-specific methodology is presented within the receptor's technical chapter. This is relevant for:

- **Chapter 5: Landscape and Visual Impact;**
- **Chapter 9: Onshore Ecology and Nature Conservation:**
- **Chapter 10: Onshore Ornithology;**
- **Chapter 15: Socioeconomics, Tourism and Recreation;**
- **Chapter 16: Greenhouse Gas Assessment;**
- **Chapter 17: Climate Change Risk Assessment;** and
- **Chapter 19: Major Accidents and Disasters.**

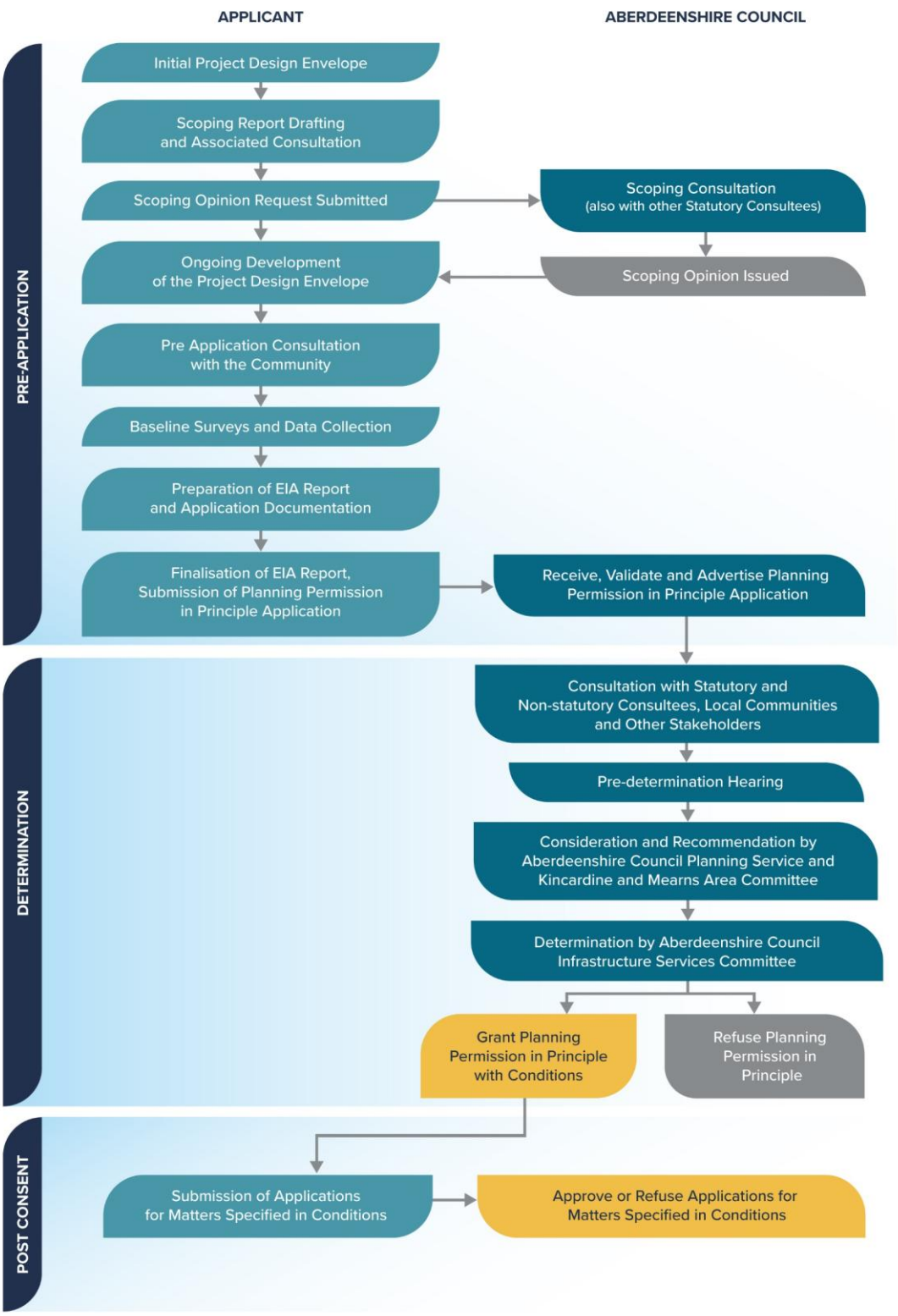
4.1.1 Environmental Impact Assessment Process

146. The EIA process comprises several stages, namely scoping, consultation, environmental assessment and reporting, determination and post-consent monitoring:

- **Scoping** – a voluntary process involving the production of a Scoping Report (this document; the **Bellrock OnTDA Scoping Report**) to request a formal Scoping Opinion from Aberdeenshire Council;
- **Consultation** – undertaken in the pre-application phase to inform the Bellrock OnTDA site selection process and the design and assessment of the Bellrock Onshore Transmission Infrastructure;
- **EIA Report** – written report that contains an outline of the policy and guidance, a consultation summary, description of the environmental baseline, the results of the EIA for each technical receptor, an assessment of effects during all phases of the Bellrock Onshore Transmission Infrastructure, identification of any required mitigation, and an assessment of cumulative effects between EIA chapter topics and with other developments;
- **Determination** – consultation on, and examination of the Bellrock OnTDA EIA Report by the Competent Authority (Aberdeenshire Council), after which a reasoned conclusion on the likely significant effects of the Bellrock Onshore Transmission Infrastructure on the environment must be reached. Upon making their determination, the competent authority must publish their 'decision notice'; and
- **Post-consent Mitigation and Monitoring** – undertaken post-consent, during the pre-construction, construction, and operational phases of the Bellrock Onshore Transmission Infrastructure.

147. **Plate 4.1** provides an overview of the stages involved in the consenting process and illustrates how the Scoping stage fits within this process.

Plate 4.1: Stages of the Consenting Process



148. The EIA process involves understanding the proposed construction, O&M and decommissioning activities of the Bellrock Onshore Transmission Infrastructure, and the environment within which it will be located. The potential impacts of the Bellrock Onshore Transmission Infrastructure are then evaluated to determine the resulting potential effects on the receiving environment/receptors and the significance of those effects. This enables the predicted effects of the Bellrock Onshore Transmission Infrastructure to be understood by statutory consultees, and other interested parties such as members of the public, and the relevant determining authority before a consenting decision is made.

149. For the purposes of this **Bellrock OnTDA Scoping Report** and the Bellrock OnTDA EIA Report, the term 'impact' is used to describe the changes that arise as a result of the Bellrock Onshore Transmission Infrastructure (for example, dust generated by earthworks). The term 'effects' are the consequences of those changes (for example, change in habitat function as a result of dust deposition).

150. Schedule 4 of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (hereafter, collectively termed the 'EIA Regulations') state that the description of the likely significant effects should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development. For receptors which are scoped in, these factors will be assessed in full in the EIA technical chapters listed in **Section 4.9**.

151. Where potential impacts are likely to result in significant effects, specific measures will need to be taken to reduce or avoid such impacts (mitigation measures). The approach to mitigation measures is set out in **Section 4.5.3.5**.

4.1.2 Environmental Impact Assessment Scoping

152. This **Bellrock OnTDA Scoping Report** has been prepared to support a request for a Scoping Opinion for the Bellrock Onshore Transmission Infrastructure from Aberdeenshire Council, in accordance with Regulation 17 of the EIA Regulations. This **Bellrock OnTDA Scoping Report** identifies which potential impacts and receptors will be assessed as part of the Bellrock OnTDA EIA Report, based on an initial understanding of the Bellrock Onshore Transmission Infrastructure design and environmental baseline, and identifies the receptors which can be scoped out of the EIA Report. It also describes the methodologies that will be used for the assessment, as per industry best practice and receptor-specific guidance and legislation, as set out in **Chapters 5** to **19**.

153. Under Regulation 17 of the EIA Regulations, once a request for a Scoping Opinion has been submitted to the local planning authority for consideration, they are required to consult with the consultation bodies[19], and any other public body which the planning authority considers is likely to have an interest in the proposed development by reason of that body's specific environmental responsibilities or local and regional competencies.

[19] i.e. any adjoining planning authority, where the development is likely to affect land in their area; Scottish Natural Heritage; Scottish Water; the Scottish Environment Protection Agency; and Historic Environment Scotland.

154. Effective scoping enables agreement to be reached on the environmental effects and methodologies to be taken forward and reported in much greater detail in the Bellrock OnTDA EIA Report. This **Bellrock OnTDA Scoping Report** defines the scope of the assessment and focuses on the key subject matters. It also provides an opportunity for early interaction with stakeholders, strengthening the assessment evidence base and allowing active participation of interested parties in project development and decision-making. This can in turn, improve project design and reduce the Project's environmental impact.

4.1.3 Design Evolution Process

155. The EIA process allows opportunities for environmental concerns to be addressed within the design of the Bellrock Onshore Transmission Infrastructure. Typically, a number of design iterations take place prior to the final design to account for environmental constraints and stakeholder engagement comments received. This iterative design process is fundamental to the Bellrock OnTDA EIA and will continue to develop following feedback from the Scoping Opinion and other engagement with stakeholders.

156. The iterative design process integrates the advice and experience of the environmental topic experts that undertake the scoping and impact assessments for the Bellrock OnTDA EIA Report in regular liaison with the Applicant's development team. This ensures that design evolution is informed by a project-wide understanding of environmental sensitivities, such that the mitigation hierarchy, including consideration of the avoidance of key receptors, is adhered to throughout the development of the Bellrock Onshore Transmission Infrastructure and the wider Bellrock Project.

157. Environmental and social considerations have been central to the design development of the Bellrock Onshore Transmission Infrastructure to date, informed by a combination of stakeholder engagement, EIA surveys and technical studies. The design development process undertaken to date is evidenced in **Chapter 3: Project Description**.

4.2 Guidance and Best Practice

158. The assessment of potential effects in the Bellrock OnTDA EIA Report will use the standard guidance detailed below to assist with the production of a robust and proportionate EIA, in particular:

- Scottish Government (2023). National Planning Framework 4 (NPF4);
- Scottish Government (2017a). Planning Circular 1/2017: Environmental Impact Assessment Regulations;
- Scottish Government (2013). Planning Advice Note (PAN) 1/2013 Environmental Impact Assessment;
- Scottish National Heritage (SNH) (2018). A Handbook on Environmental Impact Assessment;
- Chartered Institute for Ecology and Environmental Management (CIEEM, 2018). Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine;

- The Institute of Environmental Management and Assessment (IEMA)[20] (IEMA, 2017). Delivering Proportionate EIA. A Collaborative Strategy for Enhancing UK EIA Practice;
- IEMA (2024). IEMA Guidance: Implementing the Mitigation Hierarchy from Concept to Construction;
- European Commission (2017). EIA of Projects – Guidance on the preparation of the Environmental Impact Assessment Report. (Office for Official Publications of the European Communities 2017);
- European Commission (1999). Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions;
- IEMA (2015). IEMA Environmental Impact Assessment Guide to Shaping Quality Development;
- Planning Inspectorate (2024). Nationally Significant Infrastructure Projects: Advice on CEA; and
- Scottish Government (2022). Electricity Act 1989 - Section 36 applications: guidance for applicants on using the design envelope (*generally relevant guidance relating to the design envelope)*.

159. Each technical chapter (**Chapters 5** to **19**) also refers to chapter-specific guidance proposed to undertake their assessments.

4.3 Consultation and Stakeholder Engagement

4.3.1 Introduction

160. Regular engagement with stakeholders is key to the delivery of the EIA for the Bellrock Onshore Transmission Infrastructure. In advance of the formal submission of the Bellrock OnTDA consent Application, consultation and engagement will be carried out to allow stakeholders and local communities the opportunity to provide feedback on all aspects of the Bellrock OnTDA. This feedback will inform the scope of studies, surveys, and assessments being undertaken, and influence the project design. This approach is in accordance with best practice and guidance and will build on feedback provided by Aberdeenshire Council.

161. Where relevant, and if applicable, advice received during pre-scoping consultation in respect to the Bellrock OnTDA will be considered in technical chapters.

4.3.2 Engagement to Date

162. Stakeholder engagement undertaken to support early planning of the Bellrock OnTDA and pre-scoping activities has been through virtual and in-person meetings and consultation events, workshops, and wider industry events. The purpose of this engagement was to provide general

[20] Now the Institute of Sustainability and Environmental Professionals (ISEP).

Bellrock Project and OnTDA updates, including programme and survey updates; identify potential collaboration opportunities; identify and discuss potential constraints with environmental, social and economic stakeholders; and receive notification of any forthcoming regulatory guidance or updates.

163. Stakeholders engaged on environmental, consenting, policy and/or project update matters relating to the Bellrock OnTDA to date are:

- SSEN Transmission;
- Aberdeenshire Council;
- Councillors for North Kincardine Ward 17;
- Councillors for Stonehaven and Lower Deeside Ward 18;
- Councillors for Mearns Ward 19;
- Kincardine & Mearns Area Committee;
- Arbuthnott Community Council;
- Benholm & Johnshaven Community Council;
- Gourdon Community Council;
- Mearns Community Council;
- Royal Burgh of Inverbervie Community Council;
- St Cyrus Community Council;
- Crathes, Drumoak & Durris Community Council;
- Stonehaven & District Community Council;
- Catterline, Kinneff & Dunnottar Community Council;
- North Kincardine Community Council;
- Newtonhill, Muchalls, Cammachmore Community Council;
- Local communities;
- NatureScot;
- Ossian Offshore Wind Farm;
- Bowdun Offshore Wind Farm; and
- Forestry and Land Scotland (FLS).

164. Key consultations to date are summarised in **Table 4.1**. Receptor-specific consultation is provided in each technical chapter (**Chapters 5** to **19** of this **Bellrock OnTDA Scoping Report**).

Table 4.1: Key Consultations to Date for the Bellrock OnTDA

Stakeholder/ Event	Date/Document	Agreement/Discussion
FLS	30 October 2025	A high-level introduction of the Bellrock Project, highlighting landfall and long list of OnSS zones and potential interactions with FLS Land.
Bellrock Project Virtual Consultation	18 to 26 November 2025	The preferred landfall Area of Search was discussed in relation to the OfTDA, which supported the OnTDA site selection process.
FLS	8 December 2025	Specific focus on OnSS options within or partially within FLS land.
FLS	30 March 2026	Update on OnSS BRAG process.
Bellrock Project public exhibition event	3 to 5 March 2026	In person consultation events were held in Drumlithie, Stonehaven and St Cyrus on the 3, 4 and 5 of March 2026 respectively. Information presented is available at www.bellrockwind.co.uk.
NatureScot Meeting	2 April 2026	▪ Scope of the Bellrock OnTDA ecology surveys was discussed, and no objection to the scope was raised. NatureScot directed the Applicant to their standing advice on surveys; ▪ It was agreed that the Bellrock Project was located outside any European Sites, including the Garron Point SAC, and effects on this SAC were unlikely; ▪ It was agreed an HRA Screening would be prepared in relation to Garron Point SAC; ▪ Northern Brown Argus *Aricia artaxerxes* butterfly had been recorded in the Garron Point Site of Special Scientific Interest (SSSI) adjacent to the Bellrock OnTDA, and that this should be considered in the EIA, although effects upon this species are likely to be indirect only; ▪ Using trenchless techniques to install the cables at landfall is likely to mitigate effect upon the geological features of the Garron Point SSSI, but this point should be considered by the Applicant. Ongoing engagement with NatureScot on this point was agreed; ▪ Nightjars are known to be present in the vicinity of the Bellrock OnTDA, and the Applicant should consider effects upon this species during works in woodland habitat; and ▪ NatureScot recommended that the project consider effects upon functionally linked land for migratory geese migratory geese within the projects EIA/HRA, although it is likely that effects from the Onshore Transmission Infrastructure will be localised.
FLS	14 May 2026	Introduction to Project and update on site selection to wider FLS team members.
Aberdeenshire Council Meeting	11 June 2026	▪ Aberdeenshire Council noted that key consenting issues arising on recent projects include temporary landscape effects from borrow pits and earthworks (including provision of visualisations); effects on soils and agriculture, including drainage; socioeconomic issues; EMFs;

Stakeholder/ Event	Date/Document	Agreement/Discussion
		▪ The Applicant proposes to include a 'Whole Project Assessment' as part of the CEA; ▪ Aberdeenshire Council noted no objection in principle to using data from nearby projects if valid and if it reduces the need for disruption for local communities; ▪ Aberdeenshire Council noted that they would expect any assessment of effects on private water supplies to focus on those on the Aberdeenshire Council/SEPA register; ▪ Aberdeenshire Council advised consulting with the RSPB, especially with regards to nightjar, as they are not consulted through scoping; and ▪ Future technical discussion deferred for a future pre-application meeting on for 23 July 2026 (see below).
Ossian Offshore Wind Farm	22 June 2026	Provide updates on the Ossian Project and Bellrock Project.
Bowdun Offshore Wind Farm	23 June 2026	▪ Provide updates on the Bowdun Offshore Wind Farm and Bellrock Project; ▪ Discussed possible interactions between the projects; and ▪ Further meetings will be arranged through the development of the Bellrock OnTDA.
FLS	26 June 2026	▪ Provide updates on the Bellrock OnTDA; and ▪ Discussed FLS's future operational plans for the Fetteresso Forest.
SSEN Transmission Meeting	10 July 2026	▪ Provide updates of the Hurlie substation and Bellrock Project; and ▪ Discussed interaction between the Hurlie substation and the Bellrock Onshore Transmission Infrastructure.
FLS	28 July 2026	▪ Provide updates of the Bellrock Project and spatial co-ordination of connections of multiple projects into Hurlie substation.
Aspen Offshore Windfarm	30 July 2026	▪ Provided an update on the Aspen Offshore Windfarm and Bellrock Project.
Aberdeenshire Council	19 August 2026	Pre-application Advice letter provided following Pre-application Meeting held with Aberdeenshire Council and their internal and external stakeholders on 23 July 2026. Key points raised included: ▪ Confirmation of PPP Application submission requirements; ▪ Confirmation of the policy support provided within the Aberdeenshire LDP for offshore wind development; ▪ Outlined the Council's expectations regarding woodland loss and the requirements for compensatory planting; ▪ Confirmation of SEPA's peat survey, assessment and management requirements; ▪ Specific concern and need for assessment of nightjar and crossbill in Fetteresso Forest;

Stakeholder/ Event	Date/Document	Agreement/Discussion
		▪ Acknowledgement that full ecological survey access may not be able to be obtained, but that every effort should be made to achieve it; ▪ Confirmation from NatureScot that if Garron Point SSSI can be successfully avoided through drilling underneath, then an assessment of effects upon the geological or ecological features is not required. Indirect effects upon ecological features should be assessed if potentially affected; ▪ Details of the Council's guidance and expectations regarding biodiversity enhancement and what is required with the PPP Application; ▪ Cumulative landscape and visual effects of multiple onshore works associated with offshore wind farms are a key concern, and specific advice was provided in terms of what material to provide with the EIA Report in this regard. Significant landscape effects are anticipated by the Council, noting that the LVIA has not yet be prepared; ▪ A contaminated land assessment is required, and waste management should be included in a Construction Environmental Management Plan (CEMP); ▪ A noise impact assessment is required, and construction mitigation measures managed through a CEMP, with operational noise levels regulated through planning conditions; ▪ Impacts upon private water supplies within a 250 m buffer of the Bellrock OnTDA should be assessed in the EIA; ▪ Use of existing monitoring data is acceptable for the air quality impact assessment; ▪ An Abnormal Indivisible Load (AIL) study and Transport Assessment will be required with the EIA Report, and a Construction Traffic Management Plan (CTMP) used to agree construction traffic routes and mitigation measures; Network Rail and Transport Scotland must be fully consulted when trenchless techniques re proposed beneath their assets; ▪ The EIA should assess the impacts on public access and provide suitable mitigation; ▪ A Flood Risk Assessment should be provided with the EIA Report, and a 1 in 200 + climate change storm return period should be used for all drainage design, with a Drainage Impact Assessment required in a Matters Specified in Conditions (MSC); ▪ SEPA have advised on suitable non-working buffers around watercourses during construction; ▪ A cultural heritage assessment is required as part of the EIA Report, to include a desk-based assessment and, as appropriate, archaeological walkover survey. Settings assessment is also required; ▪ An Economic Statement/Assessment of Economic Need should be included with the PPP Application; and ▪ Local utilities providers are to be consulted depending on the interaction with their assets.

Stakeholder/ Event	Date/Document	Agreement/Discussion
Aspen Offshore Windfarm	27 August 2026	▪ Provided an update on the Aspen Offshore Windfarm and the Bellrock Project.
FLS	29 September 2026	▪ Provide updates of the Bellrock Project and spatial co-ordination of connections of multiple projects into Hurlie substation.

4.3.3 Scoping Consultation

165. In line with the EIA Regulations, Aberdeenshire Council will consult on this **Bellrock OnTDA Scoping Report** with statutory consultees to obtain their advice and feedback on the potential effects which should be scoped in or scoped out of the EIA and screened in or screened out of the HRA. This feedback will be presented in the Scoping Opinion issued by Aberdeenshire Council.

166. In addition, the Applicant will make this **Bellrock OnTDA Scoping Report** available on their website (www.bellrockwind.co.uk) to further promote the scoping consultation process.

4.3.4 Pre-application Consultation

167. The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013 (as amended) (hereafter referred to as the 'PAC Regulations') apply to all national developments (as defined in NFP4) and major developments (as defined in Regulation 2 of The Town and Country Planning (Hierarchy of Development) (Scotland) Regulations 2009). The Bellrock OnTDA is defined as a national development, following the definition set out in Annex B of NPF4.

168. As part of Pre-application Consultation, in line with the PAC Regulations the Applicant will:

- Consult every community council whose area is within or adjoins the land where the Bellrock OnTDA is situated;
- Hold at least two public events where members of the public may make comments to the Applicant in regards the Bellrock OnTDA; and
- Publish the following information in a local newspaper circulating in the locality in which the Bellrock OnTDA is situated:
  - Description and location of the Bellrock OnTDA;
  - Details on how further information may be obtained concerning the Bellrock OnTDA (including by which electronic means);
  - The date and place of the public event;
  - A statement explaining how, and by when, persons wishing to make comments to the Applicant relating to the Bellrock OnTDA may do so; and

- A statement that comments made to the Applicant are not representations to the planning authority and if the Applicant submits an Application there will be an opportunity to make representations on that Application to the planning authority.

169. The Applicant will submit a PAC Report alongside the Bellrock OnTDA PPP Application which will detail how the consultation responses have been considered by the Applicant, including for site selection and design refinement.

170. In addition to the Pre-application Consultation outlined above, the Applicant will continue to engage with statutory stakeholders, non-statutory stakeholders, and local communities throughout the development phase of the Bellrock OnTDA, including during the EIA process. This includes continuing with the established recurring meetings with stakeholder groups detailed above, and engagement with local communities. The Bellrock OnTDA PAC Report (submitted with the PPP Application) will provide further detail on consultation undertaken, including the outcomes of the community engagement events.

171. The Applicant will record all stakeholder feedback received during the development phase of the Bellrock OnTDA.

4.4 Proportionate Environmental Impact Assessment

172. Scoping is intended to inform a proportional and robust approach to assessment through early-stage evaluation and reporting of identified likely significant effects in the EIA Report. This proactive Scoping process allows for a robust Bellrock OnTDA EIA Report whilst focusing on environmental impacts that could give rise to likely significant effects.

173. Therefore, where appropriate, this **Bellrock OnTDA Scoping Report** seeks to scope out environmental receptors and specific impacts upon certain receptors from further assessment with suitable justification and evidence provided. This approach will focus the assessment on key likely significant effects and ensure the EIA for the Bellrock OnTDA is proportionate, in accordance with PAN 1/2013 (Scottish Government, 2013) and IEMA's Delivering Proportionate EIA guidance document (IEMA, 2017).

174. The following key tools and approaches have been adopted at the Scoping stage for the Bellrock OnTDA, to assist in the delivery of a proportionate EIA:

- Use of existing evidence base; and
- Inclusion of embedded mitigation measures (see **Section 4.5.3.5**), informed by good and standard practices.

175. Only potential impacts which may give rise to significant effects are proposed to be 'scoped in' to the EIA.

4.4.1 Project Design Envelope

176. A parameter-based design envelope approach will be adopted within the Bellrock OnTDA EIA Report, as detailed in **Section 3.2** in **Chapter 3: Project Description**. The Project Design Envelope (PDE) will set out minimum and maximum design scenarios for each design parameter. The PDE will include all relevant technical, spatial and temporal elements of the Bellrock Onshore Transmission Infrastructure, and the proposed methodology to be employed for construction, O&M, and decommissioning. These parameters will enable technical specialists to accurately identify and assess the potential impacts, whilst retaining sufficient flexibility to accommodate further refinement during the detailed design stage once the Bellrock Onshore Transmission Infrastructure has been consented.

177. The PDE approach allows the Bellrock Onshore Transmission Infrastructure to be assessed on a reasonable receptor-specific realistic worst-case scenario basis. The realistic worst-case scenario defined for any given parameter may vary by technical aspect, depending on how the parameter can be expected to interact with the receptor being considered. This is considered a standard approach and is widely accepted by stakeholders and regulators and is required to provide sufficient design flexibility at this early stage of project development.

178. The information presented in **Chapter 3: Project Description** outlines the options and flexibility required by the Applicant and the range of potential design, location and activity parameters upon which the scoping of impacts is based. The final detailed design will lie within the parameters of the PDE. This will allow detailed design work to be undertaken post-consent whilst retaining the validity of the Bellrock OnTDA EIA Report.

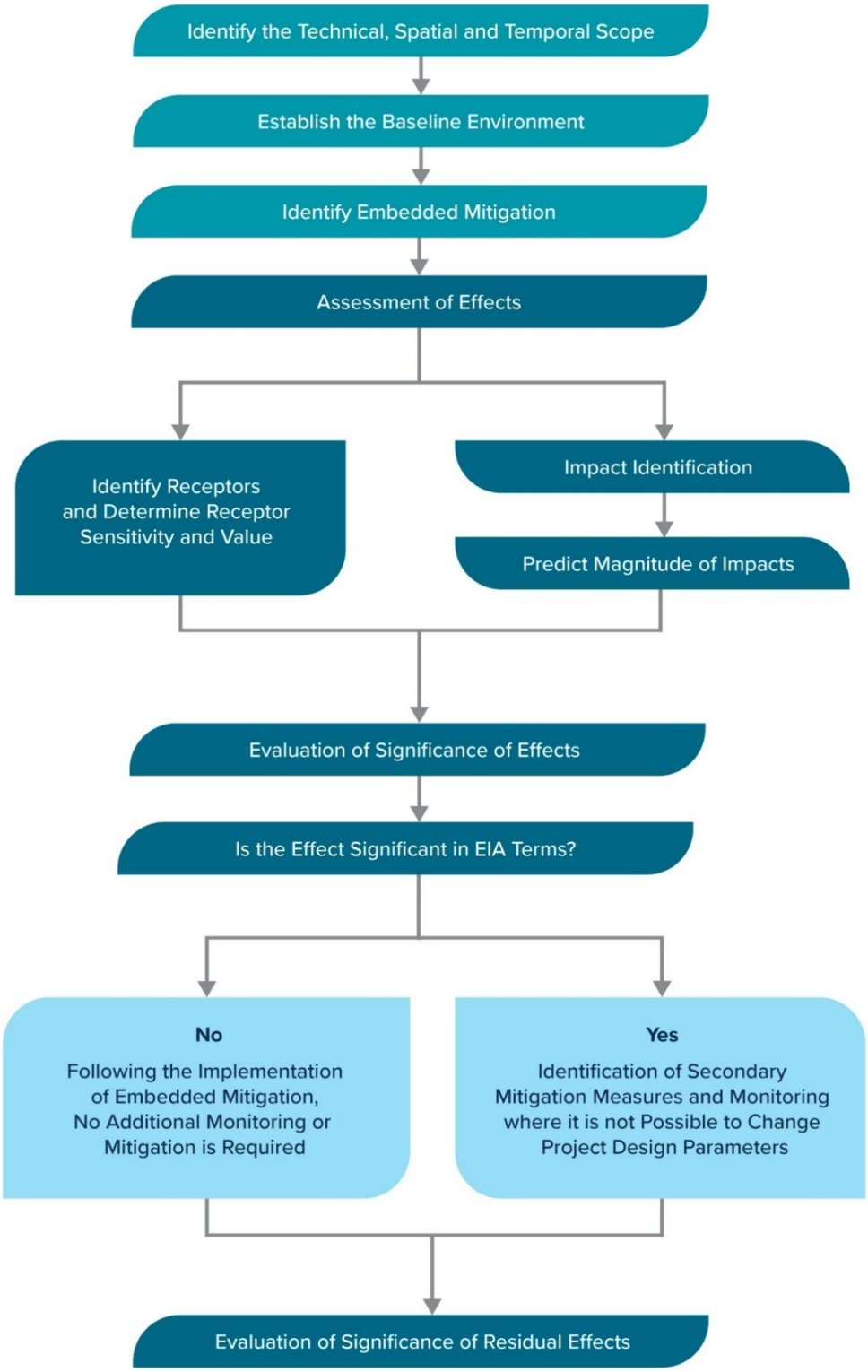
179. The need for flexibility within the consent is a key feature of any large-scale development, particularly transmission infrastructure such as cabling and substations, where technology and design practices are continuously evolving. The PDE must, therefore, provide sufficient flexibility to enable the Applicant and its supply chain to adopt the most up to date, efficient and economical technologies and techniques for the construction, O&M, and decommissioning of the infrastructure and activities associated with the Bellrock OnTDA, without resulting in effects on the surrounding environment that are greater than those assessed under the realistic worst-case scenarios presented in the Bellrock OnTDA EIA Report.

180. The description of the Bellrock Onshore Transmission Infrastructure will be further refined as stakeholder engagement progresses, and the design continues to evolve.

4.5 Environmental Impact Assessment Methodology

181. This section provides an overview of the proposed methodology approach for EIA, in line with the approach set out in **Plate 4.2**.

Plate 4.2: Overview of EIA



4.5.1 Identify the Technical, Spatial and Temporal Scope

4.5.1.1 Technical Scope

182. The proposed technical scope of the Bellrock OnTDA EIA Report is outlined in the respective chapters of this **Bellrock OnTDA Scoping Report**. Justification is provided for the individual approach and scoping of matters to be considered in the assessment for each environmental receptor. The technical scope further describes the approach to baseline data collection and assessment methodologies, and identifies any data gaps and limitations with the data used to inform the baseline. **Chapter 20: Summary** provides a summary table of impacts and effects to be scoped in and out of the Bellrock OnTDA EIA Report.

4.5.1.2 Spatial Scope

183. The geographical context within which the Bellrock OnTDA Scoping Boundary is located is shown in **Figure 1.1** in **Appendix A (Volume 1)**. The spatial scope for each technical assessment will depend on the nature of the potential effects and the location of receptors that could be affected by the construction, O&M and decommissioning of the Onshore Transmission Infrastructure. The study area relevant to each environmental receptor is described in each respective technical chapter, where appropriate. The spatial scope of the technical assessments will, therefore, take account of:

- Relevant guidance;
- The physical area of the Bellrock OnTDA;
- The nature of the baseline environment; and
- The manner and extent to which environmental effects may occur within the Bellrock OnTDA or beyond its boundaries.

184. The study area for any given receptor may need to be refined in consultation with relevant consultees to ensure they still adequately reflect the area of potential influence for likely significant environmental effects.

4.5.1.3 Temporal Scope

185. The temporal scope refers to the time periods over which impacts and effects may be experienced by sensitive receptors, which will be defined further through discussion with relevant consultees. The Bellrock OnTDA EIA Report will provide an assessment of the potential impacts and effects during the construction, O&M and decommissioning phases of the Bellrock Onshore Transmission Infrastructure.

186. While there is potential for impacts from the physical presence of operational infrastructure during the construction phase of the Bellrock Onshore Transmission Infrastructure (e.g. landscape and visual impacts of the OnSS), these impacts will increase incrementally as construction of the Bellrock Onshore Transmission Infrastructure progresses, until the infrastructure is fully installed. It is proposed that these impacts are, therefore, scoped out from further consideration in relation to the construction and decommissioning phases to avoid double counting of potential impacts, but they are included under the O&M phase of the assessment, as appropriate.

187. Environmental effects will be compared to the current environmental baseline (**Section 4.5.2**) and will also take into consideration the projected future baseline (i.e. the theoretical situation that would exist in the absence of the Bellrock Onshore Transmission Infrastructure), where possible (e.g. predictable changes such as climate change). Each technical chapter of the Bellrock OnTDA EIA Report will define the baseline (current and future, where possible) against which the environmental effects of the Bellrock Onshore Transmission Infrastructure will be assessed. The baseline conditions that will be assessed for each environmental topic are outlined in the technical chapters of this **Bellrock OnTDA Scoping Report**.

4.5.2 Establish the Baseline Environment

188. To assess the potential impacts and effects of the Bellrock Onshore Transmission Infrastructure, it is necessary to determine the current environmental conditions that exist within the Bellrock OnTDA Scoping Boundary and wider study areas. These are known as the existing baseline conditions.

189. For each environmental receptor, the study area and approach which will be used to establish baseline conditions for each environmental receptor will vary depending on the receptor and is set out within its respective technical chapter baseline conditions will be determined using desk-based data searches and the results of site-specific surveys and investigations (where available), or a combination of these, as appropriate.

190. The baseline conditions will be determined to be those conditions present at the time of data collection to inform the EIA.

4.5.3 Assessment of Effects

191. This section sets out the framework methodology for the assessment with each technical chapter providing details of how the methodology has been applied for that receptor. To provide a consistent framework and common set of tools and terminology, a matrix-based approach will be used to structure and present the judgements made. For each receptor considered in the EIA, the most relevant and latest guidance or best practice has been used and, therefore, definitions of sensitivity and magnitude are tailored to each receptor. These definitions are detailed fully in each technical chapter.

192. The impact assessment will consider the potential effects during the construction, O&M and decommissioning phases of the Bellrock Onshore Transmission Infrastructure. As required by the EIA Regulations, only effects that are likely to be significant require detailed assessment.

193. Impacts can be classified as follows:

- **Direct impacts:** occurring at the same time and place as the action or activity;
- **Indirect impacts:** experienced by a receptor that is removed (e.g. in space or time) from the direct impact;
- **Inter-relationships:** occurring between impacts (where different impacts interact to affect a single receptor, which may need to be brought together from assessments presented in separate chapters) and interactions between impacts (where impacts assessed in each chapter have the potential to interact with one another); and

- **Cumulative impacts:** these may occur as a result of the Bellrock OnTDA in conjunction with other existing or planned projects and plans within the study area for each receptor, including other offshore wind farms.

194. Mitigation and/or monitoring to manage impacts will then be considered where required and commitments made by the Applicant as appropriate. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process to form the Bellrock OnTDA on which the PPP Application will be based. Receptor specific study areas (see **Chapters 5** to **19**) will be updated in the Bellrock OnTDA EIA Report to reflect this refinement. Subsequent to receiving the Scoping Opinion any project refinements which are considered to potentially change the context of the Scoping Opinion (i.e. works outside the Bellrock OnTDA Scoping Boundary or un-scoped infrastructure or methodology) will be discussed with Aberdeenshire Council and highlighted in the Bellrock OnTDA EIA Report.

4.5.3.1 Impact Identification

195. This **Bellrock OnTDA Scoping Report** distinguishes between the terms 'impact' and 'effect' and defines them as follows:

- **Impact:** used to describe a change resulting from an activity via the Bellrock Onshore Transmission Infrastructure. Impacts are defined in terms of their magnitude (see **Section 4.5.3.3**)
- **Effect:** the consequence of an impact combined with a receptor. Effects are defined in terms of their significance (see **Section 4.5.3.4**).

196. Where appropriate to do so, the assessment will use the conceptual 'source-pathway-receptor' model. This model identifies potential impacts resulting from the proposed activities on the environment and any sensitive receptors present. This process provides an easy-to-follow assessment route between impact sources and potentially sensitive receptors, ensuring a transparent impact assessment. The aspects of this model are defined as follows:

- **Source:** the origin of a potential impact (e.g. generation of noise from construction plant);
- **Pathway:** the means by which the effect of the activity could impact a receptor (e.g. noise transmission through an open environment, free of noise barriers); and
- **Receptor:** the element of the receiving environment that is impacted (this could be a component of the physical, ecological, or human environment, e.g. residential dwellings).

197. Where a different approach has been adopted to reflect the specific assessment requirements of a particular receptor, a description in the corresponding technical chapter in this **Bellrock OnTDA Scoping Report** is provided.

4.5.3.2 Determining Receptor Sensitivity and Value

198. The characterisation of the existing environment helps to determine the receptor sensitivity in order to assess any potential impacts upon it.

199. The ability of a receptor to adapt to, tolerate and/or recover from potential effects will be key in assessing its sensitivity to the effect under consideration. For ecological receptors, tolerance could relate to short term changes in the physical environment, whereas for human environment receptors, tolerance could relate to disturbance effects (and, therefore, impacts on economics or safety). It also follows that the capacity to recover will be a key consideration in determining receptor sensitivity.

200. Example definitions for the different sensitivity levels are given in **Table 4.2**.

Table 4.2: Example Definition of Different Sensitivity Levels for a Generic Receptor

Sensitivity	Definition
High	Individual receptor has very limited or no capacity to avoid, adapt to, accommodate or recover from the anticipated impact.
Medium	Individual receptor has limited capacity to avoid, adapt to, accommodate or recover from the anticipated impact.
Low	Individual receptor has some tolerance to accommodate, adapt to or recover from the anticipated impact.
Negligible	Individual receptor is generally tolerant to and can accommodate or recover from the anticipated impact.

201. For some assessments, the value of a receptor may also be an element considered in the assessment. Receptor value considers, for example, whether it is rare, has protected or threatened status, importance at a local, regional, national or international scale, and, in the case of biological receptors, has a key role in ecosystem functioning.

202. Example definitions of the value levels for a generic receptor are given in **Table 4.3.**

Table 4.3 : Example Definitions of the Value Levels for a Generic Receptor

Value	Definition
High	Internationally/nationally important (e.g. internationally or nationally protected site).
Medium	Regionally important (e.g. regionally protected site).
Low	Locally important/rare but with high potential for mitigation.
Negligible	Not considered to be important (e.g. common or widespread).

203. The overall receptor sensitivity is determined by considering a combination of value, adaptability, tolerance, and recoverability, which is informed by published research and information on the status and sensitivity of the feature coupled with professional judgement and past experience.

204. The terms ‘high value’ and ‘high sensitivity’ are not necessarily linked, and it is important to ensure the significance of an effect is not inflated because a feature is valued. For example, a receptor

could be of high value, such as an Annex I habitat, but have a low or negligible physical/ecological sensitivity to an impact. In this case, the habitat's sensitivity should reflect its robustness and not its protected status.

4.5.3.3 Predicting Magnitude of Impact

205. The magnitude of change affecting a receptor that would result from the Bellrock Onshore Transmission Infrastructure will be identified on a scale ranging from minor alterations or change through to major changes or the total or substantial loss of the receptor. For certain environmental impacts, the magnitude of change is related to guidance on levels of acceptability (e.g. air quality or noise) and, therefore, based on numerical parameters. For other environmental impacts, professional judgement will be used to determine the magnitude of change, using descriptive terminology. The relevant guidance for each receptor is discussed in the technical chapters of this **Bellrock OnTDA Scoping Report**.

206. The magnitude and probability of an impact occurring will be established through consideration of:

- Scale or spatial extent (small scale to large scale or a few individuals to most of the population);
- Duration (short term to long term);
- Likelihood of impact occurring;
- Frequency; and
- Nature of change relative to the baseline.

207. The categorisation of magnitude of impact will vary for specific pathways, receptors and technical assessments. Example definitions of the magnitude levels are given in **Table 4.4.**

Table 4.4: Example Definitions of the Magnitude Levels for a Generic Receptor

Value	Definition
High	Fundamental, permanent/irreversible changes, over the whole receptor, and/or fundamental alteration to key characteristics or features of the particular receptor's character or distinctiveness.
Medium	Considerable, permanent/irreversible changes, over the majority of the receptor, and/or discernible alteration to key characteristics or features of the particular receptor's character or distinctiveness.
Low	Discernible, temporary (throughout project duration) change, over a minority of the receptor, and/or limited but discernible alteration to key characteristics or features of the particular receptor's character or distinctiveness.
Negligible	Discernible, temporary (for part of the project duration) change, or barely discernible change for any length of time, over a small area of the receptor, and/or slight alteration to key characteristics or features of the particular receptor's character or distinctiveness.

4.5.3.4 Evaluation of Significance of Effects

208. Once the technical chapters have defined the sensitivity of each receptor and the magnitude of potential impacts (based on expert judgement), the significance of effects matrix in **Table 4.5** is applied. This matrix will determine the significance of any effects. Effects can either be adverse, or beneficial. All technical chapters will apply the significance of effects matrix, unless otherwise specified in the technical chapters.

Table 4.5: Matrix for Evaluating the Significance of an Effect

Sensitivity	Magnitude				
	High	Medium	Low	Negligible	No Change
High	Major	Major	Moderate	Minor	No effect
Medium	Major	Moderate	Minor	Negligible	No effect
Low	Moderate	Minor	Minor	Negligible	No effect
Negligible	Minor	Negligible	Negligible	Negligible	No effect

209. In EIA terms, major and moderate adverse effects are generally considered to be significant and as such may require mitigation. Whilst minor effects are not considered significant on their own, they may contribute to significant effects cumulatively or through interactions. Each technical chapter sets out receptor-specific guidance that will be used to assess the significance of effects. Definitions for each level of significance are presented in **Table 4.6.**

Table 4.6: Definitions of Effect Significance

Effect Significance	Definition
Major	Very large or large change in receptor condition, both adverse or beneficial, which are likely to be important considerations at a regional or district level.
Moderate	Intermediate change in receptor condition, which are likely to be important considerations at a local level.
Minor	Small change in receptor condition, which may be raised as local issues but are unlikely to be important in the decision-making process.
Negligible	No discernible change in receptor condition.
No Effect	No change in receptor condition; therefore, no effect.

4.5.3.5 Identify Mitigation Measures and Monitoring

210. For each environmental topic, the EIA will reflect the mitigation hierarchy, whereby measures are identified to avoid, prevent, reduce or, where necessary, offset potential adverse effects (IEMA, 2024). In line with the approach advocated by IEMA, primary and tertiary mitigation are treated as

embedded mitigation measures which are integral to the design, construction, O&M or decommissioning of the Bellrock Onshore Transmission Infrastructure.

211. A distinction between 'potential effects' and 'residual effects' will only be made where secondary mitigation is required to reduce the severity of an effect. In such cases, the assessment in the technical chapters of the Bellrock Offshore Transmission Development Area (OfTDA) EIA Report will present the significance prior to the application of secondary mitigation and the residual effect following its implementation. This approach will ensure a clear and proportionate EIA Report.

212. The Institute of Sustainability and Environmental Professionals (ISEP) (formerly the Institute of Environmental Management and Assessment (IEMA)) issued the guidance 'Implementing the Mitigation Hierarchy from Concept to Construction' (IEMA, 2024), building upon 'Shaping Quality Development' and 'Delivering Quality Development' reports (IEMA, 2015 and 2016, respectively). In accordance with these documents, three types of mitigation will be identified and implemented within the EIA Report:

- **Primary mitigation:** Measures that are inherent components of the Bellrock Onshore Transmission Infrastructure and could include modifications to the location or design made during the pre-application phase (e.g. reduction in OnSS design footprint to minimise landscape and visual effects);
- **Secondary mitigation:** Measures that will require further activity to achieve the desired outcome. The effectiveness of these mitigation measures will be assessed within the EIA Report and an assessment of residual effects provided. Mitigation will be secured by a consent condition (e.g. the creation of new artificial bat roosts to replace a roost subject to loss or disturbance during construction); and
- **Tertiary mitigation:** Measures that would occur with or without input from the EIA, such as actions undertaken to meet other existing legislative requirements, or actions that are standard practices used to manage commonly occurring environmental effects. These measures are treated as an inherent part of the Bellrock Onshore Transmission Infrastructure (e.g. development and adherence to management plans, such as a CEMP).

213. Primary and tertiary mitigation are considered to be 'embedded' mitigation. The assessment of the likely significant environmental effects under the pre-mitigation scenario incorporates this embedded mitigation when determining the magnitude of change.

214. Following assessment of the likely significant effects of the Bellrock Onshore Transmission Infrastructure, any further mitigation measures (secondary mitigation) will be outlined within the individual chapters of the Bellrock OnTDA EIA Report. These mitigation measures will further mitigate a negative effect or enhance a positive effect.

215. Where the mitigation proposed is a management or mitigation plan, the Bellrock OnTDA EIA Report will set these plans out in sufficient detail to enable the significance of the residual effect to be assessed and evaluated. This will include identification of any monitoring and remedial actions, if required, in the event that the predicted residual effects differ to monitored outcomes.

216. The EIA Regulations require, where appropriate, the monitoring of potential significant adverse effects. Where monitoring arrangements are proposed as part of the mitigation set out, this will be detailed within each of the technical chapters of the Bellrock OnTDA EIA Report, and the results of any monitoring will be shared with the relevant stakeholders as appropriate.

217. Environmental mitigation and monitoring measures will also be recorded in the Bellrock OnTDA EIA Report through a Mitigation and Monitoring Register detailing the process to enable each mitigation measure to be secured, where required, and implemented. Opportunities will be provided for stakeholders to provide feedback on the mitigation commitments as part of the planned stakeholder engagement and during Aberdeenshire Council's post-application consultation process. **Appendix B: Mitigation and Monitoring Register (Volume 1)** sets out the embedded mitigation measures already committed to in this **Bellrock OnTDA Scoping Report**.

218. A draft of the following standalone management plans will be submitted alongside the Bellrock OnTDA PPP Application:

- Outline Biodiversity Enhancement Plan
- Outline CEMP;
- Outline CTMP;
- Outline Drainage Impact Assessment;
- Outline Landscape Plan;
- Outline Woodland Compensatory Planting Plan; and
- Outline Written Scheme of Investigation and Protocol for Archaeological Discoveries.

219. Full versions of these plans will be subject to planning condition, and be provided in the Application for Approval of MSC. Further plans will be added during the development of the EIA Report, as required. Additional detail on the provisional list is provided in **Appendix B: and Monitoring Mitigation Register (Volume 1)**.

4.5.3.6 Assessment of Residual Effects

220. Following the Application of any necessary secondary mitigation measures to reduce the severity of potential negative effects, the significance of residual effects will be assessed for each potential impact following the guidance outlined above in **Section 4.5.3.4**.

4.5.4 Transboundary Effects

221. Transboundary effects arise when impacts from a development within one European Economic Area (EEA) state's territory significantly affects the environment or interests of another EEA state(s). The EIA Directive, and thus the relevant EIA Regulations, requires the assessment of transboundary effects.

The Bellrock OnTDA is not expected to have any transboundary effects and, therefore, these will not be considered further within this **Bellrock OnTDA Scoping Report** and will be scoped out of all chapters of the Bellrock OnTDA EIA Report.

4.5.5 Inter-related Effects

222. Inter-related effects refer to the inter-relationships between EIA topics and interactions between impacts which may result in different or greater environmental effects than when considered in isolation. This provides a holistic understanding of potential impacts holistically at a wider ecosystem scale.

223. The inter-relationships between different EIA topics may result in greater in-combination environmental effects. The Bellrock OnTDA EIA Report will consider the potential for:

- Impacts identified across different EIA chapters interacting to affect a single receptor. There is potential for separate impacts to interact, spatially and temporally and to create inter-related effects on a receptor.
- Impacts identified within each EIA chapter interacting with one another, potentially giving rise to synergistic effects from those interactions. Where impacts assessed in each chapter have the potential to interact with one another, impacts will be assessed relative to each development phase. A 'lifetime assessment' will subsequently be undertaken, where necessary, to consider the potential for impacts to affect receptors across all development phases.

4.6 Approach to the Bellrock OnTDA Whole Project Assessment

224. The whole Bellrock Project encompasses infrastructure and associated activities from the Bellrock Wind Farm Development Area (WFDA) to the proposed grid connection at the Hurlie substation via the Bellrock OfTDA and OnTDA. As discussed in **Chapter 1: Introduction**, the Bellrock Project is being considered as three separate applications with associated EIAs for:

- The Bellrock WFDA for the Wind Farm Infrastructure;
- The Bellrock OfTDA for the Offshore Transmission Infrastructure; and
- The Bellrock OnTDA for the Onshore Transmission Infrastructure.

225. The Bellrock OnTDA and Bellrock OfTDA share an overlapping footprint, with land between MHWS and MLWS covered by both applications. The Bellrock OnTDA and Bellrock WFDA do not overlap.

226. The Bellrock OnTDA Whole Project Assessment[21] will consider whether interactions between the Bellrock Onshore Transmission Infrastructure (i.e. the 'principal development') and the Bellrock Offshore Transmission Infrastructure and/or the Bellrock Wind Farm Infrastructure (i.e. the

[21] The Applicant is aware of forthcoming guidance on the approach Whole Project Assessment in EIA due to be published in 2027. The Applicant will adhere to any guidance published in advance of submission of the EIA Report.

'associated development') have the potential to alter the magnitude of impacts or significance of effects identified in the Bellrock OnTDA-alone assessment. The Bellrock OnTDA Whole Project Assessment does not repeat the assessment of the Bellrock Wind Farm Infrastructure or the Bellrock Offshore Transmission Infrastructure undertaken, or to be undertaken, through their respective consenting processes.

227. This approach is consistent with the relevant EIA Regulations, which make provision for a multi-stage consent process, including circumstances where the likely significant effects of a project are not fully identifiable at the point at which an application for consent is determined. This allows the potential effects of different component parts of a project to be assessed as further information and detail becomes available.

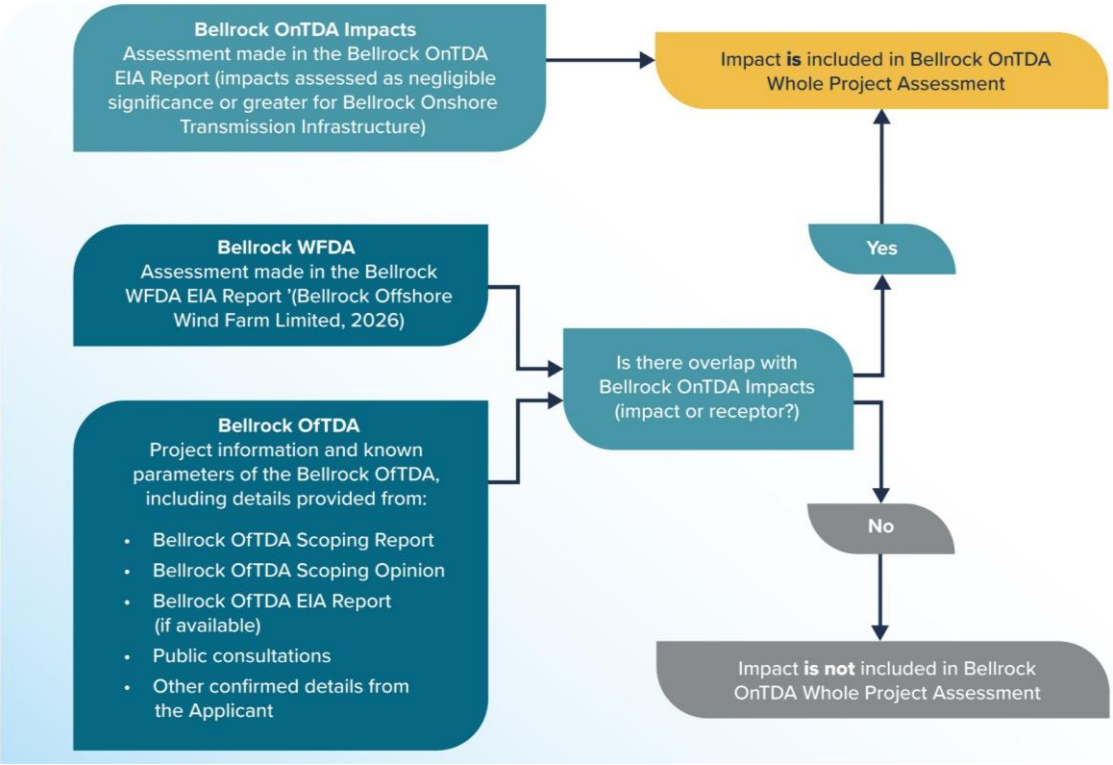
228. Consent for the Bellrock Wind Farm Infrastructure has already been sought through a Section 36 Consent and Marine Licence Application, submitted in April 2026 (Bellrock Offshore Wind Farm, 2026). A Marine Licence will be sought for the Bellrock Offshore Transmission Infrastructure under the Marine and Coastal Access Act 2009 and the Marine (Scotland) Act 2010. The **Bellrock OfTDA Scoping Report** for the Bellrock Offshore Transmission Infrastructure was submitted to MD-LOT on 14 August 2026.

229. The Bellrock OnTDA Whole Project Assessment will be undertaken through a targeted review and assessment process. The OnTDA-alone assessment will provide the starting point for the Bellrock OnTDA Whole Project Assessment. All impacts identified through the Bellrock OnTDA-alone assessment with a significance of effect of negligible or greater will be reviewed for consideration within the Bellrock OnTDA Whole Project Assessment.

230. The review will consider whether there is a potential interaction between the relevant Bellrock Onshore Transmission Infrastructure impact and the Bellrock Wind Farm Infrastructure and/or the Bellrock Offshore Transmission Infrastructure that could alter the magnitude of the impact or significance of effect identified in the Bellrock OnTDA-alone assessment. The review will consider the nature, spatial extent, and temporal characteristics of the impact and any relevant interaction.

231. Refer to **Plate 4.3** for the Bellrock OnTDA Whole Project Assessment review process.

Plate 4.3: Bellrock Onshore Transmission Development Area Whole Project Assessment Review Process Flow Diagram



232. Impacts and interactions from the Bellrock Wind Farm Infrastructure and the Bellrock Offshore Transmission Infrastructure relevant to the Bellrock Onshore Transmission Infrastructure impact pathway under consideration will be informed using:

- Information from the **Bellrock WFDA EIA Report**; and
- Available project information relating to the Bellrock OfTDA, such as the **Bellrock OfTDA Scoping Report**, the Bellrock OfTDA Scoping Opinion, information presented at public exhibitions, and other confirmed project information available six months prior to submission of the Bellrock OnTDA EIA Report.

233. The **Bellrock WFDA EIA Report** and Bellrock OfTDA project information will therefore inform the screening of the Bellrock OnTDA-alone impacts within the Bellrock OnTDA Whole Project Assessment.

234. Where no potential interaction has been identified, or where an identified interaction is not considered capable of influencing the magnitude of the impact or significance of effect identified in the Bellrock OnTDA-alone assessment, the impact will not be taken forward to the Bellrock OnTDA Whole Project Assessment and the conclusions of the Bellrock OnTDA-alone assessment will remain unchanged. Where an interaction has the potential to alter the magnitude of the impact or significance of effect, the impact will be taken forward for further consideration within the Bellrock OnTDA Whole Project Assessment.

235. This approach will ensure that, in relation to impacts arising from the Bellock Onshore Transmission Infrastructure, the relevant interactions with the Bellrock Wind Farm Infrastructure and the Bellrock Offshore Transmission Infrastructure are considered.

236. The scope of the Bellrock Project does not include consideration of port activities related to the construction and operation of the Bellrock Wind Farm Infrastructure and the Bellrock Offshore Transmission Infrastructure (e.g. offshore substation assembly). These will be subject to separate consenting process(es) where required. Where such activities require separate planning permission or Marine Licence(s), they will be accompanied by any environmental assessment or appraisal required under the relevant legislation. Accordingly, these activities will be considered within the CEA (see **Section 4.7**).

4.6.1 Bellrock Project Assessment for Greenhouse Gases

237. The greenhouse gas assessment differs from the Bellrock OnTDA Whole Project Assessment approach described in **Section 4.6**. For this topic, a Bellrock Project assessment is undertaken, encompassing the whole Bellrock Project (i.e. the WFDA, OfTDA, and OnTDA combined). Further details are provided in **Chapter 16: Greenhouse Gas Assessment**.

238. During preparation of the **Bellrock WFDA EIA Report**, it was possible to identify the likely significant effects of the Bellrock Project as a whole for the greenhouse gas assessment. Accordingly, a Bellrock Project Whole Project Assessment was undertaken for this topic. This Bellrock Project Whole Project Assessment will be updated in the Bellrock OnTDA and OfTDA EIA Reports to reflect refinements to the PDEs for each Development Area.

239. For all other technical topics, the **Bellrock WFDA EIA Report** considered the relationship and potential interactions between the Bellrock Wind Farm Infrastructure, the Bellrock Offshore Transmission Infrastructure and the Onshore Transmission Infrastructure. As the landfall location and offshore export cable corridor were still being defined in the site selection process, these assessments were undertaken using a PDE and realistic worst-case parameters.

4.7 Approach to Cumulative Effects Assessment

240. Schedule 4 of the Town and Country Planning (EIA) (Scotland) Regulations 2017 require that cumulative effects of the development should be described in the Bellrock OnTDA EIA Report. Planning Circular 1/2017 (Scottish Government, 2017) and PAN 1/2013 (Scottish Government, 2013) also set out this requirement. There is currently no specific Scottish guidance on the methodological framework for assessing cumulative effects in general. PAN 1/2013 acknowledges that:

"*assessment methods for cumulative impacts and interactions vary"* and that it is a *"matter of professional judgement to ensure the relevant projects and activities – and their environmental effects – are identified, taking into account the circumstances of the individual proposal and its location*".

241. The CEA is essential to identify other reasonably foreseeable plans, projects or activities with which the Bellrock Offshore Transmission Infrastructure may interact, resulting in cumulative effects.

Cumulative effects may arise from all phases (construction, O&M, and decommissioning) of the Bellrock Offshore Transmission Infrastructure.

242. The CEA for the Bellrock Onshore Transmission Infrastructure will be undertaken in accordance with the relevant guidance set out in **Section 4.2,** specifically the Planning Inspectorate (2024)[22].

243. The CEA will be considered in two stages:

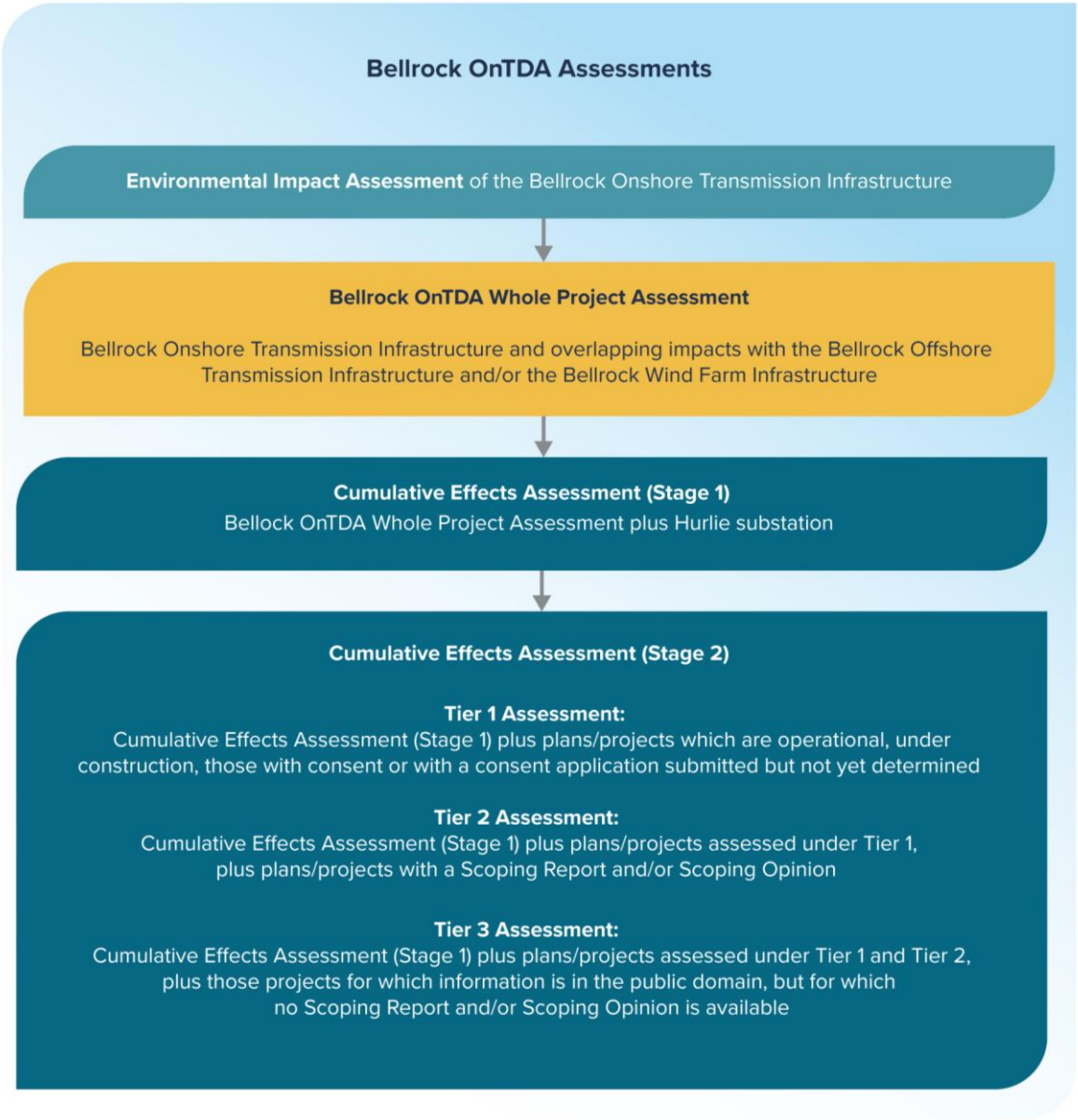
- **Stage 1**: Cumulative effects with the Hurlie substation (**Section 4.7.1**);
- **Stage 2**: Cumulative effects with the Hurlie substation and other plans and projects (**Section 4.7.2**).

244. Generally, Stage 1 of the CEA will consider impacts identified during the Bellrock OnTDA Whole Project Assessment, as described in **Section 4.6** (see **Plate 4.2**), alongside impacts arising from the Hurlie substation. Stage 2 will include a cumulative effects screening exercise (**Section 4.7.2.1**) and consider impacts from Stage 1 with other reasonably foreseeable plans, projects, and activities to identify where cumulative effects may occur.

245. The stages of the CEA are shown in **Plate 4.4** below.

[22] This guidance is considered most robust and appropriate for the Bellrock OnTDA, in the absence of the Cumulative Effects Framework. Whilst this advice relates to nationally significant infrastructure projects in England and Wales, it nevertheless provides useful guidance on assessing cumulative effects for any large-scale project.

Plate 4.4: Bellrock OnTDA Assessments



4.7.1 Stage 1: Cumulative Effects with the Hurlie Substation

246. The first stage of the CEA will consider the cumulative effects as a result of the Bellrock OnTDA Whole Project Assessment and the Hurlie substation. As the Bellrock Project's grid connection point, yet a project which remains in development at the time of writing and which will not be constructed at the time of submission of the Bellrock OnTDA EIA Report, the cumulative effects arising from the development of the Hurlie substation will be described separately from those arising from other plans or projects.

247. The CEA methodology will follow the methodology described in **Section 4.5**, where possible, for consistency throughout the EIA. Where potential cumulative environmental effects have been identified, these will be considered further in the Bellrock OnTDA EIA Report.

248. The outputs from the CEA Stage 1 will be provided within the Bellrock OnTDA EIA Report, to allow stakeholders to understand the cumulative effects of developing the Bellrock Project and the Hurlie substation.

4.7.2 Stage 2: Cumulative Effects with the Hurlie Substation and Other Plans and Projects

249. The second stage of the CEA will consider the cumulative effects as a result of the Bellrock OnTDA Whole Project Assessment and the Hurlie substation. The second stage will comprise of two sub-stages:

- **Stage 2.1**: Cumulative effects screening (**Section 4.7.2.1**); and
- **Stage 2.2**: Cumulative effects assessment (**Section 4.7.2.2**).

4.7.2.1 Stage 2.1: Cumulative Effects Screening

250. For the purposes of the CEA, and in accordance with the relevant guidance documents (set out in **Section 4.2**), the criteria of other plans or projects considered in the assessment will include:

- Already constructed;
- Under construction;
- Permitted application(s), but not yet implemented;
- Submitted application(s) not yet determined; and
- Plans and projects which are 'reasonably foreseeable', including any proposed project that has submitted a Scoping Report up to six months[23] prior to the Bellrock OnTDA PPP Application date.

251. The initial 'long list' of plans or projects will be developed based on the above criteria, and will be screened for each potential impact-receptor pathway using the following process:

- **Conceptual overlap:** an impact-receptor pathway (in EIA terms) refers to an impact that has the potential to directly or indirectly affect the receptor(s) in question;
- **Physical overlap:** the potential for impacts arising from the Bellrock Onshore Transmission Infrastructure to overlap with those from other plans or projects on a receptor basis. A cumulative effect can only arise where the physical extents of the impacts arising from two (or more) projects or plans overlap. Exceptions apply for certain mobile receptors that are potentially subject to impacts from multiple plans or projects; and

[23] Six months will be used as the cut off period, however, updated information from other plans and projects within the six-month cut off may be considered by the Applicant, depending on programme.

- **Temporal overlap:** for a cumulative effect to occur between two or more plans or projects, there must be a temporal overlap of impacts arising from each. Some impacts are only present during specific development phases (e.g. dust generated by earthworks). However, the absence of a strict temporal overlap with another plan or project does not necessarily preclude cumulative effects, as effects may extend beyond the construction, operation or decommissioning phases of a project.

252. The cumulative effects screening stage will be undertaken by experienced specialists in accordance with current guidance and best practice. Following a review of the resulting long list, the remaining projects and/or plans will be progressed to the assessment stage. The refined short list will be agreed and finalised in consultation with stakeholders and Aberdeenshire Council as part of ongoing the post-scoping consultation.

4.7.2.2 Stage 2.2: Cumulative Effects Assessment

253. At the assessment stage, information is compiled on plans or projects carried forward from the screening stage. Where a likely significant effect (as defined by the EIA Regulations) from the Bellrock Onshore Transmission Infrastructure alone is assessed as negligible, or where an effect is predicted to be highly localised, it will not be included in the Bellrock OnTDA CEA, as it is considered that there is no potential for cumulative effects with other plans or projects.

254. Stage 2.2 of the CEA for the Bellrock Onshore Transmission Infrastructure will use a tiered approach to provide a framework for assigning relative weight to each plan or project included in the CEA. This weighting will be based upon the project's stage of maturity and certainty of its design or effects. Projects or plans will be assessed in Stage 2.2 using the following tiers:

- **Tier 1 assessment:** the Bellrock Project (OnTDA impacts only), plus plans and projects which are operational, under construction, with consent, or submitted but not yet determined;
- **Tier 2 assessment:** the Bellrock Project (OnTDA impacts only), plus all plans and projects assessed under Tier 1, as well as those projects with a Scoping Report and/or Scoping Opinion; and
- **Tier 3 assessment:** the Bellrock Project (OnTDA impacts only), plus includes all plans and projects assessed under Tier 1 and Tier 2, as well as those projects for which information is in the public domain, but for which no Scoping Report/Opinion is available.

255. All other relevant plans or projects that are in the public domain six months prior to submission of the Bellrock OnTDA Application will be considered in the CEA in line with the tier system.

256. The CEA methodology will follow the methodology described in **Section 4.5**, where possible, for consistency throughout the EIA. Where potential cumulative environmental effects have been identified, these will be considered further in the Bellrock OnTDA EIA Report.

257. The outputs from the CEA Stage 2 will be provided within the Bellrock Project EIA Report, to allow stakeholders to understand the cumulative effects of developing the Bellrock Project and the Hurlie substation.

258. It is expected that the following activity types will be considered in the CEA of the Bellrock OnTDA based on maximum Zone of Influences identified from the relevant technical assessments set out within this **Bellrock OnTDA Scoping Report**:

- Electricity generation, storage and transmission infrastructure;
- Port and coastal development;
- Transport infrastructure;
- Other utilities; and
- Housing.

4.8 Related Environmental Assessments

4.8.1 Habitats Regulation Appraisal

259. A HRA is a precautionary, rigorous, and legally binding procedure to protect Scotland's European Sites including Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), which form part of the UK's National Site Network. The HRA considers the potential for likely significant effects arising from a plan or project that could affect the integrity of the National Site Network and their associated qualifying features. A HRA is required under The Conservation (Natural Habitats, &c.) Regulations 1994 (the 'Habitats Regulations'), and may comprise up to nine stages (NatureScot, 2023). Full details of the HRA process and the outcome of the HRA Screening process are provided in the **Bellrock OnTDA HRA Screening Report (Volume 2).**

4.9 Structure and Content of the Environmental Impact Assessment Report

260. As outlined in **Section 1.4**, consent will be sought for the Bellrock Onshore Transmission Infrastructure. The consent application will be accompanied by the Bellrock OnTDA EIA Report, which will present an assessment of likely significant effects on the environment.

261. The Bellrock OnTDA EIA Report will be submitted in a series of volumes as shown in **Plate 4.5**, and as described below:

- **Volume 1: EIA Report Non-technical Summary (NTS) –** The consent application will be accompanied by a NTS, presenting the key findings of the EIA in a clear and concise format;
- **Volume 2: EIA Report Chapters –** A series of documents presenting the introductory chapters and the impact assessment technical chapters of the Bellrock OnTDA. The impact assessment chapters will be based on the maximum PDE and, therefore, the realistic worst-case scenario for each technical receptor.
  - Each impact assessment chapter will present the assessment of the Bellrock Onshore Transmission Infrastructure.

  - The Bellrock OnTDA Whole Project Assessment will consider effects arising from the development of the Bellrock OnTDA, OfTDA and WFDA together.
  - The CEA will consider the effects arising from the Bellrock OnTDA, OfTDA and WFDA cumulatively with other relevant plans, projects, and activities (as set out in **Section 4.7**).

- **Volume 3: EIA Report Figures –** A series of documents presenting the figures supporting the Bellrock OnTDA EIA;
- **Volume 4: EIA Report Appendices –** A single document, presenting technical appendices supporting the Bellrock OnTDA EIA;
- **Volume 5: Management Plans –** Multiple documents of full and outline plans to support the Bellrock OnTDA Application; and
- **Volume 6: Habitats Regulations Appraisal Report to Inform Appropriate Assessment (RIAA) –** (If required) a single RIAA informing the second stage of the HRA for the Bellrock OnTDA.

Plate 4.5: Structure of the Bellrock OnTDA EIA Report and Supporting Documentation to the Application



4.10 Scoping Questions to Consultees

262. The following questions are posed to consultees to help frame and focus their response to the proposed scoping approach and EIA methodology for the Bellrock OnTDA, and which would in turn inform the EIA:

- Do you agree with the proposed methodology for identifying and assessing significant effects?
- Do you agree that there are no transboundary effects associated with the Bellrock OnTDA and that these should be scoped out?
- Do you agree with the definition of Bellrock OnTDA 'Whole Project' for the Bellrock Project?
- Do you agree that the proposed methodology for assessing cumulative effects is appropriate for identifying significant effects?
- The Applicant proposes to have a six-month cut-off for any projects/plans to be considered quantitatively in the CEA. Do you agree that this is suitable?
- Do you agree with the inclusion criteria for the other plans or projects to be assessed in the CEA?
- Do you agree with the proposed approach to assessing the cumulative effects arising from the development of the Bellrock Onshore Transmission Infrastructure and the Hurlie substation, i.e. as the first stage of the CEA, followed by a second stage including the Hurlie substation plus all other relevant plans or projects? Please note that in the proposed approach, the Hurlie substation would not be included in the baseline (as it is not yet under construction) but would be considered in full using the information available in the public domain within the CEA.
- Do you agree with the proposed approach for HRA?
- Do you agree in principle with the provisional list of outline/full management plans listed in **Section 4.5.3.5** and detailed in **Appendix B: Mitigation and Monitoring Register (Volume 1)** to be included within the EIA?

4.11 References

Institute of Environmental Management and Assessment (IEMA) (2015) Shaping Quality Development.

Institute of Environmental Management and Assessment (IEMA) (2016) Delivering Quality Development. Available at: https://s3.eu-west-2.amazonaws.com/iema.net/documents/knowledge/policy/impact-assessment/Delivering-Quality-Development.pdf

Institute of Environmental Management and Assessment (IEMA) (2024) IEMA Guidance: Implementing the Mitigation Hierarchy from Concept to Construction. Available at: https://www.isepglobal.org/resources/blogs/2024/08/isep-guidance-implementing-the-mitigation-hierarchy-from-concept-to-construction/

Scottish Government (2013) Planning Advice Note (PAN) 1/2013 Environmental Impact Assessment. Available at: https://www.gov.scot/publications/planning-advice-note-1-2013-environmental-impact-assessment/

Scottish Government (2022) Planning Circular 3/2022: Development Management Procedures). Available at: https://www.gov.scot/publications/planning-circular-3-2022-development-management-procedures/

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5 Landscape and Visual Impact

5.1 Introduction

263. This Chapter of the **Bellrock Onshore Transmission Development Area (OnTDA) Scoping Report** considers the potential impacts on landscape and visual receptors associated with the construction, operation and maintenance (O&M) and decommissioning of the Bellrock Onshore Transmission Infrastructure. The landscape and visual impact assessment (LVIA) considers effects on:

- Landscape as a resource in its own right (caused by changes to its constituent elements, its specific aesthetic or perceptual qualities and/or its character); and
- Views and visual amenity as experienced by people (caused by changes in the appearance of the landscape).

264. The Bellrock OnTDA Scoping Boundary (shown in **Figure 1.1 (Appendix A (Volume 1))**) defines the area within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process (as discussed in **Section 1.4** in **Chapter 1: Introduction**) to form the boundary of the Bellrock OnTDA Planning Permission in Principle (PPP) Application.

265. For the purposes of this **Bellrock OnTDA Scoping Report**, the Bellrock OnTDA Scoping Boundary encompasses the anticipated Onshore Transmission Infrastructure and associated activities for the Bellrock OnTDA landward of Mean Low Water Springs (MLWS). The Bellrock OnTDA Scoping Boundary overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) between Mean High Water Springs (MHWS) and MLWS.

266. The Bellrock Onshore Transmission Infrastructure includes:

- **Landfall**: located at Cowie, Aberdeenshire, where between two and six ducts are installed using trenchless techniques, allowing the offshore export cables to be brought ashore and connected to onshore export cables within the transition joint bay;
- **Onshore export cables**: up to six underground High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) onshore cable circuits, each up to 18 km in length, installed between landfall and the onshore substation;
- **Onshore substation (OnSS)**: electrical equipment (such as converters, transformers, switchgear, and protection and control systems) enabling renewable electricity from the Bellrock Wind Farm Development Area (WFDA) received via the onshore export cables to be exported to the National Electricity Transmission System, and ancillary infrastructure; and
- **Hurlie substation connection works**: Infrastructure between the Bellrock OnSS to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the National Electricity Transmission System.

267. In addition, associated works are required to facilitate construction and O&M of the Onshore Transmission Infrastructure, including: access, signage, haul roads, spoil storage, material storage, fencing, borrow pits (if any), earthworks, welfare, security, landscape mitigation, ecological mitigation, biodiversity enhancement, operational lighting and drainage.

268. As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Wind Farm Infrastructure (located within the Bellrock Wind Farm Development Area (WFDA)) was presented in the **Bellrock WFDA EIA Report**, which was submitted in support of the Section 36 Consent and Marine Licence Application for the Bellrock Wind Farm Infrastructure in April 2026 (Bellrock Offshore Wind Farm Limited, 2026a). The **Bellrock WFDA EIA Report** considered the potential impacts and subsequent effects of the Bellrock Wind Farm Infrastructure on the environment. An EIA Scoping Report for the Bellrock Offshore Transmission Infrastructure was also submitted to Scottish Ministers on 17 August 2026 (Bellrock Offshore Wind Farm Limited, 2026b) with an EIA Report in support of the Marine Licence Application proposed to be submitted by the end of 2027.

269. This Chapter of the **Bellrock OnTDA Scoping Report** provides an overview of the existing environment and sets out the proposed methodology and approach to assessing effects on landscape and visual receptors within the Bellrock OnTDA EIA Report. This Chapter has been prepared by Land Use Consultants (LUC).

270. This Chapter should be read in conjunction with the following chapters of the **Bellrock OnTDA Scoping Report**:

- **Chapter 8: Land Use and Agriculture;**
- **Chapter 9: Onshore Ecology and Nature Conservation;**
- **Chapter 10: Onshore Ornithology;**
- **Chapter 11: Onshore Archaeology and Cultural Heritage;**
- **Chapter 13: Noise and Vibration;** and
- **Chapter 15: Socioeconomics, Tourism and Recreation.**

271. This Chapter is likely to have key inter-relationships with the above receptors, which will be considered appropriately, where relevant, in the Bellrock OnTDA EIA Report.

5.2 Legislation, Policy and Guidance

272. **Table 5.1** sets out the legislation, policy and guidance documents that will be considered in the preparation of the LVIA, where appropriate. The overarching legislation relevant to the Bellrock Onshore Transmission Infrastructure is described in **Chapter 2: Legislative and Policy Context**.

Table 5.1: Summary of Relevant Legislation, Policy and Guidance for the LVIA

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Legislation	
Town and Country Planning (Scotland) Act (1997)	Principal legislative framework for Scotland's planning system, requiring material considerations to be taken into account in the preparation of development plans and the determination of development proposals.
The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017	Schedule 4 states that the description of the likely significant effects should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.
Policy	
National Planning Framework 4 (NPF4) (Scottish Government, 2023)	Sets out policies in relation to proposed *"renewable energy development onshore and offshore"*, including effects on landscape and visual receptors. The key references are: ▪ **Policy 4: Natural places**, which sets out protections to be applied to, among other things, national and local landscape designations; ▪ **Policy 6: Forestry, woodland and trees**, which sets out protections for existing woodland, the requirement for compensatory planting where woodland is removed, and the requirement for planting of new trees where there are enhancement opportunities; ▪ **Policy 11: Energy**, which identifies criteria against which energy infrastructure consents will be considered, including its effect on landscape character and visual amenity; and ▪ **Policy 14: Design, quality and place**, which promotes a design-led approach, and that development proposals should be consistent with the six qualities of successful places.
Aberdeenshire Local Development Plan (Aberdeenshire Council, 2023)	The current development plan contains provisions relevant to the onshore LVIA. The following are considered relevant: ▪ **Policy E2: Landscape** notes that an LVIA may be required to assess the effects on the landscape; and ▪ **Appendix 13: Special Landscape Areas**, addresses local landscape designations and landscape character.
Aberdeenshire Local Development Plan. Appendix 13 Aberdeenshire Special Landscape Areas (Aberdeenshire Council, 2023)	Areas identified in the Aberdeenshire Local Development Plan 2023, as areas that exhibit "*particular qualities and characteristics within them that are valued locally*".

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Guidance	
Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3) (Landscape Institute/ Institute of Environmental Management and Assessment, 2013)	Industry standard guidance on approach to undertaking assessment of effects of development on landscape and visual receptors.
Visual Representation of Development Proposals (LITGN-06-19) (Landscape Institute, 2019)	Provides guidance on preparing and presenting visualisations, such as photomontages, which are used to support LVIA.
Landscape Character Types Map and Descriptions (NatureScot, 2019)	National landscape character assessment published in 2019. Describes areas of consistent and recognisable landscape character and key characteristics for each.
Notes and Clarifications on Aspects of GLVIA3 (LITGN-2024-01) (Landscape Institute, 2024)	Consolidates and updates official clarifications on the application and interpretation of GLVIA3, to be read alongside GLVIA3.
Assessing Landscape Value Outside National Designations (LITGN-02-21) (Landscape Institute, 2021)	Provides a framework for identifying and assessing landscape value beyond nationally designated landscapes.
Assessing the cumulative landscape and visual impact of onshore wind energy developments (NatureScot, 2021)	Provides guidance on identifying, assessing and reporting the cumulative landscape and visual effects of development. Although focused on wind farms, the advice is widely applied to other types of development.

5.3 Consultation

273. Consultation with Aberdeenshire Council has been undertaken, including engagement through the Council's Pre-application Advice service. A summary of consultation activities undertaken to date is provided in **Table 5.2.**

Table 5.2: Consultation Relevant to LVIA

Consultee	Date/Document	Comment	How Comment Has Been Addressed
Aberdeenshire Council	11 June 2026 Meeting Notes	Borrow pits should be considered in the EIA Report, and visualisations should be considered for temporary works, where appropriate.	Temporary visual effects have been considered in **Sections 5.6.1** and **5.6.3.**
Aberdeenshire Council	23 July 2026 Meeting Notes	Initial response from the landscape officer regarding potential cumulative effects alongside the proposed Hurlie and Bowdun substations, and potential effects of the onshore works [*further detail is provided in Pre-application Advice received on 19 August 2026, as detailed below*].	Cumulative effects have been considered in **Section 5.6.5**.
Aberdeenshire Council (Landscape Consultant)	19 August 2026 Pre-application Advice letter	*"It is presumed that [an Offshore Reactive Compensation Station] would be needed if a HVDC convertor station was not included on the onshore substation site. HVDC convertor stations are usually significantly larger than AC stations (possibly up to 30m compared to 14-18m height). This would be noticeably larger than the buildings on the Hurlie and Bowdun substation sites and this, in combination with the higher elevation of the Hill of Swanley site, would be likely to substantially increase intrusion. It is therefore strongly advisedthat building heights should be minimised and that this is likely to preclude an onshore HVDC convertor station."*	As outlined in **Section 3.4** of **Chapter 3: Project Description**, both HVAC and HVDC transmission infrastructure is being considered at this early stage of project design. The advice provided will be taken into account as part of the ongoing design refinement, alongside other relevant considerations.
		"*Cumulative landscape and visual effects of multiple onshore works associated with offshore wind farms are a key concern. This relates to not just the more visible substation components of these developments but also the construction phases of landfall and underground cable works on local communities.*"	Potential impacts on both landscape and visual receptors during the construction, O&M and decommissioning phases of the landfall and installation of the onshore export cables will be included in the LVIA, as detailed in in **Sections 5.6.1 - 5.6.3**. The cumulative effects assessment (CEA) will consider effects on landscape and visual receptors during construction, O&M and decommissioning phases, as detailed in in **Section 5.6.5**.
		"Consideration should be given to the Bowdun and Aspen wind farm onshore works as well as the Hurlie substation. Incremental erosion of woodland and field boundary features	The approach to scoping in projects for consideration in the CEA is set out in **Section 4.7** of **Chapter 4: Approach to Scoping and Environmental Impact Assessmen**t. The final list of projects to be considered will be determined in consultation with Aberdeenshire Council in advance of the submission of the PPP Application. However, it is

Consultee	Date/Document	Comment	How Comment Has Been Addressed
		such as stone walls to accommodate cables are a concern, especially given the sparsity of trees in this coastal landscape. *Design of the landfall and cable route should avoid these features as far as possible. It is recommended that given the proximity of the Aspen onshore works, developers should seek to work together to share cable routes between the coast and the Fetteresso Forest area and coordinate construction timescales."*	anticipated that this will include consideration of the Bowdun Offshore Wind Farm and Aspen Offshore Wind Farm onshore works; the Hurlie substation; the Tealing to Kintore 400kV Overhead line (OHL) and the Glendye Wind Farm OHL. Woodland and field boundary features (such as stone walls) will be considered in the siting of the landfall and onshore export cable route during ongoing design refinement. The Applicant is undertaking ongoing engagement with other developers to identify and explore opportunities for coordination and collaboration, where appropriate, to support the efficient delivery of infrastructure and the management of potential impacts.
		"Answers to the questions set out in the Applicant's presentation in relation to LVIA: *1. An LVIA Study Area of 10km should be used for the substation site and 5km from the cable and landfall works."*	The study area of 10 km for the OnSS and 5 km for the onshore export cables and landfall works are considered to be disproportionate to the scale and nature of the proposed Onshore Transmission Infrastructure, as even where visibility has the potential to extend beyond 5 km of the OnSS, significant landscape and visual effects are unlikely to extend over such distances. Therefore, we propose a 5 km study area around the OnSS and a 1 km study area from the Bellrock OnTDA PPP Application boundary, representing the area of temporary works, as outlined in **Section 5.4.1**. A 5 km study for the OnSS would also be commensurate with the approach agreed between SSEN Transmission and Aberdeenshire Council for the Hurlie substation project, which is larger than the proposed Bellrock OnSS.
		"Answers to the questions set out in the Applicant's presentation in relation to LVIA: *2. The LVIA representative viewpoints for the substation site are satisfactory although additional viewpoints should be included at Annamuick (GR 379543 784802) and Hill of Swanley (GR 381241 787268) to fully inform the assessment of cumulative effects associated with multiple substations in Fetteresso Forest (and also in combination with the Tealing to Kintore 400kV OHL and the Glen Dye Wind Farm OHL affecting residential receptors to the southwest). More*	Viewpoints will be microsited based on the final location of the OnSS presented within the PPP Application, and will represent a realistic worst-case scenario. The current list of proposed viewpoints outlined in **Section 5.4.3.3** is considered adequate to assess effects from the OnSS and cumulatively with other projects. The additional viewpoints suggested at Annamuick and Hill of Swanley are anticipated to have minimal or obscured visibility of the OnSS. The viewpoints suggest are anticipated to provide a better representation of potential views, based on the OnSS areas of search being considered at this stage.

Consultee	Date/Document	Comment	How Comment Has Been Addressed
		viewpoints should also be provided along the route of the underground cable."	Up to three viewpoints may be selected along the onshore export cable corridor - these will be selected in consultation with Aberdeenshire Council once the onshore export cable corridor to be adopted within the PPP Application is confirmed (see **Section 5.4.3.3**).
		"Answers to the questions set out in the Applicant's presentation in relation to LVIA: *3. The Applicant should provide photomontages showing the broad massing of the largest buildings/structures on the substation site (the visualisations produced for the Bowdun wind farm onshore works are good examples). Annotated photographs showing the alignment of the underground cable route and clearances should be provided, again the visualisations produced for the Bowdun Wind Farm Onshore Works are good examples."*	Annotated photomontages of the OnSS and indicative onshore export corridor will be provided, in line with NatureScot standards and GLVIA3 guidance (see **Section 5.7**). The Applicant will engage further with Aberdeenshire Council during preparation of the photomontages.
		"Answers to the questions set out in the Applicant's presentation in relation to LVIA: *4. The proposed Hurlie substation should be considered to form the baseline for the LVIA."*	The proposed approach to the CEA is set out in **Section 4.7** of **Chapter 4: Approach to Scoping and Environmental Impact Assessmen**t. The CEA is a two-staged approach, with the first stage assessing the impacts as a result of the Bellrock OnTDA Whole Project Assessment (**Section 4.6**) together with the Hurlie substation. The second stage will assess the impacts as a result of the Bellrock OnTDA Whole Project Assessment together with the Hurlie substation, plus impacts arising from other reasonably foreseeable plans and projects where there is conceptual, spatial, and/or temporal overlap. This will determine the potential for cumulative impacts and subsequent cumulative effects on landscape and visual receptors. This two-staged approach provides for a robust CEA which allows for the assessment of effects as a result of the Bellrock OnSS with the Hurlie substation Project, and alongside other plans and projects.
		"Answers to the questions set out in the Applicant's presentation in relation to LVIA: *5. It is highly unlikely that the substation on the preferred site would not result in some significant landscape and visual effects. Both on and offsite landscape mitigation and*	Potential landscape and visual impacts have been considered in the OnSS site selection process. The LVIA will consider the need for onsite and offsite mitigation where considered necessary to mitigate significant landscape and visual impacts, as detailed in **Section 5.5.4**.

Consultee	Date/Document	Comment	How Comment Has Been Addressed
		enhancement planting is a requirement, particularly in view of the cumulative effects of multiple developments in the Stonehaven/Fetteresso area on the landscape fabric and adverse effects (whether significant or otherwise) on landscape character and on visual receptors."	
Aberdeenshire Council	6 October 2026, Email correspondence	***LVIA*** *"It is noted that there is no consistency in the LVIA Study Area distances applied for a number of similar projects in this area. In comparing with other LVIAs which have been carried out we would note that the Bowdun LVIA Study Area was 5km for the substation and 1km for the cable (it was 3km for the landfall, 1km either side of the cable and 5km for the substation). The Aspen wind farm onshore works are using a 6km Study Area for the substation and 2km for the cable (assumed to be a total distance i.e. 1km either side of the cable).* *A 5km LVIA Study Area for the substation can be accepted, as this should pick up all the significant landscape and visual effects but the Study Area needs to extend 1km either side of the cable route due to potential cumulative effects with other potential cable works in the area.* *I would note that the landscape architect had suggested the 10km for the substation due to the potentially significant cumulative effects likely to occur with Craigneil wind farm, Hurlie and Bowdun substations and the TK OHL and also 'because of the very prominent site selected by this Applicant for the substation."*	As noted above, we are in agreement with this further response and propose a 5 km study area around the OnSS and a 1 km study area from the Bellrock OnTDA PPP Application boundary, representing the area of temporary works, as outlined in **Section 5.4.1**.
		Additional Viewpoints *"Our landscape architect notes that there was no ZTV in the pre-application presentation, they note 'there was no firm indication of the likely height of the substation (which is why my response addressed the possible use of an HVDC substation)'. It is noted that the substation would be lesser*	Further consideration was given to the suitability of the proposed viewpoint locations following desk-based review and fieldwork. Following fieldwork, no visibility of the OnSS was identified from the original location of VP3: Rickarton. The co-ordinates of VP3 have therefore been revised to provide a more representative view for road receptors travelling along the A957 (Slug Road). The updated viewpoint location, and viewpoint name, is reflected in the proposed viewpoint list in **Section 5.4.3.3**.

Consultee	Date/Document	Comment	How Comment Has Been Addressed
		when compared with Hurlie but we don't get have details of likely size so we do not have this information to hand. *The landscape architect notes that the site selected is elevated and infrastructure placed in this location is likely to be prominent (much more so than Hurlie and Bowdun substations). 'While I accept that there may well be screening from Annamuick and that views will be more open from their VP 8 at Nether Wyndings, we have no ZTV to verify this'. The landscape Architect and one of our planning team recently travelled on the A957 Slug Road and were concerned that the proposed substation could have a major visual impact because of its location on the Hill of Swanley. We therefore would require the LVIA to carefully consider visibility for road travellers and include an additional viewpoint in a more open section of the route if necessary. We have concerns that VP2 is not the most open view of the site from the road, and is probably selected to consider residential properties.* *An alternative site looking towards the Hill of Swanley from another part of Fetteresso Forest is acceptable."*	This is in addition to VP2: A957(Slug Road) at Rickarton near Bogheadly, which represents both residential and road receptors.

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5.4 Existing Environment

5.4.1 Study Area

274. For the purposes of the Scoping Report, the LVIA study area for the Bellrock OnTDA Scoping (referred to as the 'LVIA study area') is shown in **Figure 5.1 and 5.2** in **Appendix A (Volume 1)**. Given that the final location of the Onshore Transmission Infrastructure is still to be confirmed, the study area that is used for the purposes of this Scoping Report is currently defined as:

- A 1 km buffer from the edge of the Bellrock OnTDA Scoping Boundary, as detailed in **Chapter 3: Project Description** and as shown in **Figure 5.1** and **5.2 (Appendix A (Volume 1))**; and
- A 5 km buffer from the edge of the preferred OnSS Area of Search, as shown in **Figure 5.1 and 5.2 (Appendix A (Volume 1))**.

275. For the purposes of the LVIA which will accompany the Bellrock OnTDA EIA Report, a refined LVIA study area will be defined, based on the finalised location of the proposed Onshore Transmission Infrastructure, informed by Zone of Theoretical Visibility (ZTV) mapping and field verification. Further detail is provided in **Section 5.7**.

5.4.2 Data and Information Sources

276. The baseline data to inform the LVIA is listed in **Table 5.3**. This data has been used to inform the identification of key landscape and visual receptors and potential sensitivities within the LVIA scoping study area. These data will be subject to further detailed review and analysis to inform the Bellrock OnTDA EIA.

Table 5.3: Key Data Sources for the LVIA

Dataset	Temporal Coverage	Description
Google Earth, Street View and Maps (Google, 2026)	1985 - 2025	Street-level and aerial views of the area from the road network and aerial footage.
NatureScot Landscape Character Types Map and Descriptions (NatureScot, 2026)	2019	High level description of landscape character types (LCTs) including their key characteristics.
Aberdeenshire Local Development Plan. Appendix 13 Aberdeenshire Special Landscape Areas (Aberdeenshire Council, 2023)	2023	Describes the Special Landscape Areas and defines the reasons for their designation.
Landscape consultant site visit (LUC, 2025)	2025	Field work to look at potential landfall and OnSS locations, and the export cable corridors, and to identify key landscape and visual receptors.

Dataset	Temporal Coverage	Description
Ordnance Survey (OS) mapping at 1:50,000, 1:25,000 and 1:10,000 (OS, 2026)	2026	Mapping of the area at a range of scales, identifying topography, settlement patterns, woodland and other landscape features.

5.4.3 Baseline Conditions

277. The LVIA study area encompasses an area located to the north and west of Stonehaven, Aberdeenshire. It extends from Strathgyle Wood in the north to Mid Fiddes in the south, and from a section of coastline at Cowie in the east to Fetteresso Forest in the west (**Figure 5.1 and 5.2** in **Appendix A (Volume 1)**).

278. The landscape of the LVIA study area largely comprises rolling farmland and low sweeping hills, with a stronger coastal influence to the east and commercial forestry in the west. In some places, scattered blocks of broadleaved and coniferous woodland break up the rolling farmland, including areas of ancient woodland (mainly long-established woodland of plantation origin). This woodland is primarily located around watercourses and tributaries that run from the northwest to southeast of the LVIA study area, and to the northwest and northeast of Fetteresso Forest. Within the central and western parts of the LVIA study area, the landscape rises to form the distinctive upland plateau. This is part of the eastern edge of the hills associated with the Highland Boundary Fault and forms an elevated backdrop to the lowland areas to the north and south. This elevated area is characterised by coniferous woodland comprising Fetteresso Forest, which is predominantly managed for commercial forestry.

279. The town of Stonehaven is located in the southeast of the LVIA study area. The A90 runs through the west and south of the LVIA study area in a broadly northeast to southeast direction. Core paths and National Cycle Network (NCN) Route 1 (see **Chapter 15: Socioeconomics, Tourism and Recreation**) are located along the peripheries of Stonehaven. The Dundee to Aberdeen railway line also passes through the LVIA study area between Stonehaven and Drumlithie.

280. The existing environment is described below with reference to published landscape character assessment, landscape designations, and likely sensitive visual receptors.

5.4.3.1 Landscape Character

281. The national dataset of LCTs, published by NatureScot (2019), defines three LCTs within the LVIA study area, as shown in **Figure 5.2 (Appendix A (Volume 1)**).

282. The northern part of the LVIA study area, including the elevated landform of Fetteresso Forest and landscape to the north, is located within LCT 29: Summits and Plateaux – Aberdeenshire. This landscape is described as an "*expansive upland plateau with a smooth rolling landform and rounded hill summits*" comprising "*Regionally prominent hills*". The description also notes the "*Dramatic juxtaposition of the steep scarp slopes of these rugged uplands with the expansive low-lying farmed and settled Howe of the Mearns*" to the south (NatureScot, 2019).

283. The southern and majority of the eastern part of the LVIA study area is located within LCT 24: Coastal Farmed Ridges and Hills – Aberdeenshire. This landscape is characterised as a "*A large scale and open landscape of smoothly rolling ridges and shallow valleys*" with "*Large fields of arable land and pasture*". There is a "*Strong coastal influence particularly where more open slopes fall gently to the top of cliffs or raised beach allowing views of the sea*" (NatureScot, 2019).

284. A small part of the eastern extent of the LVIA study area, including Stonehaven, is located within LCT 11: Fragmented Rocky Coast. This landscape contains "*Dramatic coastal features, including rugged cliffs, caves, arches, stacks and numerous broken islets*" (NatureScot, 2019).

285. The key characteristics of these LCTs will further inform the site selection and design of the Onshore Transmission Infrastructure, including mitigation proposals, and will form the baseline against which effects on landscape character will be assessed within the LVIA.

5.4.3.2 Landscape Designations

286. Part of the Southeast Aberdeenshire Coast Special Landscape Area (SLA) is located within the eastern extents of the LVIA study area (see **Figure 5.2 (Appendix A (Volume 1)**). Outside the LVIA study area, the Southeast Aberdeenshire Coast SLA extends along the eastern coast between Portlethen in the north and the mouth of the River North Esk in the south.

287. The Southeast Aberdeenshire Coast SLA is a local landscape designation defined by Aberdeenshire Council. A Designation Statement for the Southeast Aberdeenshire Coast SLA is provided in Appendix 13 to the Aberdeenshire Local Development Plan (Aberdeenshire Council, 2023). The following 'aspects and features' of the coastal landscape, which are considered worthy of recognition through SLA designation, are relevant to the LVIA study area:

- "*Rugged and intricate scenery of weathered coastal cliffs and raised beach landforms, including sites of geological interest […];*
- *The coast provides the immediate and wider setting for a number of larger settlements, including Portlethen, Newtonhill and Stonehaven, framed by rising cliffs on either side […];*
- *Coastal routes include the A92, east coast railway, footpaths and National Cycle Network (Route 1), all offering expansive views out to sea; and*
- *Panoramic views out to sea from headlands and beaches, and important views along the coast, including the view over the sands at St Cyrus, and views from Dunnottar*".

288. The Designation Statement also includes *'*management recommendations*'* that will be considered in the siting and layout of the landfall and onshore export cable corridor, and post-construction reinstatement proposals (Aberdeenshire Council, 2023). Management recommendations of relevance to the siting and layout of the landfall area are as follows, noting that there will be no permanent above-ground infrastructure with the exception of link boxes/manhole covers (see **Chapter 3: Project Description**) within the Southeast Aberdeenshire Coast SLA:

- *"The effects of development along the coastal edge and within the hinterland adjacent to the SLA should be carefully considered through a coastal character assessment;*

- *Development should only be permitted where it can be demonstrated that the sense of place associated with the cliffs in this area will be unaffected;*
- *Development that may impact on the headlands, beaches and landmarks in the area should be carefully considered, in order to ensure that the panoramic views within are not negatively impacted upon, including the view over the sands at St Cyrus and views from Dunnottar […]; and*
- *Assess the potential impact on the sea views from significant roads, paths and visitor sites, particularly seeking to ensure that the ragged and wild nature of the coastal cliff tops and open vista of St Cyrus Bay are maintained."*

5.4.3.3 Visual Amenity

289. Visual receptors within the LVIA study area include people living, working and travelling within the area. The key potentially sensitive receptors for the Bellrock Onshore Transmission Infrastructure are discussed below. Potential impacts from the Bellrock Offshore Transmission Infrastructure are considered in the **Bellrock OfTDA Scoping Report** (Bellrock Offshore Wind Farm Limited, 2026b).

290. Much of the LVIA study area is settled, with scattered farms and houses across the lowland areas to the north, south and east of Fetteresso Forest as well as the more concentrated settlement of Stonehaven in the east. Residents in their homes and communities are generally considered to be of high sensitivity to changes in their view.

291. Recreational receptors include, for example, people visiting locations for walking, cycling, or tourism (see **Chapter 15: Socioeconomics, Tourism and Recreation)**. Key locations within the LVIA study area include the core paths around Stonehaven and NCN Route 1 which broadly follows the coastline. The access tracks within Fetteresso Forest are used for recreational amenity purposes, as is Dunnottar Woods, immediately south of Stonehaven. Access to tracks within Fetteresso Forest is periodically restricted to accommodate commercial felling and events. Stonehaven Golf Club is located on the eastern edge of the LVIA study area.

292. People travelling through and around the LVIA study area will include road users on the A90, A92, and the A957 (also known as the Slug Road), as well as the network of minor roads that permeates the landscape, and people using the Dundee to Aberdeen railway.

293. Once the location of the Bellrock Onshore Transmission Infrastructure is confirmed (prior to the EIA preparation phase), a more detailed review of visual receptors will be undertaken to inform the LVIA. This will be informed by additional ZTV studies for the Bellrock OnSS, and representative viewpoints will be identified for agreement with Aberdeenshire Council. A list of initial representative viewpoints is set out in **Table 5.4** below and in **Figure 5.1 (Appendix A (Volume 1))** which has been informed by preliminary ZTV studies. Viewpoints from Stonehaven have not been included because views of the Bellrock Onshore Transmission Infrastructure are expected to be largely restricted by the low-lying position of the settlement, distance from the Bellrock Onshore Transmission Infrastructure, and screening provided by intervening woodland and topography to the west and northwest. Following confirmation of the Bellrock OnSS location and further visibility analysis, the viewpoint schedule will be refined and agreed with Aberdeenshire Council.

294. Up to three viewpoints may be selected along the onshore export cable corridor to assess the visual effects of temporary construction works. The final locations will be confirmed once the onshore export cable corridor alignment has been established and will be agreed with Aberdeenshire Council. Separate assessment viewpoints are not proposed for the permanent works associated with the onshore export cable corridor or landfall, as these elements comprise only limited above-ground infrastructure, such as marker posts, fencing, access manholes or link boxes.

Table 5.4: Representative Viewpoints

Viewpoint Number (Ref. Fig. 5.1)	Viewpoint Name	Easting	Northing	Reason for Selection
1	Smiddy Cottage/ Clachanshiels	379960	787956	Represents residential receptors around Clachanshiels on the northern edge of Fetteresso Forest.
2	A957 (Slug Road)	381043	788922	Represents road users travelling along the A957 (Slug Road) as well as residents at properties along this road near Rickarton.
3	Rickarton	380123	789282	Represents road receptors travelling on the A957/Slug Road, where there are elevated views to the south and south-east.
4	Garrison Hill	384100	790093	Represents recreational receptors visiting Roman Camp on Garrison Hill.
5	B879/NCN (1r)/Core Path	386737	789294	Represents road users and recreational receptors travelling along the B879, NCN (1r) and Core Path.
6	Cheyne Hill	383673	787095	Represents recreational receptors on Cheyne Hill, a small local hill to the east of Fetteresso Forest.
7	Hillhead of Auquhirie	383164	783698	Represents residential receptors on the elevated land around Hillhead of Auquhirie.
8	Nether Wyndings	381838	785382	Represents residential receptors along the minor road around Nether Wyndings, and road users travelling along the minor road.
9	Fetteresso Forest near Upper Swanley	382592	786948	Represents recreational receptors within the eastern part of Fetteresso Forest near Upper Swanley.

5.5 Potential Impacts

295. Potential impacts arising from the Bellrock Onshore Transmission Infrastructure within the LVIA study area during the construction, O&M, and decommissioning phases are outlined below and are summarised in **Table 5.5**.

296. In addition, the whole project assessment (**Section 5.6.4**), potential for cumulative (**Section 5.6.5**) and transboundary (**Section 5.6.6**) impacts, as well as inter-relationships and interactions between impacts will also be determined and assessed.

5.5.1 Potential Construction Phase Impacts

297. Potential impacts during the construction phase of the Bellrock Onshore Transmission Infrastructure may arise from activities associated with construction works which are outlined in **Chapter 3: Project Description.**

298. During construction of the Bellrock Onshore Transmission Infrastructure, effects on landscape character are likely to arise from the introduction of construction activities (including vehicle movement and lighting), presence of construction equipment and the physical loss or fragmentation of distinctive landscape elements. Permanent loss of landscape features such as woodland and vegetation to accommodate the construction of the Bellrock Onshore Transmission Infrastructure is most likely to result in significant effects, as this will result in permanent physical changes to the landscape. Other construction effects will be temporary and will cease at the end of construction works. Reinstatement of land cover, hedges, etc. may take longer but over time will eliminate most construction stage effects.

299. There is potential for effects on the special qualities of the Southeast Aberdeenshire Coast SLA during construction, due to the nature of the construction works associated with the landfall and onshore export cables.

300. There is potential for visual effects as a result of the construction of the Bellrock Onshore Transmission Infrastructure experienced by residents, recreational receptors and those travelling along the local road network and the Dundee to Aberdeen railway.

5.5.2 Potential Operation and Maintenance Phase Impacts

301. Potential landscape and visual impacts during the O&M phase of the Bellrock Onshore Transmission Infrastructure are likely to occur from the above-ground infrastructure elements of the Bellrock OnSS as well as associated access, earthworks, landscape mitigation and any operational lighting.

302. Potential effects during the O&M phase of the Bellrock OnSS include: changes to landscape fabric within the Bellrock OnSS site, changes to landscape character within the LVIA study area, visual effects experienced by residential, recreational and transport receptors, sequential visual effects along routes, and night-time visual effects associated with operational lighting.

303. The onshore export cables and landfall are unlikely to give rise to landscape and visual effects during O&M, as these elements are primarily below ground, with above ground features limited to discrete items such as marker posts, fencing or link boxes.

304. The selection of receptors to include in the assessment will be based on the requirement for the EIA to consider the likely significant effects. Effects that are not likely to be significant do not require assessing under the EIA Regulations.

5.5.3 Potential Decommissioning Phase Impacts

305. Potential impacts during the decommissioning phase of the Bellrock Onshore Transmission Infrastructure will depend on the final decommissioning strategy, including the extent to which infrastructure is removed or left in-situ (see **Chapter 4: Approach to Scoping and Environmental Impact Assessment**).

306. Where infrastructure is removed, decommissioning activities are expected to result in localised disturbance to landscape fabric, landscape character and the Southeast Aberdeenshire Coast SLA, as well as effects on views. Such effects will be temporary but effects as a result of reinstatement of disturbed landcover and landscape features may be of longer duration.

5.5.4 Embedded Mitigation Measures

307. Embedded mitigation has been identified, as presented in **Table 5.5** and **Appendix B: Mitigation and Monitoring Register (Volume 1)**, in accordance with the mitigation hierarchy, with the aim of avoiding, preventing, reducing, and where possible, offsetting potential adverse environmental effects. Consistent with the Institute of Environmental Management and Assessment (IEMA) guidance (2024) (now known as Institute of Sustainability and Environmental Professionals (ISEP)), primary (inherent design measures) and tertiary (standard good practice) mitigation are embedded within the project design and are, therefore, considered in the assessment of effects. Secondary mitigation measures will be identified where required through the EIA process, informed by the outcomes of the initial impact assessment.

308. The current embedded mitigation measures may be refined as the project design evolves. In addition, further embedded mitigation measures may be developed as part of the iterative design undertaken during the EIA and detailed design process.

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Table 5.5: Embedded Mitigation Measures Relevant to Landscape and Visual

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	✓	X	Site selection was informed by the Bellrock OnTDA Design Principles and included consideration of sensitive receptors	Site selection for the OnSS has and continues to consider landscape and visual matters, to reduce overall impact and visibility of the OnSS within the landscape, and to avoid or minimise direct effects on valued landscape features. Routeing for the onshore export cable corridor will avoid trees and woodland (including areas of long-established woodland or plantation origin woodland) to minimise losses of valued landscape features, where practicable (**Section 3.6**).	Primary
✓	✓	X	Development of and adherence to a Landscape Plan.	The Landscape Plan will include proposals for earthworks, restoration and planting. Its purpose is to minimise long-term adverse landscape and visual effects, assist in the screening and integration of the OnSS within the surrounding landscape, and ensure restoration of disturbed ground during construction.	Tertiary
X	✓	X	Consideration of offsite landscaping	Offsite landscaping will be considered where necessary to mitigate landscape and visual effects. The means of securing adequate offsite landscaping (if required) will be explored during the EIA process.	Primary
✓	X	X	Development of and adherence to a Construction Environment Management Plan (CEMP).	A CEMP will be developed and implemented, that will seek to ensure the restoration of all temporarily disturbed landscapes within the Bellrock OnTDA.	Tertiary

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
X	X	✓	Production of a Decommissioning, Restoration and Aftercare Strategy.	A Decommissioning, Restoration and Aftercare Strategy will be developed and implemented to minimise decommissioning stage effects on the environment, including on landscape and visual receptors. The Decommissioning, Restoration and Aftercare Strategy will set out the framework for the safe, orderly, and environmentally acceptable decommissioning and removal of the Bellrock Onshore Transmission Infrastructure, in the interests of safety and environmental protection.	Tertiary

5.6 Scoping of Potential Impacts

5.6.1 Construction Phase

309. The Bellrock Onshore Transmission Infrastructure will have physical effects on the landscape elements of the Bellrock OnTDA and may have effects on the character of the surrounding landscape and on views towards construction works of the landfall, onshore export cable route and the Bellrock OnSS. The following impacts on landscape and visual receptors during the construction phase, within the LVIA study area, have been **scoped in** for further assessment in the EIA:

- **Changes to landscape elements:** the addition, removal, or modification of physical elements and other characteristic features of the LCTs;
- **Changes to landscape character:** alterations to characteristic elements, patterns, and perceptual qualities (such as tranquillity and openness), that are sufficient in scale and nature to alter the landscape character of a particular area;
- **Changes to the special qualities of the Southeast Aberdeenshire Coast SLA** during construction of the landfall and export cable corridor; and
- **Changes in views:** towards the Bellrock OnSS, landfall area and export cable corridor.

310. Impacts during the construction phase will be temporary and will cease at the end of construction works.

311. While an effect may be proposed to be scoped out, the LVIA will still provide relevant baseline information on the receptors concerned and set out any relevant measures that will be adopted for the Bellrock OnTDA to mitigate impacts on the receptors. The following impacts have been **scoped out** of the LVIA:

- Impacts on LCTs and landscape designations located beyond the LVIA study area as significant landscape effects are unlikely to occur;
- Impacts on LCTs and landscape designations within the LVIA study area but which do not fall within the ZTV as significant landscape effects are unlikely to occur;
- Impacts on visual receptors beyond the LVIA study area or within those locations judged to have limited or no visibility of the OnSS shown by the ZTV and verified on site as no significant visual effect are anticipated; and
- Impacts on Residential Visual Amenity, given that no effects of the Bellrock Onshore Transmission Infrastructure are considered likely to be great enough to breach the residential visual amenity threshold for any property within the LVIA study area.

5.6.2 Operation and Maintenance Phase

312. The LVIA will consider effects arising during O&M for the Bellrock OnSS only. Given that the landfall and onshore export cables will not include significant above-ground infrastructure, with marker posts, fencing, manhole covers and link boxes the only above-ground infrastructure required, landscape and visual effects during O&M will be limited and, therefore, will not be considered in the LVIA.

313. Lighting at the OnSS will be low-level, directional and intermittently operated lighting. Under normal operating conditions, the OnSS will be unmanned and external lighting would only be activated when required for inspection/maintenance visits, emergency access or security purposes, with security lighting likely to be motion activated or remotely controlled.

314. For receptors located within the 5 km Bellrock OnSS buffer and within the final ZTV, the following impacts have been **scoped in** for further assessment in the EIA:

- Impacts on the landscape fabric of the confirmed Bellrock OnSS site, including effects of earthworks and site access;
- Impacts on landscape character within the 5 km Bellrock OnSS buffer, arising from the presence of the Bellrock OnSS;
- Visual impacts on people including residential receptors at nearby dwellings and settlements, recreational receptors, including within Fetteresso Forest, and others within the wider 5 km Bellrock OnSS buffer;
- Sequential impacts on sensitive recreational receptors using local path networks; and
- Sequential impacts on receptors travelling along the major road network and the Dundee to Aberdeen railway.

315. While an effect may be proposed to be scoped out, the LVIA will still provide relevant baseline information on the receptors concerned and set out any relevant measures that will be adopted for the Bellrock OnTDA to mitigate impacts on the receptors. The following impacts have been **scoped out** of the LVIA:

- Impacts on LCTs and landscape designations located beyond the LVIA study area as significant landscape effects are unlikely to occur;
- Impacts on LCTs within the LVIA study area but which do not fall within the ZTV as significant landscape effects are unlikely to occur;
- Impacts on designated landscapes: the Bellrock OnSS will be approximately 5 km inland from the Southeast Aberdeenshire Coast SLA at its nearest point (see **Figure 5.1 and 5.2, Appendix A (Volume 1)**). At this distance, it is unlikely to have significant effects on the special qualities of the designation and as such, effects of the Bellrock OnSS on the SLA will not be considered in the LVIA;
- Impacts on visual receptors beyond the LVIA study area or within those locations judged to have limited or no visibility of the Bellrock Onshore Transmission Infrastructure shown by the ZTV and verified on site;

- Impacts on Residential Visual Amenity, given that no effects of the Bellrock Onshore Transmission Infrastructure are considered likely to be great enough to breach the residential visual amenity threshold for any property within the LVIA study area; and
- Visual impacts associated with any operational Bellrock OnSS lighting used in hours of darkness, given that external lighting would only be activated when required for inspection/maintenance visits, emergency access or security purposes, with security lighting likely to be motion activated or remotely controlled.

5.6.3 Decommissioning Phase

316. At the end of operational life, the Bellrock Onshore Transmission Infrastructure will be decommissioned. The final decommissioning approach will be determined through the preparation of a Decommissioning, Restoration and Aftercare Strategy, and will consider relevant legislation, guidance, and industry best practice. However, decommissioning activities are anticipated to result in effects that are no greater than those associated with construction activities. Therefore, the effects **scoped in** to the assessment for the construction phase are also considered applicable to the decommissioning phase.

5.6.4 Bellrock OnTDA Whole Project Assessment

317. The Bellrock OnTDA Whole Project Assessment will follow the general methodology set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessmen**t and will consider whether potential interactions between the Bellrock Onshore Transmission Infrastructure and the Bellrock Offshore Transmission Infrastructure and/or the Bellrock Wind Farm Infrastructure have the potential to alter the magnitude of impacts or significance of effects on landscape and visual receptors identified in the Bellrock OnTDA-alone assessment. Refer to **Plate 4.3** (**Chapter 4: Approach to Scoping and Environmental Impact Assessment**) for the approach and methodology that will be followed for the Bellrock OnTDA Whole Project Assessment.

318. Potential construction and decommissioning effects arising from interactions between the Bellrock Onshore and Offshore Transmission Infrastructure at the landfall area will be **scoped in** to the assessment, as these may give rise to overlapping landscape and visual effects.

5.6.5 Potential Cumulative Effects

319. The Bellrock OnTDA CEA will be undertaken in accordance with the methodology set out in **Section 4.7** of **Chapter 4: Approach to Scoping and Environmental Impact Assessment**. An overview of the Bellrock OnTDA assessment process, including the relationship between the Bellrock OnTDA Whole Project Assessment and the CEA, is provided in **Plate 4.3.**

320. Overall, the CEA is a two-staged process, with the first stage assessing the impacts as a result of the Bellrock OnTDA Whole Project Assessment (**Section 5.6.4**) together with the Hurlie substation. The second stage will then assess the impacts as a result of the Bellrock OnTDA Whole Project Assessment together with the Hurlie substation plus impacts arising from other reasonably foreseeable plans and projects where there is conceptual, spatial, and/or temporal overlap. This

will determine the potential for cumulative impacts and subsequent cumulative effects on landscape and visual receptors.

321. This two-staged approach provides for a robust cumulative LVIA which allows for the assessment of effects as a result of the Bellrock OnSS with the Hurlie substation, and alongside other plans and projects.

322. A list of other consented and proposed developments to be considered in the second stage of the cumulative LVIA will be agreed with consultees through the EIA process. A preliminary list is included below:

- Kintore to Tealing 400 kV OHL;
- Glendye Wind Farm OHL;
- Bowdun Offshore Wind Farm onshore transmission infrastructure; and
- Aspen Offshore Wind Farm onshore transmission infrastructure.

323. There is potential for cumulative impacts on landscape and visual receptors where the Bellrock Onshore Transmission Infrastructure overlaps spatially and temporally with other projects and plans. Potential cumulative effects are **scoped in** to the assessment.

5.6.6 Potential Transboundary Effects

324. Transboundary effects on landscape and visual receptors are not anticipated to arise from the construction, O&M, or decommissioning of the Bellrock Onshore Transmission Infrastructure. Impact pathways are typically localised with impacts confined to the footprint of infrastructure.

325. There is no plausible mechanism for transboundary effects to occur. Transboundary effects are, therefore, **scoped out** of further assessment in the EIA.

5.6.7 Summary of Potential LVIA Impacts Scoped In and Scoped Out

326. **Table 5.6** summarises the outcomes of the scoping assessment presented in **Sections 5.6**, identifying the relevant impacts for landscape and visual receptors and confirming whether these have been scoped in or scoped out of further assessment in the EIA.

Table 5.6: Summary of Potential LVIA Impacts Scoped In (✓) or Scoped Out (X)

Potential Impact	Scoped In (✓) or Scoped Out (X)		
	Construction	O&M	Decommissioning
OnSS			
Effect on landscape fabric and landscape character	✓	✓	✓
Effects on landscape designations	X	X	X

Potential Impact	Scoped In (✓) or Scoped Out (X)		
	Construction	O&M	Decommissioning
Effect on visual amenity (including views experienced by communities, recreational receptors and transport users)	✓	✓	✓
Effects on residential visual amenity experienced by residents within their homes	X	X	X
Cumulative effects	✓	✓	✓
Landfall			
Effect on landscape fabric and landscape character	✓	X	✓
Effects on landscape designations	✓	X	✓
Effect on visual amenity (including views experienced by communities, recreational receptors and transport users)	✓	X	✓
Effects on residential visual amenity experienced by residents within their homes	X	X	X
Cumulative effects	✓	X	✓
Onshore export cables			
Effect on landscape fabric and landscape character	✓	X	✓
Effects on landscape designations	✓	X	✓
Effect on visual amenity (including views experienced by communities, recreational receptors and transport users)	✓	X	✓
Effects on residential visual amenity	X	X	X
Cumulative effects	✓	X	✓
Bellrock OnTDA Whole Project Assessment			
Bellrock OnTDA Whole Project Assessment*	✓	X	✓

Potential Impact	Scoped In (✓) or Scoped Out (X)		
	Construction	O&M	Decommissioning
Transboundary Effects			
Transboundary effects	X	X	X
Notes: * see **Section 5.6.4** for further details on the scoping of the Bellrock OnTDA Whole Project Assessment for LVIA.			

5.7 Proposed Approach to Impact Assessment

327. Once the Bellrock preferred OnSS Area of Search has been refined for the PPP Application, the LVIA study area will be revised accordingly, and will then comprise a 5 km buffer from the Bellrock OnSS boundary, a 0.5 km buffer either side of the onshore export cable corridor and a 1 km buffer from the landfall area. It is considered that significant effects on landscape and visual receptors are unlikely to occur beyond 5 km from the permanent above-ground elements of the Bellrock OnTDA.

328. The LVIA approach will be based on the principles set out in GLVIA3 (Landscape Institute, 2024). The following standard definitions from GLVIA3 will be used:

- Assessment of landscape effects: assessing "*effects on the landscape as a resource in its own right*"; and
- Assessment of visual effects: assessing "*effects on specific views and on the general visual amenity experienced by people*".

5.7.1 Visual Effects

329. The visual assessment will draw on the ZTVs, field surveys, and analysis of viewpoint photography to assess potential visual effects on views and visual amenity. To support the visual assessment, winter photomontages, as the realistic 'worst-case', will be produced to represent the likely maximum parameters of the Bellrock OnSS, including its potential extent and location in each view on Year 1 of operation. Summer views will also be illustrated where appropriate. LUC will use these wirelines/photomontages to assess visual effects and to identify any gaps in the existing planting to inform outline mitigation measures.

330. Year 15 wirelines/photomontages will also be prepared to illustrate how mitigation planting may mature over time.

5.7.2 Assessing Significance

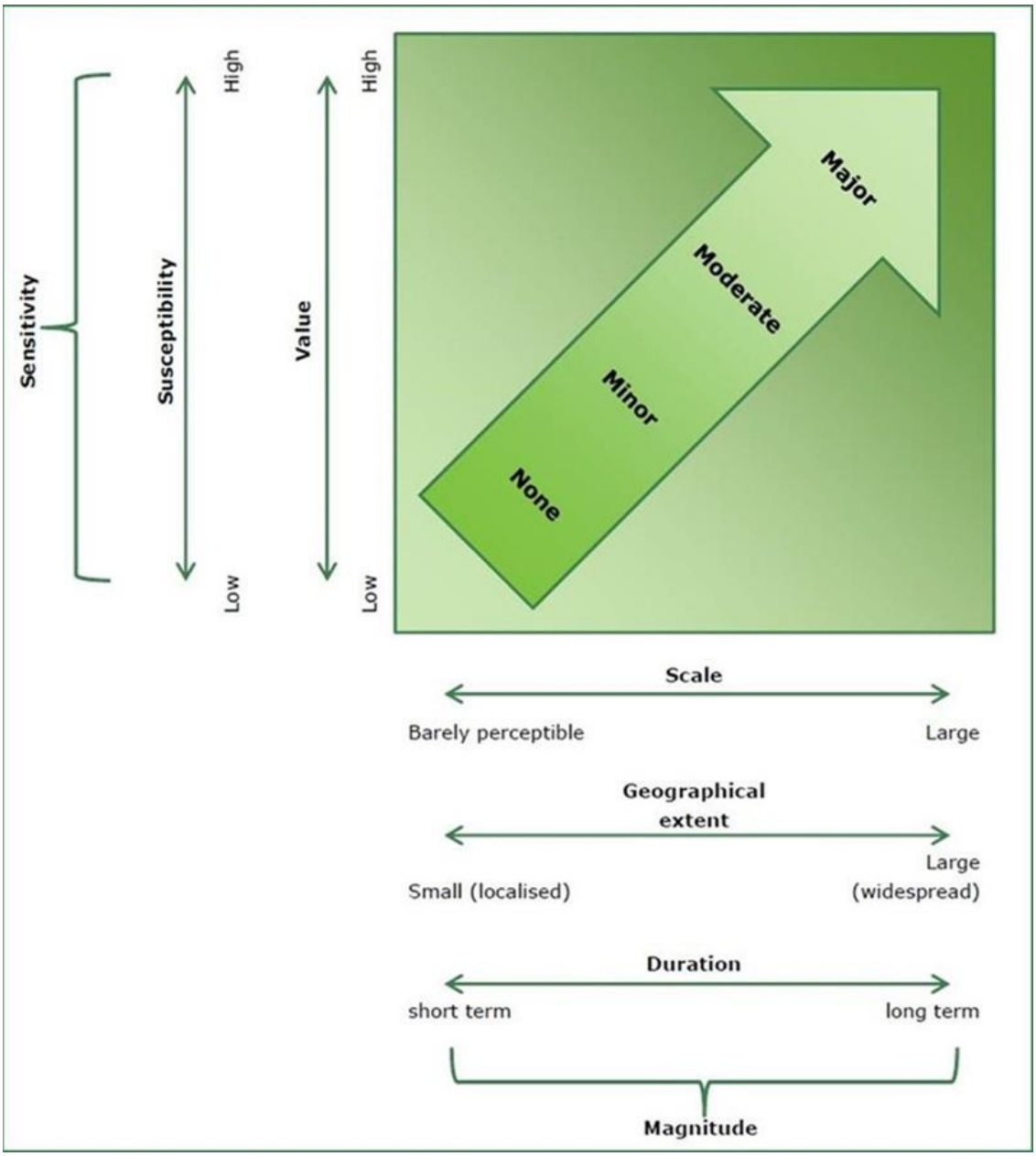
331. The assessment process involves an iterative design approach to design out or mitigate potentially significant adverse effects. The level of residual landscape and visual effect (and whether this is significant) is determined through consideration of:

- The 'sensitivity' of landscape and visual receptors, which combines professional judgements on susceptibility and value, using the principles set out in GLVIA3; and
- The 'magnitude of change' arising from the Bellrock Onshore Transmission Infrastructure, which takes into account a combination of judgements including scale of the change, geographical extent, duration and reversibility (as defined within GLVIA3 (Landscape Institute, 2024)).

332. Receptor sensitivity will be ranked as either **low**, **medium** or **high** (or the intermediate levels of **low-medium** or **medium-high**). Similarly, the magnitude of change will be ranked as either **low**, **medium** or **high** (or the intermediate levels of **low-medium** or **medium-high**) or **barely perceptible**.

333. The assessment will consider physical or perceived, temporary or permanent, and positive (beneficial), neutral, or negative (adverse) effects. This process combines objective and qualitative professional judgements. A numerical or formal weighting system is not applied, therefore, enabling consideration of the relative importance of each aspect to feed into the overall decision. Levels of effect are identified as **negligible**, **minor**, **moderate** or **major** (see **Plate 5.1**), or the intermediate levels of **minor-moderate** or **moderate-major**, where effects of moderate and above are considered significant in the context of the EIA Regulations.

Plate 5.1: Judging Levels of Effect – Landscape or Visual Effects (Including Cumulative Effect)



5.8 Scoping Questions to Consultees

334. The following Scoping questions refer to the landscape and visual chapter and are designed to focus the Scoping exercise, and which would in turn inform the EIA:

- Do you agree with the approach for defining the LVIA study area, which is proposed as a 5 km buffer around the preferred OnSS Area of Search, and 1 km buffer around the Bellrock OnTDA Scoping Boundary for temporary works?
- Are there any additional data sources or guidance documents that should be considered?
- Do you agree that all sensitive landscape and visual receptors have been identified, noting this will be refined once the Bellrock OnTDA boundary is defined for the PPP Application?
- Do you agree with the proposed representative viewpoints in **Table 5.4**, again noting these will be refined once the Bellrock OnTDA PPP Application boundary is known?
- Do you agree with the scoping in and scoping out of effects in relation to LVIA, as shown in **Table 5.6**?
- Do you agree that operational effects from night time lighting can be scoped out of the LVIA?
- Do you agree with the scope of cumulative effects in relation to LVIA, including the approach to assessing the Hurlie substation and other plans and projects in a two-stage CEA?
- Do you agree with the proposed assessment methodology for LVIA?

5.9 References

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6 Geology and Ground Conditions

6.1 Introduction

335. This Chapter of the **Bellrock Onshore Transmission Development Area (OnTDA) Scoping Report** considers the potential impacts on geology and ground conditions associated with the construction, operation and maintenance (O&M), and decommissioning of the Bellrock Onshore Transmission Infrastructure.

336. The Bellrock OnTDA Scoping Boundary (shown in **Figure 1.1 (Appendix A (Volume 1))**) defines the area within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process (as discussed in **Section 1.4** in **Chapter 1: Introduction**) to form the boundary of the Bellrock OnTDA Planning Permission in Principle (PPP) Application.

337. For the purposes of this **Bellrock OnTDA Scoping Report**, the Bellrock OnTDA Scoping Boundary encompasses the anticipated Onshore Transmission Infrastructure and associated activities for the Bellrock OnTDA landward of Mean Low Water Springs (MLWS). The Bellrock OnTDA Scoping Boundary overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) between Mean High Water Springs (MHWS) and MLWS.

338. The Bellrock Onshore Transmission Infrastructure includes:

- **Landfall:** located at Cowie, Aberdeenshire, where between two and six ducts are installed using trenchless techniques, allowing the offshore export cables to be brought ashore and connected to onshore export cables within the transition joint bay;
- **Onshore export cables:** up to six underground High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) onshore cable circuits, each up to 18 km in length, installed between landfall and the onshore substation;
- **Onshore substation (OnSS):** electrical equipment (such as converters, transformers, switchgear, and protection and control systems) enabling renewable electricity from the Bellrock Wind Farm Development Area (WFDA) received via the onshore export cables to be exported to the National Electricity Transmission System, and ancillary infrastructure; and
- **Hurlie substation connection works:** infrastructure between the Bellrock OnSS to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the National Electricity Transmission System.

339. In addition, associated works are required to facilitate construction and O&M of the Onshore Transmission Infrastructure, including access, signage, haul roads, spoil storage, material storage,

fencing, borrow pits (if any), earthworks, welfare, security, landscape mitigation, ecological mitigation, biodiversity enhancement, operational lighting and drainage.

340. As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Wind Farm Infrastructure (located within the Bellrock WFDA) was presented in the **Bellrock WFDA Environmental Impact Assessment (EIA) Report**, which was submitted in support of the Section 36 Consent and Marine Licence Application for the Bellrock Wind Farm Infrastructure in April 2026 (Bellrock Offshore Wind Farm Limited, 2026a). The **Bellrock WFDA EIA Report** considered the potential impacts and subsequent effects of the Bellrock Wind Farm Infrastructure on the environment. An EIA Scoping Report for the Bellrock Offshore Transmission Infrastructure was also submitted to Scottish Ministers on 17 August 2026 (Bellrock Offshore Wind Farm Limited, 2026b), with an EIA Report in support of the Marine Licence Application proposed to be submitted by the end of 2027.

341. This Chapter of the **Bellrock OnTDA Scoping Report** provides an overview of the existing environment and sets out the proposed methodology and approach to assessing effects on geology and ground conditions receptors within the Bellrock OnTDA EIA Report. This Chapter has been prepared by Haskoning.

342. This Chapter should be read in conjunction with the following chapters of the **Bellrock OnTDA Scoping Report**:

- **Chapter 7: Hydrology and Flood Risk;**
- **Chapter 8: Land Use and Agriculture;**
- **Chapter 9: Onshore Ecology and Nature Conservation;** and
- **Chapter 18 Human Health.**

343. This Chapter is likely to have key inter-relationships with the above receptors, which will be considered appropriately where relevant in the Bellrock OnTDA EIA Report.

6.2 Legislation, Policy and Guidance

344. **Table 6.1** sets out the legislation, policy and guidance relevant to the geology and ground conditions assessment, where appropriate. The overarching legislation relevant to the Bellrock Onshore Transmission Infrastructure is described in **Chapter 2: Legislative and Policy Context**.

Table 6.1: Summary of Relevant Legislation, Policy, and Guidance for the Geology and Ground Conditions Assessment

Relevant Legislation, Policy, and Guidance	Relevance to the Assessment
Legislation	
Environmental Protection Act 1990 - Part IIA Contaminated Land (including Environmental Protection Act 1990 - Part IIA Contaminated Land: Statutory Guidance Edition 2 (Scottish Government, 2006))	The legislation provides the statutory definition of contaminated land. Section 78A (United Kingdom Government, 1990) and 78A(2) (Scottish Government, 2006) states that contaminated land, for the purposes of Part IIA, is: "*any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that –* *(a) significant harm is being caused or there is a significant possibility of such harm being caused; or* *(b) significant pollution of the water environment is being caused or there is a significant possibility of such pollution being caused*". The legislation also provides the regulatory basis for the identification, designation and remediation of contaminated land. Additionally, the legislation introduced by the Scottish Government was intended to replace guidance issued in the Scottish Executive Rural Affairs Department Circular 1/2000 (2000) following changes to the contaminated land regime in Scotland.
Town and Country Planning (Scotland) Act 1997	Principal legislative framework for Scotland's planning system, requiring material considerations to be taken into account in the preparation of development plans and the determination of development proposals.
Contaminated Land (Scotland) Regulations 2000 (Scottish Statutory Instrument 2000 No.178) Contaminated Land (Scotland) Regulations 2005 (Scottish Statutory Instrument 2005/658)	The legislation provides a framework for the identification, assessment and remediation of contaminated land (special sites) in Scotland. The 2005 regulations provide updated terminology and provisions to those included within the 2000 regulations.
The Water Environment (Groundwater and Priority Substances) (Scotland) Regulations 2009	The legislation transposes for Scotland the European Parliament Directive 2006/118/EC and Directive 2008/105/EC ('the Groundwater Directive 2006' and 'the Priority Substances Directive' respectively).
Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 'EIA Regulations'	Schedule 4 of the Town and Country Planning Regulations states that the description of the likely significant effects should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.
Planning (Scotland) Act 2019	The legislation provides details on how land is developed and used. It aims to strengthen development planning, community involvement, and the role of the National Planning Framework (NPF). The plan-led system aims to support inclusive growth, housing delivery, infrastructure development and community empowerment. The Act requires alignment of local plans with national priorities and long-term spatial strategies.

Relevant Legislation, Policy, and Guidance	Relevance to the Assessment
Policy	
Groundwater Protection Policy for Scotland (Scottish Government and Scottish Environment Protection Agency (SEPA), 2009)	The main aims of the policy are to provide a sustainable future for groundwater within Scotland and to provide SEPA with a framework to: *"Protect groundwater quality by minimising the risk posed by point and diffuse sources of pollution;* *Maintain the groundwater resource by authorising abstractions and by influencing developments which could affect groundwater quality".*
National Planning Framework 4 (NPF4) (Scottish Government, 2023)	NPF4 presents the principles to inform future planning in Scotland. The following policies are considered relevant to the assessment: ▪ **Policy 4: Natural Places** aims to protect Scotland's designated sites, including those which may be designated for geological interests; ▪ **Policy 5: Soils** aims to protect and enhance Scotland's soils, including carbon-rich soils and peatland; ▪ **Policy 9: Brownfield, vacant and derelict land and empty buildings** aims to reuse brownfield land, which may be contaminated and require remediation; ▪ **Policy 23: Health and safety** aims to protect people and places from environmental harm, which could result from contamination; and ▪ **Policy 33: Minerals** aims to manage minerals in a sustainable way and safeguard important resources.
Aberdeenshire Local Development Plan (LDP) (Aberdeenshire Council, 2023)	The Aberdeenshire LDP sets out the long-term vision for change to the local authority area, which covers the whole of Aberdeenshire except for areas that lie within the Cairngorms National Park. The LDP provides the framework for development management decisions on planning applications. The following sections of the LDP are considered relevant to the geology and ground conditions assessment: ▪ **Section 7: Shaping Development in the Countryside** which safeguards special rural areas, including the coastal zone (Policy R1), encourages development on brownfield land (Policy R2) and the safeguarding of mineral resources (Policy R3); ▪ **Section 9: Shaping Places** outlines that developments which could pose a pollution risk would be refused unless satisfactory mitigation measures are implemented to minimise impacts (Policy P4). Policy P4 also states that development would not be permitted on land known or suspected of being contaminated unless appropriate site investigations have been undertaken and remedial measures implemented, if necessary, which would render the site suitable for its intended use; ▪ **Section 10: Natural Heritage and Landscape** outlines that new development that may have unacceptable adverse effects on nature conservation sites designated for their geodiversity should be refused unless an assessment demonstrates that the properties of the site would not be compromised or significant effects are outweighed by social, environmental or economic benefits of national importance (Police E1); and

Relevant Legislation, Policy, and Guidance	Relevance to the Assessment
	▪ **Section 12: Protecting Resources** outlines that approval would not be given for developments which have a negative effect on important environmental resources, including water and important mineral deposits, unless public economic or social benefits outweigh any negative effects (Policy PR1).
Guidance	
Aberdeenshire Council's Contaminated Land Strategy (Aberdeenshire Council, 2011)	The Contaminated Land Strategy was produced by Aberdeenshire Council in order to fulfil its statutory duties as part of Part IIA of the Environmental Protection Act 1990. The strategy discusses the characteristics of Aberdeenshire, the identification and prioritisation of potentially contaminated land and local authority procedures and information management.
Planning Advice Note 33: Development of contaminated land (Scottish Government, 2017)	The Planning Advice Note provides advice on the development of contaminated land, the approach to contaminated land in development plans and determination of planning applications when a site is or may be contaminated. The note also provides guidance on where further information and advice in relation to contaminated land can be found.
Land Contamination Risk Management' (Environment Agency, 2025) and 'Information Note on the Use of Land Contamination Risk Management Guidance in Scotland' (SEPA, 2025)	The guidance aims to help those assessing potentially contaminated sites to identify and assess the risks posed to sensitive receptors from potentially contaminated sites, make appropriate decisions in relation to the outcome of the assessment and identify the required actions necessary e.g. implement remediation if deemed necessary.
BS10175: 2026 'Investigation of Potentially Contaminated Sites, Code of Practice (BSI, 2026)	BS 10175:2026 provides recommendations and guidance for the investigation of land that may be affected by contamination or by naturally elevated concentrations of potentially harmful substances. It outlines a structured process for determining and managing risks through scientifically robust data collection related to soil, groundwater, surface water, and ground gas. It will be used to inform the geology and ground conditions impact assessment.

6.3 Consultation

345. Consultation with Aberdeenshire Council has been undertaken, including engagement through Aberdeenshire Council's Pre-application Advice Service. A summary of consultation activities undertaken to date is provided in **Table 6.2.**

Table 6.2: Consultation Relevant to Geology and Ground Conditions

Consultee	Date/Document	Comment	How Comment has been Addressed
Aberdeenshire Council (Environmental Health)	19 August 2026 Pre-application Advice letter	*"The site encompasses areas of landfilling and other potentially contaminative activities/uses. A future planning application must include an assessment of the site prepared in accordance with BS10175: 2026 'Investigation of Potentially Contaminated Sites, Code of Practice' and associated current guidance."*	The geology and ground conditions assessment will be undertaken in accordance with all applicable guidance, including BS10175: 2026 'Investigation of Potentially Contaminated Sites, Code of Practice (see **Table 6.1**).
		"The SEPA dataset indicates a significant number of private water supplies (PWS) source types are unknown. These sources will need to be confirmed, and it is highlighted that the source maybe at a different location from the property it serves. All PWS with groundwater sources that potentially will fall within 250m of any limit of deviation or PiP planning application boundary will need to be identified and subsequently assessed. *SEPA will expect their Guidance on Assessing the Impacts of Development on Groundwater Abstractions to be followed in the planning application process.* *The status of any wells that fall within 250m buffer of the limit of deviation should be confirmed if not identified on the Council or SEPA datasets."*	Data relating to PWS, including the potential source (where available), will be obtained and reviewed as part of the EIA process. Hydrogeological risk assessments will be undertaken in areas where potential risks to groundwater resources are identified (see **Table 6.4**). This would include PWS with groundwater sources that fall within 250 m of the boundary for the Bellrock OnTDA EIA Report. Further details regarding the assessment of impacts upon PWS is provided in **Chapter 7: Hydrology and Flood Risk**.

6.4 Existing Environment

6.4.1 Study Area

346. The geology and ground conditions study area within this **Bellrock OnTDA Scoping Report** includes the area wholly within the Bellrock OnTDA Scoping Boundary, as shown in **Figure 6.1** (**Appendix A (Volume 1)**), and does not include any buffer zones.

347. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process to define the Bellrock OnTDA. The geology and ground conditions study area will be updated for the Bellrock OnTDA EIA Report to reflect this refinement (see **Section 1.4** in **Chapter 1: Introduction**).

6.4.2 Data and Information Sources

348. Baseline data for the geology and ground conditions assessment have been reviewed from the sources listed in **Table 6.3**. This data has been used to inform the baseline conditions within the Bellrock OnTDA Scoping Boundary with respect to geology and ground conditions. These data will be subject to further detailed review and analysis to inform the Bellrock OnTDA EIA.

Table 6.3: Summary of Key Data Information Sources for Geology and Ground Conditions

Dataset	Temporal Coverage	Data Contents
Aberdeenshire Council (2026)	2026	Mineral safeguarded sites, private groundwater abstractions, brownfield sites and Part 2A sites determined as contaminated land.
British Geological Survey (BGS) (1999)	1999-2026	Solid geology, superficial geology, artificial/infilled ground, borehole records, ground stability issues, faults, geochemistry and mineral extraction sites.
Environmental Database Geospatial Information System data	2026	Historical mapping, site sensitivity data, trade directory and regulatory information.
Google Earth	2026	Aerial images.
Mining Remediation Authority (2026)	2026	Coal mining reporting areas.
Multi Agency Government Information for the Countryside map application	2026	Ramsar sites, Special Protection Areas, Special Areas of Conservation, Sites of Special Scientific Interest, National Nature Reserves.
SEPA	2026	Drinking water protected areas (DWPAs), authorised waste sites and groundwater abstractions.
Scotland's Environment map application (SEWeb)	2026	Land capability for agriculture, aquifer classifications, regulatory information, DWPAs, environmentally sensitive areas and groundwater classification.
United Kingdom Health Security Agency	2026	Radon gas risk.
Zetica (2026)	2026	Unexploded bomb risk maps.

349. Any additional datasets will be identified through ongoing consultation with stakeholders.

6.4.3 Baseline Conditions

350. The baseline conditions within the geology and ground conditions study area are presented in this section.

6.4.3.1 Geology and Aquifer Designations

351. A review of the published geological mapping available on the BGS Geoindex website (accessed July 2026) and BGS map portal (BGS Geological Map for Stonehaven Solid and Drift, Sheet number 67, 1999) indicates that the geology and ground conditions study area is underlain by differing superficial and bedrock geology as summarised in **Figure 6.2** and **6.3** in **Appendix A (Volume 1),** respectively. Localised areas of Made Ground associated with previously developed or infilled land may underlie parts of the geology and ground conditions study area.

352. Superficial deposits present within the geology and ground conditions study area are listed below:

- Peat;
- Alluvium - Clay, silt, sand and gravel;
- River Terrace Deposits (Undifferentiated) - Gravel, sand and silt;
- Lacustrine deposits - Clay, silt and sand;
- Raised marine beach deposits of Holocene age - Sand and gravel;
- Raised marine beach deposits, late Devensian - Sand and gravel;
- Drumlithie Sand and Gravel Formation - Sand and gravel;
- Ury Silts Formation - Clay, silt and sand;
- Mill of Forest Till Formation - Diamicton;
- Lochton Sand and Gravel Formation - Sand, gravel and boulders;
- Hummocky (Moundy) Glacial Deposits - Diamicton, sand and gravel; and
- Banchory Till Formation - Diamicton.

353. Bedrock present within the geology and ground conditions study area are listed below:

- North Britain Siluro-Devonian Calc-Alkaline Dyke Suite-Quartz-feldspar-porphyry;
- North Britain Siluro-Devonian Calc-Alkaline Dyke Suite-Porphyritic felsite;
- North Esk Formation-Metabasalt, psammite and pelite psammite – Class 2C low productivity aquifer;
- Glen Lethnot Grit Formation-Pelite – Class 2C low productivity aquifer;
- Glen Lethnot Grit Formation-Gritty psammite – Class 2C low productivity aquifer;
- Glen Lethnot Grit Formation-Pelite and semipelite – Class 2C low productivity aquifer;
- Glen Lethnot Grit Formation-Phyllitic pelite – Class 2C low productivity aquifer;
- Glen Lethnot Grit Formation-Micaceous psammite – Class 2C low productivity aquifer;

- Glen Lethnot Grit Formation-Schistose semipelite – Class 2C low productivity aquifer;
- Glen Lethnot Grit Formation-Semipelite and slaty pelite – Class 2C low productivity aquifer;
- Carron Sandstone Formation-Sandstone – Class 2B moderately productive aquifer;
- Cowie Harbour Conglomerate Member-Conglomerate – Class 2B moderately productive aquifer;
- Castle of Cowie Member-Sandstone and siltstone, interbedded Sandstone – Class 2B moderately productive aquifer; and
- Cowie Sandstone Formation-Sandstone – Class 2B moderately productive aquifer.

354. The southern extents of the geology and ground conditions study area is bisected by the Highland Boundary Fault which runs in an approximate east west orientation at this location. Branching south eastwards from the Highland Boundary Fault are the Gallaton Fault and Mons Craig Fault, both faults are again present within the southern extents of the geology and ground conditions study area.

6.4.3.2 Drinking Water Protected Areas, Groundwater Classification and Abstractions

355. The majority of the geology and ground conditions study area is located within the Portlethen DWPA, with the very southern extent of the geology and ground conditions study area located within the Stonehaven DWPA. A small portion the eastern extent of the preferred landfall Area of Search is not located within a DWPA (see **Figure 6.4** in **Appendix A (Volume 1)**).

356. The entirety of the geology and ground conditions study area is located within a groundwater classification area designated as ‘good’.

357. There are four recorded PWS located within the geology and ground conditions study area, all of which are located outside of the preferred landfall and OnSS Areas of Search. Data relating to PWS will be obtained and reviewed as part of the EIA process.

6.4.3.3 Hydrology

358. Watercourses and water bodies are located partially or wholly within the geology and ground conditions study area (see **Figure 6.5** in **Appendix A (Volume 1)**), these include, but are not limited to, the following:

- Black Burn;
- Burn of Annamuick;
- Burn of Baulks;
- Burn of Elfhill;
- Carron Water;
- Cheyne Burn;
- Cowie Water;

- Cowton Burn;
- Green Burn;
- Limpet Burn;
- Mallie's Den Burn;
- Megray Burn;
- Queel Burn;
- Stonehaven Bay; and
- Ury Burn.

359. Numerous smaller streams and ponds/lakes are also located within the geology and ground conditions study area. Some of the smaller streams may form tributaries of the larger named watercourses listed above. There is also the potential for other surface water features, such as springs, to be present within the geology and ground conditions study area.

360. There is the potential for surface water abstractions to be present within the geology and ground conditions study area. Data relating to surface water abstractions will be obtained and reviewed as part of the EIA process.

361. Water resources are considered further in **Chapter 7: Hydrology and Flood Risk**.

6.4.3.4 Designated Sites

362. There are three Geological Conservation Review (GCR) Sites located within the preferred landfall Area of Search of the geology and ground conditions study area. These sites include Garron Point GCR, Garron Point to Slug Head GCR and The Touties (Non-marine Devonian) GCR (see **Figure 6.6** in **Appendix A (Volume 1)**).

363. Garron Point Site of Special Scientific Interest (SSSI) is designated in part for its geology outcroppings along the coast, and is located within the preferred landfall Area of Search of the geology and ground conditions study area (see **Figure 6.6** in **Appendix A (Volume 1)**).

364. The ecological features of designated sites (e.g. Garron Point SSSI) located either wholly or partially within the geology and ground conditions study area are considered in **Chapter 9: Onshore Ecology and Nature Conservation**.

6.4.3.5 Mining

365. The Mining Remediation Authority interactive viewer (accessed July 2026) indicates that land within the geology and ground conditions study area is not located within a Coal Mining Reporting Area. As such, there is not considered to be a risk from historical coal mining activities.

366. Scotland's Environment interactive viewer (accessed July 2026) also indicates that the geology and ground conditions study area is not located within an area of surface mining (current or historical).

6.4.3.6 Mineral Resources

367. The geology and ground conditions study area is not located within a Mineral Safeguarding Areas (see **Figure 6.7** in **Appendix A (Volume 1)**).

6.4.3.7 Nitrate Vulnerable Zones

368. Scotland's Environment interactive viewer (accessed July 2026) indicates that the land within the geology and ground conditions study area is not located within a Nitrate Vulnerable Zone.

6.4.3.8 Agricultural Land

369. The Land Capability for Agriculture (Partial Cover) dataset indicates that agricultural land located within the geology and ground conditions study area is predominantly a mix of Classes 3.1 (land capable of producing consistently high yields of a narrow range of crops and/ or moderate yields of a wider range) and 3.2 (land capable of average production though high yields of barley, oats and grass can be obtained).

370. Other, non-contamination related effects on agricultural land are considered further in **Chapter 8: Land Use and Agriculture**.

6.4.3.9 Unexploded Ordnance

371. A review of Zetica's online unexploded bombs risk map (accessed July 2026) indicates that the geology and ground conditions study area is located within an area of low risk with regards to encountering unexploded bombs associated with Word War II bombing. However, it is noted that air crash sites are located within the local area, these air crash sites are identified as occurring within the geology and ground conditions study area at Hill of Trusta, Upper Wyndings and Kempstone Hill (see **Figure 11.2** (**Appendix A (Volume 1)**) reference points MAB1441, MAB1761 and MAB62810 respectively). Additional details on these sites and the unexploded bombs risk within the Bellrock OnTDA PPP boundary will be obtained and reviewed as part of the EIA process.

6.4.3.10 Land Use and Potential Sources of Contamination

372. The geology and ground conditions study area is a mix of agricultural land and wider areas of forestry towards the west of the geology and ground conditions study area (Fetteresso Forest). There is the potential for both diffuse and point sources of ground contamination associated with the agricultural land located within the geology and ground conditions study area to be present in relation to historical and current agricultural activities.

373. Settlements and isolated properties within the geology and ground conditions study area have the potential to contain historical sources of contamination due to past industrial use. Settlements within the geology and ground conditions study area include, but are not limited to, Fetteresso, Redcloak, Stonehaven (Garron Drive area), Rickarton and Mergie.

374. Industrial features within the geology and ground conditions study area may represent potential sources of contamination. Named features include, but are not limited to, Fetteresso Substation, The Old Sawmill, Ury Estate Development, New Maines Car Park/Maintenance and Gravel and Sand Workings.

375. Cairnross Limited landfill, formerly recorded as Bruce Plant Limited landfill, is located within the geology and ground conditions study area. The landfill is recorded as operational, and permitted

to accept household, inert, commercial and industrial wastes. A second operational landfill, Redcloak Farm, is also present within the geology and ground conditions study area. The landfill is permitted to accept household, commercial, industrial and other special waste.

376. Three waste capacity exempt sites are also recorded within the geology and ground conditions study area. There are multiple records of quarrying, pits and areas of potential infilling also present within the geology and ground conditions study area which may represent potential sources of contamination (see **Figure 6.8** in **Appendix A (Volume 1)**).

6.5 Potential Impacts

6.5.1 Potential Construction Phase Impacts

377. Potential impacts during the construction of the Bellrock Onshore Transmission Infrastructure may arise from activities associated with site preparation and construction works which are outlined in **Chapter 3: Project Description**.

378. These activities may result in the following potential impacts:

- Impacts to human health from on-site and off-site contamination sources;
- Impacts on groundwater quality and groundwater resources;
- Impacts on surface water quality and associated ecological habitats from contamination;
- Impacts to designated geological sites;
- Impacts to the built environment;
- Impacts to agricultural land from contamination; and
- Impacts associated with excavated materials during construction.

379. Impact pathways which commence during the construction phase and continue throughout the operational life of the Bellrock Onshore Transmission Infrastructure will be assessed as part of the O&M phase assessment, as this represents the point at which the maximum spatial extent of these impacts is reached following completion of installation activities. This approach recognises that these impacts are initiated during construction and may continue through O&M into decommissioning where infrastructure remains in situ, but that they represent a continuation of the same impact pathway rather than separate impacts for each development phase. This approach avoids unnecessary duplication of assessment across development phases.

6.5.2 Potential Operation and Maintenance Phase Impacts

380. Potential impacts during the O&M of the Bellrock Onshore Transmission Infrastructure arise from both the long-term presence and operation of infrastructure and periodic, planned and unplanned, maintenance activities.

381. Planned and unplanned maintenance activities, such as inspections, repair, and replacement works, may give rise to localised and temporary disturbance, similar in nature to that occurring during the construction phase, but typically of a smaller spatial extent and lower magnitude.

382. These activities may result in the following potential impact pathways:

- Impacts to human health from on-site and off-site contamination sources;
- Impacts on groundwater quality and groundwater resources;
- Impacts on surface water quality and associated ecological habitats from contamination;
- Impacts to designated geological sites;
- Impacts to the built environment; and
- Impacts to agricultural land from contamination.

6.5.3 Potential Decommissioning Phase Impacts

383. Potential impacts during the decommissioning of the Bellrock Onshore Transmission Infrastructure will depend on the final decommissioning strategy, including the extent to which infrastructure is removed or left in-situ (see **Chapter 3: Project Description** for further details).

384. Where infrastructure is removed, decommissioning activities are expected to result in localised land disturbance, broadly similar in nature to construction activities, although typically of reduced overall magnitude, as activities are likely to be more targeted.

385. Where infrastructure is left in-situ (either partially or wholly), impacts associated with the continued presence of infrastructure are considered in the O&M phase and are not duplicated here.

386. Decommissioning activities may result in the following potential impact pathways:

- Impacts to human health from on-site and off-site contamination sources;
- Impacts on groundwater quality and groundwater resources;
- Impacts on surface water quality and associated ecological habitats from contamination;
- Impacts to designated geological sites;
- Impacts to the built environment; and
- Impacts to agricultural land from contamination.

6.5.4 Embedded Mitigation Measures

387. Embedded mitigation has been identified, as presented in **Table 6.4** and **Appendix B: Mitigation and Monitoring Register** (**Volume 1**), in accordance with the mitigation hierarchy, with the aim of avoiding, preventing, reducing, and where possible, offsetting potential adverse environmental effects. Consistent with the Institute of Environmental Management and Assessment (now named

the Institute of Sustainability and Environmental Professionals) guidance (2024), primary (inherent design measures) and tertiary (standard good practice) mitigation are embedded within the project design and are, therefore, considered in the assessment of effects. Secondary mitigation measures will be identified where required through the EIA process, informed by the outcomes of the initial impact assessment.

388. The current embedded mitigation measures may be refined as the project design evolves. In addition, further embedded mitigation measures may be developed as part of the iterative design process during the EIA process.

Table 6.4: Embedded Mitigation Measures Relevant to Geology and Ground Conditions

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	✓	X	Site selection was informed by the Bellrock OnTDA Design Principles and included consideration of sensitive receptors	The site selection process avoided locating Onshore Transmission Infrastructure within areas of known or potential contamination, including authorised and historical landfills during route refinement. This ensures that potential sources of contamination are avoided from the outset.	Primary
✓	X	X	Development of and adherence to a Construction Environmental Management Plan.	The Construction Environmental Management Plan will include a Pollution Prevention Plan (or similar) and Emergency Response Plan (or similar), to contain measures that will avoid or mitigate potential impacts on geology and ground conditions receptors. This ensures that potential contamination risks are known are mitigated for during construction.	Tertiary
✓	X	X	Production of Hydrogeological Risk Assessments, if required.	Hydrogeological risk assessments, informed by ground investigations, will be undertaken in areas where potential risks to groundwater receptors have been identified. This ensures that potential contamination risks to groundwater receptors are fully understood.	Tertiary
✓	X	X	Production of a contaminated land and groundwater scheme, if required.	Will identify any areas of known or potential contamination and provide a protocol for the discovery of unexpected contamination.	Tertiary

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6.6 Scoping of Potential Impacts

6.6.1 Construction Phase

6.6.1.1 Impacts to Human Health from On-site and Off-site Contamination Sources

389. The excavation of cable trenches, earthworks and deeper foundations (if required for the Bellrock OnSS), as well as the movement and stockpiling of soils has the potential to mobilise pre-existing ground contamination (if present). In addition to mobilising pre-existing contamination, construction works may alter or create new preferential pathways between a source and receptor. This could result in impacts to human health through dermal contact, inhalation and ingestion of contaminants. Therefore, impacts to human health receptors will be **scoped in** for further assessment in the EIA.

6.6.1.2 Impacts on Groundwater Quality and Groundwater Resources

390. Direct and indirect impacts to aquifers, groundwater abstractions (including PWS) and drinking water protection areas may occur due to the intrusive nature of earthworks and trenching. The significance of effects will be dependent on the depth of the aquifer units in relation to the proposed depth of the intrusive works.

391. During construction, surface layers will be excavated allowing increased infiltration of rainwater and surface run-off to the subsurface. This could potentially mobilise pre-existing sources of contamination and create new preferential pathways allowing for the migration of contamination to the underlying aquifers, which could indirectly lead to a deterioration in groundwater quality.

392. Direct impacts to Class 2B and 2C Aquifers, groundwater abstractions and drinking water protection areas may occur from deep ground workings associated with trenchless crossings and deeper foundation works (if required). There is the potential for drilling mud to leak along the drill path, or from the immediate area, which could cause contamination of groundwater and a deterioration in groundwater quality. Trenchless techniques also have the potential to create preferential pathways allowing for the migration of contamination to the underlying aquifers.

393. Indirect impacts to groundwater quality may result from the accidental release of lubricants, fuels and oils via spillages, leakage or storage. These substances may enter the ground and subsequently contaminate groundwater, potentially resulting in adverse effects on the quality of the resource and associated abstractions.

394. Therefore, impacts on groundwater quality and groundwater resources will be **scoped in** for further assessment in the EIA.

6.6.1.3 Impacts on Surface Water Quality and Associated Ecological Habitats from Contamination

395. Installation of the onshore export cables and construction of the Bellrock OnSS will require substantial earthworks, as well as the potential for deeper foundation works for the Bellrock OnSS. These activities have the potential to disturb pre-existing contamination which could migrate via existing or newly created preferential pathways during the construction phase and be discharged

into surface waters. Migration of contamination and discharge into surface water features may also impact upon ecological habitats supported by these features.

396. Construction works could also introduce new sources of contamination, for example via spillages and leaks of fuels and chemicals. These have the potential to migrate vertically and/or horizontally which may result in indirect impacts to surface water features and the ecological habitats which they support.

397. Therefore, impacts on surface water quality and associated ecological habitats from contamination will be **scoped in** for further assessment in the EIA.

6.6.1.4 Impacts to Designated Geological Sites

398. Where overlaps between the construction footprint and the designated geological sites outlined in **Section 6.4.3.4** exist, construction activities such as trenchless techniques could directly impact the identified features. Therefore, impacts on designated geological sites will be **scoped in** for further assessment in the EIA.

6.6.1.5 Impacts to the Built Environment

399. Activities undertaken during the construction phase have the potential to impact on the existing built environment. The modification, or creation of new preferential pathways has the potential to allow for contamination or gases to migrate and degrade utilities and concrete. Therefore, impacts on the built environment will be **scoped in** for further assessment in the EIA.

6.6.1.6 Impacts to Agricultural Land from Contamination

400. Construction activities have the potential to both mobilise pre-existing and/or introduce new sources of contamination. Construction activities also have the potential to modify existing or create new preferential pathways which may result in the contamination of agricultural land and have an adverse effect on its current Class. Therefore, impacts on agricultural land from contamination will be **scoped in** for further assessment in the EIA.

6.6.1.7 Impacts Associated with Excavated Materials During Construction

401. Excavations and earthworks associated with the construction of the Bellrock Onshore Transmission Infrastructure have the potential to generate substantial volumes of arisings. Where these arisings cannot be re-used within the Bellrock OnTDA, there is the potential for them to be made available for use in other developments within the wider area (e.g. housing developments). If there is no demand for the material within the wider area, it may require disposal at a suitably licenced landfill facility. Due to the anticipated volume of materials that could be generated, potential impacts associated with excavations and earthworks will be **scoped in** for further assessment in the EIA.

6.6.2 Operation and Maintenance Phase

6.6.2.1 Impacts to Human Health from On-site and Off-site Contamination Sources

402. During the operation of the Bellrock Onshore Transmission Infrastructure, there is the potential for maintenance workers to come into direct contact with contaminated soils and groundwater should unplanned excavations be required. There is also the potential for maintenance workers to be

exposed to ground gases and or vapours when working in confined spaces. Therefore, impacts to human health receptors will be **scoped in** for further assessment in the EIA.

6.6.2.2 Impacts on Groundwater Quality and Groundwater Resources

403. O&M activities during the operation of the Bellrock Onshore Transmission Infrastructure have the potential to introduce new sources of contamination through the leakage or spillage of fuels, oils or other chemicals from machinery, vehicles or equipment used. Should unplanned excavation works be required during the operational phase, there is also the potential to mobilise pre-existing sources of contamination which could have an adverse effect on groundwater quality within the underlying aquifers. Therefore, impacts on groundwater quality and groundwater resources will be **scoped in** for further assessment in the EIA.

6.6.2.3 Impacts on Surface Water Quality and Associated Ecological Habitats from Contamination

404. O&M activities during the operation of the Bellrock Onshore Transmission Infrastructure have the potential to introduce new sources of contamination through the leakage or spillage of fuels, oils or other chemicals from machinery, vehicles or equipment used. Should unplanned excavation works be required during the operational phase, there is also the potential to mobilise pre-existing sources of contamination which could have an adverse effect on surface water quality and the ecological habitats that they support. Therefore, impacts on surface water quality and associated ecological habitats from contamination will be **scoped in** for further assessment in the EIA.

6.6.2.4 Impacts to Designated Geological Sites

405. It is considered unlikely that operation of the Bellrock Onshore Transmission Infrastructure would require planned excavation works at the landfall, where the designated geological sites are located. Should a cable failure occur, the affected export cable sections would be repaired via the underground transition joint bay(s). Consequently, significant effects on geological sites during operation are not anticipated and are, therefore, proposed to be **scoped out** of further assessment in the EIA.

6.6.2.5 Impacts to the Built Environment

406. Mitigation measures, such as the use of materials suitable for the ground conditions present within the Bellrock OnTDA, will be incorporated into the design of the Bellrock Onshore Transmission Infrastructure. This may include, for example, the use of ground gas protection measures should a viable source of contamination capable of generating ground gas be identified. As suitable materials and mitigation measures will be incorporated into the design of the Bellrock Onshore Transmission Infrastructure potential impacts to the built environment during the operational phase are considered unlikely. Therefore, impacts to the built environment will be **scoped out** of further assessment in the EIA.

6.6.2.6 Impacts to Agricultural Land from Contamination

407. O&M activities during the operation of the Bellrock Onshore Transmission Infrastructure have the potential to introduce new sources of contamination through leakage or spills of fuels, oils or other chemicals used during the operational phase. Should unplanned excavation works be required during the operational phase, there is also the potential to mobilise pre-existing sources of

contamination which could have an adverse effect on agricultural land. Therefore, impacts on agricultural land from contamination will be **scoped in** for further assessment in the EIA.

6.6.3 Decommissioning Phase

408. It is anticipated that decommissioning impacts on geology and ground conditions receptors would be similar in nature to those of construction, although the magnitude of impact is likely to be lower.

409. The same potential impacts identified for construction will, therefore, be scoped in (and out) of the Bellrock OnTDA EIA for the decommissioning phase (see **Table 6.5**).

6.6.4 Bellrock OnTDA Whole Project Assessment

410. The Bellrock OnTDA Whole Project Assessment will follow the general methodology set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessmen**t and will consider whether interactions between the Bellrock Onshore Transmission Infrastructure and the Bellrock Offshore Transmission Area and/or the Bellrock Wind Farm Infrastructure have the potential to alter the magnitude of impacts and significance of effects identified for geology and ground conditions receptors identified in the Bellrock OnTDA-alone assessment. Refer to **Plate 4.3** (**Chapter 4: Approach to Scoping and Environmental Impact Assessment**) for the approach and methodology that will be followed for the Bellrock OnTDA Whole Project Assessment.

411. Interactions between the Bellrock Onshore Transmission Infrastructure and the Offshore Transmission Infrastructure have the potential to alter the potential effects in relation to designated geological sites and surface water quality and associated ecological habitats, as identified in **Sections 6.6.1** and **6.6.2**. This has the potential to occur in intertidal and nearshore areas. Therefore, the Bellrock OnTDA Whole Project Assessment is **scoped in** for effects upon designated geological sites and surface water quality and associated ecological habitats only.

6.6.5 Potential Cumulative Effects

412. The Bellrock OnTDA Cumulative Effects Assessment (CEA) will be undertaken in accordance with the methodology set out in **Section 4.7** of **Chapter 4: Approach to Scoping and Environmental Impact Assessment**. An overview of the Bellrock OnTDA assessment process, including the relationship between the Bellrock OnTDA Whole Project Assessment and the CEA, is provided in **Plate 4.3**.

413. Overall, the CEA is a two-staged process, with the first stage assessing the impacts as a result of the Bellrock OnTDA Whole Project Assessment (**Section 6.6.4**) together with the Hurlie substation. The second stage will then assess the impacts as a result of the Bellrock OnTDA Whole Project Assessment together with the Hurlie substation plus impacts arising from other reasonably foreseeable plans and projects where there is conceptual, spatial, and/or temporal overlap. This will determine the potential for cumulative impacts and subsequent cumulative effects on geology and ground conditions receptors.

414. There is potential for cumulative impacts on geology and conditions receptors where the Bellrock Onshore Transmission Infrastructure and other plans and projects where there is a spatial and temporal overlap. Projects located within a Zone of Influence of 1 km will be assessed for potential

cumulative effects on geology and ground conditions receptors. Cumulative effects are, therefore, **scoped in** for further assessment.

415. The CEA will consider other plans and projects with the potential to affect receptors through the same or similar impact pathways. Spatial screening of plans and projects will be defined proportionately, considering the Zone of Influence associated with each impact pathway, alongside the potential for conceptual and temporal overlap, to ensure that only plans/projects with realistic potential for cumulative interaction are included.

6.6.6 Potential Transboundary Effects

416. Transboundary effects on geology and ground conditions receptors are not anticipated to arise from the construction, O&M, and decommissioning of the Bellrock Onshore Transmission Infrastructure.

417. There is no plausible mechanism for transboundary effects to occur. Therefore, transboundary effects are **scoped out** of further assessment in the EIA.

6.6.7 Summary of Potential Geology and Ground Conditions Impacts Scoped In and Scoped Out

418. **Table 6.5** summarises the outcomes of the scoping assessment presented in **Sections 6.6.1** to **6.6.3**, identifying the relevant impacts for geology and ground conditions and confirming whether these have been scoped in or out of further assessment in the EIA.

Table 6.5: Summary of Potential Geology and Ground Conditions Impacts Scoped In (✓) or Scoped Out (X)

Potential Impact	Scoped In (✓) or Scoped Out (X)		
	Construction	O&M	Decommissioning
Impacts to human health from on-site and off-site contamination sources	✓	✓	✓
Impacts on groundwater quality and groundwater resources	✓	✓	✓
Impacts on surface water quality and associated ecological habitats from contamination	✓	✓	✓
Impacts to designated geological sites	✓	X	✓
Impacts to the built environment	✓	X	✓
Impacts to agricultural land from contamination	✓	✓	✓
Impacts associated with excavated materials during construction	✓	X	X

Potential Impact	Scoped In (✓) or Scoped Out (X)		
	Construction	O&M	Decommissioning
Bellrock OnTDA Whole Project Assessment*	✓ (designated geological sites and surface water quality and associated ecological habitats)	✓ (surface water quality and associated ecological habitats only)	✓ (designated geological sites and surface water quality and associated ecological habitats)
Cumulative effects	✓	✓	✓
Transboundary effects	X	X	X
Notes: * see **Section 6.6.4** for further details on the scoping of the Bellrock OnTDA Whole Project Assessment for geology and ground conditions.			

6.7 Proposed Approach to Impact Assessment

419. As part of the EIA process, the existing environment with respect to geology and ground conditions will be described, including, but not limited to, the following:

- Geology and mineral resources;
- Hydrogeology, aquifer designations and groundwater resources;
- Surface waters;
- Agricultural land;
- Historical land use and potential sources of contamination; and
- Sensitive land uses (including designated sites).

420. The geology and ground conditions study area will be defined based on the distance over which impacts may occur and by the location of potential receptors that may be affected by those potential impacts. This will be established using professional judgment and will be supported by a Geo-Environmental Desk Study and Preliminary Risk Assessment (PRA). The PRA will form an appendix to the geology and ground conditions EIA chapter.

421. The geology and ground conditions study area will comprise a 100 m, 250 m and 1 km buffer around the Bellrock OnTDA. A 100 m buffer will incorporate a review of geological features, BGS boreholes and historical mapping. The geology and ground conditions study area will be extended to 1 km for assessing the presence of public potable groundwater abstraction wells and Control of Major Accident Hazard sites. This is due to the higher sensitivity of groundwater abstraction wells and higher risks posed by Control of Major Accident Hazard sites. Industrial installations or activities beyond 250 m are unlikely to have an impact on geology and ground conditions receptors.

422. The baseline for the geology and ground conditions assessment will be established in general accordance with the Environment Agency's 'Land Contamination Risk Management' (2025) and SEPA's 'Information Note on the Use of Land Contamination Risk Management Guidance in Scotland' (2025) which advocates a phased risk-based approach. A PRA will be undertaken to develop a Preliminary Conceptual Site Model. The Preliminary Conceptual Site Model will aid in the identification of potential sources of contamination within the geology and ground conditions study area (inclusive of a 100 m, 250 m and 1 km buffer). The Preliminary Conceptual Site Model will also aid in identifying the potential risks posed to sensitive receptors. Sensitive receptors include both those that currently exist and those that could be introduced as a result of the Bellrock Onshore Transmission Infrastructure e.g. construction workers.

423. The desk-based PRA forms the initial step in the assessment of ground conditions. The PRA will provide valuable information for the design of intrusive investigation works that may be required should potentially unacceptable risks associated with ground conditions be identified. The PRA will be progressed based on the data sources presented in **Table 6.3**.

424. Geology and ground conditions will be included within the Bellrock OnTDA EIA consultation and stakeholder process, as described in **Section 6.3**, to agree the approach to data collection and the specific assessment methods to be employed as part of the EIA.

6.7.1 Definitions of Sensitivity and Magnitude

425. The EIA will identify sensitive receptors and implement an approach to understand the impact of magnitude on geology and ground conditions receptors. The proposed definitions for use within the geology and ground conditions EIA assessment are provided in **Table 6.6** and **Table 6.7**.

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Table 6.6: Definitions of Sensitivity for Geology and Ground Conditions Receptors

Sensitivity	Definition
High – has very limited to no capacity to accommodate physical or chemical changes.	**General** Receptor is internationally or nationally important/rare with limited potential.
	Human health Construction workers involved in below ground construction/works/groundbreaking activities; Public and local residents/children (on and off site within 50 m); and Future end users (residential or allotment end use).
	Controlled waters and ecology DWPAs; Highly productive aquifers; Public water supplies/licensed surface water and groundwater abstractions for potable use; PWS for potable use (on and off site within 50 m); and Surface and groundwaters supporting internationally designated sites (e.g. Special Protection Area or Ramsar sites).
	Geological sites and mineral resources Mineral Safeguarding Area or Minerals Area of Search - nationally important resource; and Designated geological sites of international importance.
	Built environment Sites of international importance, World Heritage Sites and Scheduled Monuments.
	Agricultural land Prime agricultural land (Classes 1 to 3.1).

Sensitivity	Definition
Medium - has limited capacity to accommodate physical or chemical changes.	**General** Receptor is regionally important/rare with limited potential for offsetting/compensation.
	Human health Future end users (commercial/industrial end use/open space/farmers and workers on agricultural land); Public and local residents/children (off site at distances >50 m but <250 m); Commercial/industrial workers (off site within 50 m); and Construction workers (above ground).
	Controlled waters and ecology Moderately productive aquifers; PWS for potable groundwater abstraction (off site within 250 m; and Surface and groundwaters supporting nationally designated sites (e.g. SSSI).
	Geological sites and mineral resources Mineral Safeguarding Area or Minerals Area of Search - regionally important resources; and Designated geological site of national importance (e.g. SSSI, Geological Conservation Site).
	Built environment Commercial or residential buildings.
	Agricultural land Agricultural land of Class 3.2.
Low - has moderate capacity to accommodate physical or chemical changes.	**General** Receptor is locally important/rare.

Sensitivity	Definition
	Human health Future end users (transport end users such as car parks or highways); Public and local residents/children (off site >250 m); and Commercial/industrial workers (off site at distances >50 m but <250 m).
	Controlled waters and ecology Low productivity aquifer; and Groundwater or surface waters supporting locally important sites (e.g. Local Nature Reserves).
	Geological sites and mineral resources Adjacent to a Mineral Safeguarding Area or Minerals Area of Search; Low economically viable mineral resource; and Geological site of local importance e.g. quarry face.
	Built environment Car parks, highways, transport infrastructure and utilities.
	Agricultural land Agricultural land of Classes 4 to 6.3.
Negligible – is generally tolerant of physical or chemical changes.	**General** Receptor is not considered to be particularly important/rare.
	Human health Commercial/industrial workers (off site >250 m).

Sensitivity	Definition
	Controlled waters and ecology Rocks with essentially no groundwater; and Supports or contributes to habitats that are not sensitive to changes in surface hydrology or water quality.
	Geological sites and mineral resources No designated geological sites; and No economically viable minerals.
	Built environment Locally important roads and footpaths.
	Agricultural land Agricultural land of Class 7 or urban.

Table 6.7: Definitions of Magnitude of Impact for Geology and Ground Conditions Receptors

Magnitude	Definition
High – permanent or large-scale change affecting usability, risk or value over a wide area, or certain to affect regulatory compliance.	**Human health** Permanent or major change to existing risk exposure (adverse/beneficial); Unacceptable risks/severe harm to one or more receptors with a long-term or permanent effect (adverse); or Remediation and complete source removal (beneficial).
	Controlled waters Permanent, long-term or wide scale effects on water quality or availability (adverse/beneficial); Permanent loss or long-term derogation of a water supply source resulting in prosecution (adverse); Permanent habitat creation or complete loss (adverse/beneficial); or Measurable habitat changes that are sustainable/recoverable over the long-term (adverse/beneficial).
	Geological sites and mineral resources Complete loss of designated sites; or Complete sterilisation of mineral resources.
	Built environment Catastrophic damage to buildings or structures.
	Agricultural land Permanent or major change to existing class as a result of contamination.
Medium – reversible change affecting usability, value or risk over the medium-term or local area possibly affecting regulatory compliance.	**Human health** Medium-term or moderate change to existing risk of exposure (adverse/beneficial); or Unacceptable risks to one or more of the receptors with a medium-term effect (adverse).

Magnitude	Definition
	Controlled waters Medium-term or local scale effects on water quality or availability (adverse/beneficial); Medium-term derogation of a water supply source, possibly resulting in prosecution (adverse); or Observable habitat changes that are sustainable/recoverable over the medium-term (adverse/beneficial).
	Geological sites and mineral resources Partial loss of designated geological sites; or Medium-term or local scale loss of mineral resources.
	Built environment Damage to buildings or structures.
	Agricultural land Medium-term or local scale effects on class as a result of contamination.
Low – temporary change affecting usability, risk or value over the short-term or within the geology and ground conditions study area. Measurable permanent change with minimal effect on usability, risk or value. No effect on regulatory compliance.	**Human health** Short-term temporary or minor change to existing risk exposure (adverse/beneficial); or Unacceptable risks to one or more receptors with a short-term effect (adverse).
	Controlled waters Short-term or very localised effects on water quality or availability (adverse/beneficial); Short-term derogation of a water supply source (adverse); Measurable permanent effects on a water supply source that does not impact on its operations (adverse); or Observable habitat changes that are sustainable/recoverable over the short-term (adverse/beneficial).

Magnitude	Definition
	Geological sites and mineral resources Temporary change in status of designated geological sites; or Short-term or very localised effects on mineral resources.
	Built environment Easily repairable damage to buildings or structures.
	Agricultural land Short-term or very localised effects on class as a result of contamination.
Negligible – minor permanent or temporary change indiscernible over the medium to long-term. Short-term temporary change with no effect on usability.	**Human health** Negligible change to existing risk exposure; or Activity is unlikely to result in unacceptable risks to receptors (neutral).
	Controlled waters Very minor or intermittent impact on local water quality or availability (adverse/beneficial); Useability of a water supply source will be unaffected (neutral); or Very slight local changes that have no observable impact on dependent receptors (neutral).
	Geological sites and mineral resources No change in status of designated geological site; or Very minor impact on mineral resources.
	Built environment Very slight, non-structural damage or cosmetic harm to buildings or structures.
	Agricultural land Very minor effect on class as a result of contamination.

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6.8 Scoping Questions to Consultees

426. The following questions are proposed to consultees to help them frame and focus their responses to the geology and ground conditions scoping exercise, which would in turn inform the EIA:

- Have all relevant data sources been identified in the **Bellrock OnTDA Scoping Report**?
- Do you agree that the information described will be suitable for the characterisation of the existing environment?
- Have all geology and ground condition impacts resulting from the Bellrock Onshore Transmission Infrastructure been identified in the **Bellrock OnTDA Scoping Report**?
- Do you agree with the geology and ground condition impacts that have been scoped in/out from further consideration within the Bellrock OnTDA EIA Report?
- Do you agree with the proposed approach to assessment in the Bellrock OnTDA EIA Report?

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7 Hydrology and Flood Risk

7.1 Introduction

427. This Chapter of the **Bellrock Onshore Transmission Development Area (OnTDA) Scoping Report** considers the potential impacts on hydrology and flood risk receptors associated with the construction, operation and maintenance (O&M), and decommissioning of the Bellrock Onshore Transmission Infrastructure.

428. The Bellrock OnTDA Scoping Boundary (shown in **Figure 1.1 (Appendix A (Volume 1))**) defines the area within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process (as discussed in **Section 1.4** in **Chapter 1: Introduction**) to form the boundary of the Bellrock OnTDA Planning Permission in Principle (PPP) Application.

429. For the purposes of this **Bellrock OnTDA Scoping Report**, the Bellrock OnTDA Scoping Boundary encompasses the anticipated Onshore Transmission Infrastructure and associated activities for the Bellrock OnTDA landward of Mean Low Water Springs (MLWS). The Bellrock OnTDA Scoping Boundary overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) between Mean High Water Springs (MHWS) and MLWS.

430. The Bellrock Onshore Transmission Infrastructure includes:

- **Landfall**: located at Cowie, Aberdeenshire, where between two and six ducts are installed using trenchless techniques, allowing the offshore export cables to be brought ashore and connected to onshore export cables within the transition joint bay;
- **Onshore export cables**: up to six underground High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) onshore cable circuits, each up to 18 km in length, installed between landfall and the onshore substation;
- **Onshore substation (OnSS):** electrical equipment (such as converters, transformers, switchgear, and protection and control systems) enabling renewable electricity from the Bellrock Wind Farm Development Area (WFDA) received via the onshore export cables to be exported to the National Electricity Transmission System, and ancillary infrastructure; and
- **Hurlie substation connection works:** Infrastructure between the Bellrock OnSS to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the National Electricity Transmission System.

431. In addition, associated works are required to facilitate construction and O&M of the Onshore Transmission Infrastructure, including: access, signage, haul roads, spoil storage, material storage, fencing, borrow pits (if any), earthworks, welfare, security, landscape mitigation, ecological mitigation, biodiversity enhancement, operational lighting and drainage.

432. As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Wind Farm Infrastructure (located within the Bellrock WFDA) was presented in the **Bellrock WFDA EIA Report**, which was submitted in support of the Section 36 Consent and Marine Licence Application for the Bellrock Wind Farm Infrastructure in April 2026 (Bellrock Offshore Wind Farm Limited, 2026a). The **Bellrock WFDA EIA Report** considered the potential impacts and subsequent effects of the Bellrock Wind Farm Infrastructure on the environment. An EIA Scoping Report for the Bellrock Offshore Transmission Infrastructure was also submitted to Scottish Ministers on 17 August 2026 (Bellrock Offshore Wind Farm Limited, 2026b), with an EIA Report in support of the Marine Licence Application anticipated to be submitted by the end of 2027.

433. This Chapter of the **Bellrock OnTDA Scoping Report** provides an overview of the existing environment and sets out the proposed methodology and approach to assessing effects on hydrology and flood risk receptors within the Bellrock OnTDA EIA Report. This Chapter has been prepared by Haskoning.

434. The water environment topics considered within this Chapter for the Bellrock OnTDA are:

- The hydrology, geomorphology, quantity and quality of surface waters (including freshwater, coastal and transitional waters);
- The hydrogeology, quantity and quality of groundwater;
- Surface and groundwater resources;
- Surface and groundwater-dependent designated sites;
- Abstractions, discharges and water resource assets including Private Water Supplies (PWS); and
- Flood risk, including:
  - Fluvial flood risk;
  - Coastal flood risk;
  - Surface water flood risk;
  - Groundwater flood risk; and
  - Reservoir flood risk.

435. This Chapter should be read in conjunction with the following chapters of the **Bellrock OnTDA Scoping Report**:

- **Chapter 6: Geology and Ground Conditions;**
- **Chapter 8: Land Use and Agriculture;**
- **Chapter 9: Onshore Ecology and Nature Conservation;**
- **Chapter 10: Onshore Ornithology;**
- **Chapter 17: Climate Change Risk Assessment;** and
- **Chapter 18: Human Health.**

436. This Chapter is likely to have key inter-relationships with the above receptors, which will be considered appropriately where relevant in the Bellrock OnTDA EIA Report.

7.2 Legislation, Policy and Guidance

437. **Table 7.1** identifies the key legislation, policy and guidance relevant to this Chapter. It sets out the framework for informing the assessment of the potential impacts and subsequent effects on hydrology and flood risk. Overarching legislation and policy context is provided in **Chapter 2: Legislative and Policy Context**.

Table 7.1: Summary of Relevant Legislation, Policy and Guidance for Hydrology and Flood Risk

Relevant Legislation, Policy, and Guidance	Relevance to the Assessment
Legislation	
Environmental Protection Act 1990	Makes general provision for environmental (land and water) protection through the improved control of industrial pollution, pollution from other sources contaminated land and waste management. This provides a framework for the management of pollution from infrastructure during its construction, O&M and decommissioning, including risks posed to the water environment during earthworks and the management of excavated material.
Town and Country Planning (Scotland) Act 1997	Provides a comprehensive framework for regulating and managing development and land use. The key objectives of the Act are to ensure sustainable use of land, promote sustainable economic development, encourage regeneration, and maintain and enhance heritage assets, including those of natural and cultural description. This piece of legislation is relevant as the onshore infrastructure will be subject to planning permission.
Water Environment and Water Services (Scotland) Act 2003	The principal legislation governing the protection of Scotland's water environment, implementing the requirements of the European Union Water Framework Directive (WFD), supported by other secondary legislation. It introduces the protection of water bodies through mandating the prevention of further deterioration to their ecological and chemical statuses. It also promotes condition improvement, sustainable water use and long-term source protection through River Basin Management Plans (RBMPs) and monitoring programmes. The Act forms the legal basis for the regulation of activities pertaining to the Bellrock Onshore Transmission Infrastructure that may affect the water environment.
Bathing Waters (Scotland) Regulations 2008	The European Union Bathing Water Directive (2006/7/EC) is implemented through this legislation which is aimed at protecting bathing water quality in Scotland. Coastal waterbodies where members of the public bathe during bathing seasons are designated, profiled and monitored.

Relevant Legislation, Policy, and Guidance	Relevance to the Assessment
Flood Risk Management (Scotland) Act 2009	Allocates and defines the roles and responsibilities for managing flood risk in Scotland that includes working in partnership with Scottish Environmental Protection Agency (SEPA), Scottish Water and other responsible authorities. The Act has produced numerous guidance documents to help deliver measures introduced by the Act as well as a number of flood risk related research reports. This legislation is relevant as some Onshore Transmission Infrastructure components may interact with areas prone to flooding.
Water Environment (RBMP): Further Provision) (Scotland) Regulations 2013	Builds on the Water Environment and Water Services (Scotland) Act 2003 and the European Union WFD for RBMP implementation. It establishes environmental objectives and a programme of measures as part of the regulation to prevent surface water and groundwater deterioration, limiting the input of pollutants and enhancing water body conditions. It requires the preparation and approval of RBMPs in river basin districts. The Bellrock Onshore Transmission Infrastructure should not affect the water environment status or prevent RBMP objectives from being achieved.
The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017	Schedule 4 states that the description of the likely significant effects should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.
Environmental Authorisations (Scotland) Regulations 2018 (EASR)	Establishes a permitting framework for authorising and regulating activities that could have the potential to cause environmental harm. Four levels of environmental authorisation define the level of assessment that activities require as well as compliance monitoring on the part of the SEPA. The framework was originally developed primarily to govern radioactive substances. Activities during construction, O&M and decommissioning of the Onshore Transmission Infrastructure may require environmental authorisation from SEPA and if so, must comply with the EASR requirements pertaining to the water environment. The EASR is being updated, and a draft amended version is available. The draft Environmental Authorisations (Scotland) Amendment Regulations 2025 incorporates water, waste and industrial emissions activities into a single framework. Previous regimes such as the Water Environment (Controlled Activities) (Scotland) Regulations 2011, the Waste Management Licensing (Scotland) Regulations 2011 and the Pollution Prevention and Control (Scotland) Regulations 2012 have been revoked and incorporated into the EASR.
Policy	
Flood Risk Management Plan – North East (LPD 6) (SEPA, 2021)	Published and overseen by Aberdeenshire Council in its role as the lead local authority but developed alongside SEPA, and is updated every six years. The latest Plan covers the period from 2022 to 2028.The plans ensure all efforts to reduce flood risk are coordinated by the multiple organisations responsible for flood risk management and efforts are focused where the risk of flooding and benefits of actions are greatest.

Relevant Legislation, Policy, and Guidance	Relevance to the Assessment
National Planning Framework 4 (NPF4) (Scottish Government, 2023)	The national spatial strategy for Scotland, setting out our spatial principles, regional priorities, national developments and national planning policy. The following NPF4 policies are considered relevant to the assessment: ▪ **Policy 20: Blue and Green Infrastructure** aims to protect, and enhance blue and green infrastructure to support flood prevention and climate mitigation; and ▪ **Policy 22: Flood Risk and Water Management** aims to strengthen climate resilience to current and future flood risk through the avoidance of areas of high flood risk, and protect the water environment.
Aberdeenshire Local Development Plan (LDP) 2023 (Aberdeenshire Council, 2023)	Sets out the long-term vision for change to the local authority area, which covers the whole of Aberdeenshire except for areas that lie within the Cairngorms National Park. The LDP provides the framework for development management decisions on planning applications. The following sections of the LDP are considered relevant to the assessment of Hydrology and Flood Risk: ▪ **Policy E1: Natural Heritage** states that Groundwater Dependent Terrestrial Ecosystems should be considered; ▪ **Policy C4: Flooding** notes that a Flood Risk Assessment may be required and that developments should not increase flood risk vulnerability; ▪ **Policy RD1**: **Providing Suitable Services** aims to ensure developers meet required standards for water, wastewater and surface water drainage; ▪ **Policy PR1: Protecting Important Resources** considers the impacts of developments to water bodies, including water quality, flow, ecological status and flood plains. ▪ **Policy P4: Hazardous and Potentially Polluting Developments and Contaminated Land** highlights the need for site investigations to investigate any risk to the water environment and ensure remedial actions are proposed.
River Basin Management Plan for Scotland 2021–2027 (SEPA, 2021)	National level plans produced by SEPA every six years detailing the current condition of Scottish water bodies, pressures affecting their status and required actions to mitigate the effects of pressures. They are mandatory and guide regulatory decisions. Potential impacts from the construction, O&M and decommissioning phases should not compromise the objectives of the River Basin Management Plan (RBMP).
Guidance	
Technical Flood Risk Guidance for Stakeholders SEPA requirements for undertaking a Flood Risk Assessment (SEPA, 2022)	Outlines technical flood risk guidance for undertaking FRAs and includes best practice guidance for hydraulic modelling, hydrological calculations, surface water modelling, and groundwater components, land raising and compensatory storage.

Relevant Legislation, Policy, and Guidance	Relevance to the Assessment
Guidance for Pollution Prevention (GPP) (NetRegs, 2022)	GPP provides advice for how businesses can prevent pollution in different scenarios and meet their environmental responsibilities. Of particular relevance to this Chapter are: ▪ GPP 1 – Understanding your environmental responsibilities; ▪ GPP 5 – Works and maintenance in or near water; ▪ GPP 6 – Working on construction and demolition sites; ▪ GPP 8 – Safe storage and disposal of used oils; and ▪ GPP 22 – Dealing with spills.
Construction Industry Research and Information Association (CIRIA) best practice (2023)	Standard industry guidance for water management and environmental protection in the United Kingdom (UK). Best-practice includes pollution prevention during construction, the Sustainable Drainage Systems Manual and maintenance and inspection principles.
Flood Risk and Land Use Vulnerability Guidance (SEPA, 2024)	Guidance from SEPA that supports Policy 22 (Flood Risk and Water Management) of the NPF4 and explains vulnerability of land use in a flood risk context. The guidance supports the classification of land uses and development types according to their vulnerability, which is divided into five categories. The categorisation of vulnerability is a key part in the undertaking of a Flood Risk Assessment (FRA) for a proposed development.
Flood Risk Standing Advice for Planning Authorities (SEPA, 2024)	Standing advice from SEPA for developments potentially permissible under Policy 22 of the NPF4 as well as development not specifically permissible within Policy 22, which may arise in areas of flood risk. The standing advice has been developed on the basis that both types of development are unlikely to impact the ability for a flood risk area to store and/or convey floodwater and, therefore, will not increase risk to others; however, any significant risk is likely to be confined to the development itself.
Climate Change Allowances for flood risk assessment in land use planning Version 6 (SEPA, 2025).	Guidance from SEPA that sets out the required allowances for climate change that must be used for FRA following the adoption of NPF4 in 2023. For planning purposes, 'at risk of flooding' or 'in a flood risk area' means land or built form with an annual probability of being flooded of greater than 0.5% which must include an appropriate allowance for climate change.

7.3 Consultation

438. Consultation with Aberdeenshire Council and SEPA has been undertaken, including engagement through Aberdeenshire Council's Pre-application Advice Service. A summary of consultation activities undertaken to date is provided in **Table 7.2**.

Table 7.2: Consultation Relevant to Hydrology and Flood Risk

Consultee	Date/Document	Comment	How Comment has been Addressed
Aberdeenshire Council (Environmental Health)	19 August 2026 Pre-application Advice letter	*"The SEPA dataset indicates a significant number of private water supplies (PWS) source types are unknown. These sources will need to be confirmed, and it is highlighted that the source maybe at a different location from the property it serves. All PWS with groundwater sources that potentially will fall within 250m of any limit of deviation or PiP planning application boundary will need to be identified and subsequently assessed.* *SEPA will expect their Guidance on Assessing the Impacts of Development on Groundwater Abstraction to be followed in the planning application process.'* *'The status of any wells that fall within 250 m buffer of the limit of deviation should be confirmed if not identified on the Council or SEPA datasets."*	Potential impacts on PWS have been considered in **Sections 7.5.1** and **7.6.1** of this **Bellrock OnTDA Scoping Report**. Potential impacts on the quality of PWS from groundwater sources will be assessed as part of the geology and ground conditions assessment, which will be undertaken in accordance with all applicable guidance. For further details refer to **Chapter 6: Geology and Ground Conditions**.
Aberdeenshire Council (Flood Risk and Coast Protection)		*"We would expect an FRA to be completed as part of the formal full application stage due to the size and nature of the work being proposed. This would be required at a detailed level for permanent infrastructure such as the substation and associated infrastructure."*	A FRA will be undertaken to support the EIA. Further information is provided in **Section 7.7.3** of this **Bellrock OnTDA Scoping Report**.
		"We would expect a DIA to be completed as part of the formal full application stage due to the size and nature of the work being proposed. This would be required at a detailed level for permanent infrastructure such as the substation and associated infrastructure. This must also include how any surface water would be managed on site during the construction phase and after completion."	An Outline Drainage Impact Assessment (DIA) will be prepared and submitted with the PPP Application, with a full DIA provided with the subsequent Application for Approval of Matters Specified in Conditions (MSC) (see **Section 7.7** of this **Bellrock OnTDA Scoping Report**).
Aberdeenshire Council (Natural Environment)		*"The proposed cable route would have to cross the River Cowie. This and other watercourses should be crossed using trenchless techniques"*	Trenchless techniques e.g. HDD will be employed where the proposed onshore export cable corridor is required to cross larger or highly sensitive watercourses. Further information is provided in **Section 7.5.4** of this **Bellrock OnTDA Scoping Report**.
SEPA		*"SEPA Future Flood Maps now show flood risk from smaller watercourses. No storage of materials including excavated material associated with the cabling should be located within fluvial flood risk*	Potential impacts on flood risk are described in **Sections 7.5.1** and **7.5.2** and assessed in **Sections 7.6.1** and **7.6.2** of this **Bellrock OnTDA Scoping Report**.

Consultee	Date/Document	Comment	How Comment has been Addressed
		extents. It is noted that fluvial flood risk extents are relatively narrow for most watercourses in the study area apart from the Cowie Water."	Safe storage of materials will be implemented through the production of a Construction Environment Management Plan. This will also include a Pollution Prevention Plan and an Emergency Response Plan to contain measures that will avoid or mitigate potential impacts on hydrology and flood risk.
		"The area of surface water/possibly small unmapped watercourse flooding is from highest area of Hill of Swanley flowing downhill north-eastwards to the Cowie Water and depending on the final deign/space requirements this area could possibly be avoided. However, if not, SEPA will expect a detailed site survey to be presented to confirm the presence or not of any watercourses in this area. SEPA have no specific historic events in relation to this area of flooding. It is SEPA's preference that this area of flooding is avoided if possible but defer to the Council for any further comment on surface water flood risk as this falls within their remit."	The potential to avoid the area of flood risk between Hill of Swanley and Cowie Water will be considered as a part of the design development process. Appropriate surveys will be undertaken to establish the presence and location of the small unmapped watercourse as part of the EIA and FRA. Appropriate design and mitigation will be adopted if this small unmapped watercourse cannot be avoided.
		"SUDS fall under the Council's remit but SEPA highlight any new watercourse crossings or upgraded watercourse crossings should be designed to take the 1:200 plus climate change"	Sustainable Drainage Systems (SuDS) will form an integral part of the Drainage Impact Assessment (DIA). Where required, SuDS will be designed and constructed to manage runoff from the 0.5% Annual Exceedance Probability (AEP) (1 in 200 year) rainfall event, including an allowance for climate change
		"The River Basin Management Plan identifies the Cowie Water (ID40452) at Good status. HDD should be used under this watercourse and its main tributary the Ury Burn for any cabling works."	The potential impacts resulting from watercourse crossings are described in **Sections 7.5.1** and **7.5.2** and assessed in **Sections 7.6.1** and **7.6.2** of this **Bellrock OnTDA Scoping Report**. Embedded mitigation to minimise impacts, including the use of trenchless techniques to cross larger or highly sensitive watercourses, are described in **Section 7.5.4** of this **Bellrock OnTDA Scoping Report**.
		"SEPA have identified a riparian vegetation planting opportunity along the Cowie Water and recommend provision of this is considered as part of any future planning application and biodiversity net gain opportunities."	Potential planting opportunities will be considered as part of the Biodiversity Enhancement Plan (see **Chapter 9: Onshore Ecology and Nature Conservation**).

Consultee	Date/Document	Comment	How Comment has been Addressed
		"A buffer of at least 50m to all waterbodies will be required for any excavations 1m or greater in depth. A buffer of Excavations shallower than 1m will require a buffer of at least 10m with 15m minimum required for the Cowie Water and Ury Burn."	As described in **Section 7.5.4** of this **Bellrock OnTDA Scoping Report**, in areas where the onshore export cable corridor is required to cross a natural watercourse, where trenchless techniques are proposed to be used, a buffer zone of at least 10 m between the watercourse and any above ground works will be retained, except at locations of crossings of the Cowie and Ury Burns, where the buffer zone will be at least 15 m. Where construction works are adjacent to natural watercourses (excluding watercourse crossings), the Applicant will look to retain a precautionary 50 m buffer zone between above ground works and natural watercourses, where practicable.
Aberdeenshire Council	6 October 2026, Email correspondence	***Drainage Impact Assessment*** *"Outline/conceptual plans are fine for PPP. They should be sufficient to demonstrate that a viable surface water drainage/SuDS strategy can be accommodated within the development, including the broad proposed means of managing and discharging surface water from the permanent infrastructure and the principles for managing surface water during construction.* *A detailed Drainage Impact Assessment, including the detailed design, calculations, attenuation/storage requirements and SuDS measures, can then be secured by condition and submitted as part of the relevant application once the detailed layout is established.* *The Flood Risk Assessment should still be provided with the PPP application as indicated."*	An Outline DIA will be prepared and submitted with the PPP Application, with a full DIA provided with the subsequent Application for Approval of MSC (see **Section 7.7** of this **Bellrock OnTDA Scoping Report**). An FRA will be provided alongside the EIA Report in support of the PPP Application.
Aberdeenshire Council	6 October 2026, Email correspondence	***PWS*** *"I'd refer to SEPA's guidance. I would note that the proposed approach to identify supplies appears fine. Pages 9-10 of the guidance outline the information expected, which goes beyond identification of supplies. Monitoring of supplies may be required, and at least 12 months data is expected. SEPA have in the past conditioned this, but timescales need to be factored into your programme."*	The proposed approach to data collection to inform the assessment impacts upon PWS is provided in **Section 7.7.1**.

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7.4 Existing Environment

7.4.1 Study Area

439. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process to define the Bellrock OnTDA, which will be subject to a PPP Application. The hydrology and flood risk study area will be updated for the Bellrock OnTDA EIA Report to reflect this refinement (see **Section 1.4** of **Chapter 1: Introduction**).

440. The hydrology and flood risk study area within this **Bellrock OnTDA Scoping Report** comprises all land within the Bellrock OnTDA Scoping Boundary (**Figure 1.1 (Appendix A (Volume 1))**). The appropriateness of the hydrology and flood risk study area will be reviewed and refined as required based on updated information presented in the Hydrology and Flood Risk Chapter for the Bellrock OnTDA EIA Report.

441. The temporal scope relates to the lifespan of the Bellrock OnTDA, through construction, O&M, and decommissioning, and is estimated to be up to 40 years.

7.4.2 Data and Information Sources

442. The baseline data to inform the assessment of hydrology and flood risk is listed in **Table 7.3**:

Table 7.3: Desk-based Sources for Hydrology and Flood Risk Data

Data Source	Temporal Coverage	Description
Aberdeenshire Council Local Development Plan Maps (2023)	2023	An interactive map containing the live/up-to-date information regarding land allocation areas in the Aberdeenshire area under their respective LDP 2023. It identifies land allocations including Opportunity Sites (Employment Land and Housing), Protected Areas and Reserved Sites, Strategic Reserve Employment Land Sites, Existing Employment Land, and Conservation Areas.
Aberdeenshire Council Planning Portal (2026)	2026	Online portal used by residents, developers and the local community to manage and access all relevant planning information – including but not limited to planning applications, building standards and local development policies/plans.
Aberdeenshire Council (2026)	2026	Data on PWS within the Bellrock OnTDA Scoping Boundary has been provided electronically by Aberdeenshire Council.
SEPA Flood Maps (SEPA, 2026)	2026	Online webservice provided by SEPA showing areas of long -term flood risk in Scotland. The mapping includes present-day and future flooding from rivers, small watercourses, surface-water, and the sea. The Future Flood Maps are used for planning purposes and show the 0.5% annual exceedance probability scenarios.

Data Source	Temporal Coverage	Description
SEPA Reservoirs Map (SEPA Controlled Reservoirs Register, 2026)	2026	SEPA's Reservoir Inundation Maps showing areas of land across Scotland likely to be flooded from the uncontrolled release of water from reservoirs listed on the Controlled Reservoirs Register.
SEPA Flood Risk Management Maps (SEPA, 2026)	2026	Additional online flood risk resource provided by SEPA to help assess risk of flooding from multiple sources including groundwater.

7.4.3 Baseline Conditions

7.4.3.1 Surface Water Drainage

443. The hydrology and flood risk study area comprises several rivers within the Kincardine and Angus Coastal Catchment as shown within (**Figure 7.1 (Appendix A (Volume 1))**).

444. The Cowie Water flows for 15.5 km in an easterly direction through the northern portion of the hydrology and flood risk study area in the Kincardine and Angus Coastal Catchment. Burn of Day, Cowton Burn and Ury Burn converge with the Cowie Water in its lower reaches, which then flows for approximately 5.2 km until it drains directly into the Stonehaven Bay.

445. The Carron Water lies on the southeastern portion of the hydrology and flood risk study area in the Kincardine and Angus Coastal catchment. The main stem is approximately 14.9 km in length and drains into Stonehaven Bay. Several tributaries join its lower reaches, namely the Burn of Annamuick, Burn of Baulks, Mallie's Den Burn, Cheyne Burn, Toucks Burn, Burn of Glasslaw and (**Figure 7.2 (Appendix A (Volume 1))**).

446. The Stonehaven Bathing Water Protected Area (NGR NO 87690 86060) lies approximately 500 m south of the preferred landfall Area of Search. It has an area of 36.61 ha with several catchment inflows to Stonehaven that overlap with both the preferred landfall Area of Search and the Bellrock OnTDA Scoping Boundary.

7.4.3.2 Surface Water Quality

447. SEPA's Water Classification Hub (SEPA, 2024) indicated a High status for the water quality of Cowie Water, with no listed physico-chemical pressures. More data is available for Carron Water, where water quality is listed as achieving a Moderate status. Acid neutralising capacity, pH, dissolved oxygen, reactive phosphorous and temperature were also not constraints on chemical water quality.

448. There is no recent data on specific pollutants such as diazinon, zinc and ammonium, but older data from between 2007 to 2010 achieved a Pass status, indicating that there was no chemical water pollution.

449. The Stonehaven Bathing Water Protected Area is sampled seasonally by SEPA and is monitored against SEPA's standard bathing water classification parameters (*Escherichia coli* (*E. coli*) and

intestinal enterococci). Although its last and current classification status in 2025 was Excellent, SEPA note that there are pressures that include sewer overflows, agricultural run-off and surface water discharges (SEPA, 2026).

7.4.3.3 Surface Water Quality Classification

450. A summary of the water quality data from SEPA's Water Classification Hub (SEPA, 2024) for the surface water bodies in the hydrology and flood risk study area is provided in **Table 7.4**. Carron Water is the only water body that did not achieve a Good status although it is designated as having biological elements (Phytobenthos – diatoms) at a Moderate status. Diatoms are particularly sensitive to any change in water quality and respond quickly to changes in water chemistry. The Carron Water has also been designated as achieving a Bad status for morphology, primarily due to its heavily modified reaches. Agricultural drainage depends on these physical alterations in the watercourse.

Table 7.4: Water Quality Summary Data for Surface Water and Coastal Catchments in the Hydrology and Flood Risk Study Area

Surface Water Body Name (see Figure 7.2)	ID (Water Classification Hub)	Type and Condition	Overall Current Status	Overall Ecology Status	Pressures Affecting Water Bodies
Cowie Water - Fetteresso Forest	23254	River	High	High	N/A
Cowie Water - Rickarton to Sea	23253	River	Good	Good	N/A
Cowton Burn	23255	River	Good	Good	N/A
Carron Water	23257	River (Heavily modified)	Moderate	Bad	▪ Aquatic plants; ▪ Phytobenthos (diatoms); ▪ Hydromorphology; ▪ Morphology; and ▪ Water quality.
Garron Point to Downie Point (Stonehaven)	200517	Coastal	Good	Good	N/A
Stonehaven Bathing Waters Protected Area	UKS7616058	Bathing Water (Coastal)	Good	N/A	N/A

7.4.3.4 Groundwater

451. Most of the hydrology and flood risk study area lies within the Portlethen groundwater body (41.4 km^2 of the 178.3 km^2 Portlethen groundwater body total area), underlain by the Southern Highland Group, a low productivity secondary aquifer (**Figure 7.3 (Appendix A (Volume 1))**). Small

volumes of groundwater lie near the weathered surface zone and secondary fractures, with flow through virtually all fractures and discontinuities (BGS GeoIndex, 2020). The southern half of the boundary overlaps with the Stonehaven groundwater boundary (4.5 km^2 of the 72.9 km^2 total area), underlain by the Dunnottar-Crawton Group, a moderately (locally) productive secondary aquifer. Flow is predominantly through fractures and discontinuities. Chemical water quality achieves Good status in both water bodies (see **Table 7.5**).

Table 7.5: Groundwater Quality Summary Data in the Hydrology and Flood Risk Study Area

Groundwater Body Name	ID (Water Classification Hub)	Class	Overall Current Status	Quantitative Status	Chemical Status
Stonehaven	150550	2B	Good	Good	Good
Portlethen	150625	2C	Good	Good	Good

7.4.3.5 Protected Areas

452. The hydrology and flood risk study area does not cross the boundaries of any loch water bodies or Drinking Water Protected Areas (DWPA) associated with rivers/lochs.

453. Both the Portlethen groundwater body and the Stonehaven groundwater body fall within a DWPA at Good status (**Figure 7.3 (Appendix A (Volume 1))**).

454. The Stonehaven Bathing Water Area is located immediately south of the hydrology and flood risk study area. Several watercourses located within the hydrology and flood risk study area are classified as Bathing Water Control Zones (see **Figure 7.4 (Appendix A (Volume 1))**). These are areas that extend into the surrounding coastal waters and upstream along connected watercourses that are hydrologically connected to the designated bathing water area. There are three short watercourses located in the north of the hydrology and flood risk study area that are designated as Bathing Water Control Zones, as well as the lower course of Megray Burn (leading to Cowie Water) and three short tributaries. Only one of these minor watercourses may be crossed by the onshore export cable corridor and best practice measures would be in place to manage risks from contaminants and sediments (e.g. turbid runoff from excavations and drilling fluids such as bentonite, from trenchless crossings) and these will be secured through the CEMP. Bathing Waters are, therefore, not considered further within this Scoping Report.

7.4.3.6 Water Resources and Discharges

455. Given that there is no publicly available dataset for Scottish Water assets and water supply abstractions, including both public and private supplies, only limited information has been identified to date and included in **Figure 7.5 (Appendix A (Volume 1))**. With regards to PWS, two are identified as originating from groundwater sources, another from a surface water source and a fourth from an unknown source. A further review of information and datasets related to water supply abstractions including PWS will be undertaken and included, where available, in the Bellrock OnTDA EIA.

456. Using data from the Scotland Spatial Hub (Spatial Hub, 2026), there are numerous septic tanks scattered around the hydrology and flood risk study area, the majority of which will be associated with rural farmsteads and businesses (**Figure 7.6 (Appendix A (Volume 1))**).

457. Based on the limited publicly available data, no Combined Sewer Overflows were identified within the vicinity of the preferred landfall Area of Search (Scottish Water, 2026). There are, however, several Combined Sewer Overflows located beyond the periphery of the hydrology and flood risk study area and will be considered where relevant, within the assessment. Should additional Combined Sewer Overflows be identified following submission of the Scoping Report, these will be incorporated into the Bellrock OnTDA EIA.

458. PWSs will be investigated in greater detail as part of the Bellrock OnTDA EIA upon receipt of further information from Aberdeenshire Council, Scottish Water and SEPA. Additional information will also be sought via direct contact with landowners and households, in the form of a letter, from the Applicant to landowners and households within the Bellrock OnTDA as part of the land access arrangements (see **Section 7.7.1**).

7.4.3.7 Flood Risk

7.4.3.7.1 Fluvial Flood Risk

459. Fluvial flood risk (or flood risk from rivers) within the hydrology and flood risk study area is primarily associated with the following main watercourses:

- The Carron Water; and
- The Cowie Water.

460. The extent of flooding along the reaches of both these rivers has been assessed using the online SEPA Flood Map (SEPA, 2026). The present-day river flood maps show that both the Carron Water and the Cowie Water rivers within the hydrology and flood risk study area experience fluvial flooding (**Figure 7.7 (Appendix A (Volume 1))**).

461. Fluvial flood risk has also been assessed within the Bellrock preferred OnSS Area of Search using the SEPA Flood Map (SEPA, 2026). The present-day river flood maps show that there is no risk of fluvial flooding within the boundary of the OnSS preferred Area of Search.

462. The SEPA Flood Map (SEPA, 2026) show predictions of fluvial flooding extents within catchments areas exceeding 3 km^2.

463. Fluvial flooding in defined areas is categorised by severity and probability and is reported based on the following 'likelihood scenarios' bands:

- 'High Likelihood': 10% chance in any one year of flooding;
- 'Medium Likelihood': 0.5% chance in any one year of flooding; and
- 'Low Likelihood': 0.1% chance in any one year of flooding.

464. With reference to the above the likelihood of flooding occurring in a year remains the same in each year (i.e. if flooding is experienced in year one there is still the likelihood of it occurring again in year two).

7.4.3.7.2 Future Fluvial Flood Risk

465. The fluvial (or river) future flood maps reflect projected increases in peak river flows due to the predicted changes in future climate and rainfall. The predictions only apply to those managed by SEPA and not the smaller watercourses, which are more likely to be shown in the surface water future flood maps.

466. For each river basin region across Scotland, SEPA used the projected uplifts to peak river flows for the High emissions scenario 67th percentile for the 2080s. The SEPA Future River Flood Map (SEPA, 2026) shows only the 'Medium Likelihood' of future flooding due to climate change.

467. Under a 'Medium Likelihood' scenario the mapping indicates that the increased impact of future climate change on future fluvial flooding within the hydrology and flood risk study area, including the Bellrock preferred OnSS Area of Search, is minor (**Figure 7.8 (Appendix A (Volume 1))**). The flood outline or extent of the 0.5% annual exceedance probability climate change event scenario is similar to the present-day extent. Therefore, the effect of climate change on future fluvial (or river) flooding is not considered further within this Scoping Report.

7.4.3.7.3 Coastal Flood Risk

468. Coastal or flooding from the sea will be confined to the preferred landfall Area of Search at Cowie (**Figure 7.9 (Appendix A (Volume 1))**).

469. SEPA Flood Maps (SEPA, 2026) have been reviewed to assess coastal flooding within the preferred landfall Area of Search located within the Bellrock OnTDA Scoping Boundary at Cowie. Coastal flooding maps are categorised by severity and probability based on the following 'likelihood scenarios' bands:

- 'High Likelihood': Present Day 10% chance in any one year of flooding;
- 'Medium Likelihood': Present Day, 0.5% chance in any one year of flooding; and
- 'Low Likelihood': Present Day, 0.1% chance in any one year of flooding.

470. The SEPA Flood Map for coastal flooding (SEPA, 2026) indicates that due to the relatively high and steep physical geography of the coastline along the preferred landfall Area of Search, this area is not affected by flooding from the sea, other than a narrow strip along the coastal frontage itself which the Onshore Transmission Infrastructure will not interact with on or above ground level. Therefore, coastal flooding in the present-day scenarios is not considered further within this Scoping Report.

7.4.3.7.4 Future Coastal Flood Risk

471. The SEPA Coastal Future Flood Map (SEPA, 2026) (**Figure 7.10 (Appendix A (Volume 1))**) shows only the 'Medium Likelihood' of future coastal flooding due to predicted increases in mean sea levels.

472. The SEPA Coastal Future Flood Map (SEPA, 2026) indicates that, similar to the present-day flood risk scenarios, due to the physical geography of the coastline at the preferred Landfall Area of Search, there is no change in the risk of flooding from the sea due to future climate change. Therefore, future coastal flooding is not considered further within this Scoping Report.

7.4.3.7.5 Surface Water Flood Risk

473. Surface water flood risk throughout the hydrology and flood risk study area has been assessed by reviewing the SEPA Flood Map (SEPA, 2026) which shows surface water flooding associated with smaller watercourses and lower lying depressions in the surface topography (**Figure 7.11 (Appendix A (Volume 1))**).

474. The SEPA surface water and small watercourses flood map (SEPA, 2026) shows flooding from both surface water and small watercourses with catchment areas smaller than 10 km^2. It should be noted that watercourses with catchment areas that fall between 3 km^2 and 10 km^2 may be shown on both the river flood map and the surface water flood map.

475. There are many smaller watercourses found throughout the hydrology and flood risk study area , most of these drain into one of the two key rivers i.e. the Carron Water and Cowie Water rivers.

476. Within the Bellrock preferred OnSS Area of Search there are several small watercourses shown on the SEPA Flood Map (SEPA, 2026).

477. The SEPA surface water and small watercourses flood maps (SEPA, 2026) indicate there is flooding associated with the Burn of Day and several overland flow paths draining off the Hill of Swanley (**Figure 7.12 (Appendix A (Volume 1))**).

478. The SEPA surface water and small watercourses flood maps (SEPA, 2026) show flood extents under three different present-day scenarios or annual exceedance probabilities. These are categorised as:

- ‘High Likelihood’: Present-day 10% chance in any one year of flooding;
- ‘Medium Likelihood’: Present-day 0.5% chance in any one year of flooding; and
- ‘Low Likelihood’: Present-day 0.1% chance in any one year of flooding.

479. Based on the information and data available from the SEPA Flood Map (SEPA, 2026), surface water and small watercourses flood risk is considered further in **Sections 7.5** and **7.6** below.

7.4.3.7.6 Future Surface Water Flood Risk

480. The Surface Water Future Flood Maps (SEPA, 2026) (**Figure 7.13 (Appendix A (Volume 1))**) incorporate the likely changes in surface water flooding due to projected changes in rainfall patterns and are based on analysis of future short-duration rainfall published by the UK Climate Change Projections (UKCIP18). For each river basin region for the surface water and small watercourses future flood map, mean rainfall intensity uplifts were calculated for the 100-year return period, 50th percentile and for the 2070-time horizon. These were applied to uplift rainfall for the medium likelihood (1 in 200-year) event. The central year for the 2061 to 2080 epoch is 2070.

481. Future surface water and small watercourse flooding is predicted to increase due to future climate change within the hydrology and flood risk study area according to the SEPA Future Flood Maps (**Figure 7.13** and **Figure 7.14 (Appendix A (Volume 1))**).

482. Based on the information and data available from SEPA Future Flood Maps, surface water and small watercourses flood risk is considered further in **Sections 7.5** and **7.6** below.

7.4.3.7.7 Reservoir Flood Risk

483. The SEPA Reservoirs Inundation Map (SEPA, 2026), has been reviewed. The map shows the indicative areas that may flood from an uncontrolled release of water from different dam failure scenarios.

484. The Reservoirs Inundation Map indicates that the hydrology and flood risk study area is not at risk of risk of flooding because of a possible reservoir breach or complete failure. It is assumed this is due to there being no reservoirs or significant still water bodies within the hydrology and flood risk study area.

485. Based on the information and data available from the SEPA Flood Maps (SEPA, 2026), flood risk from reservoir failure within the hydrology and flood risk study area is not considered further in this Scoping Report.

7.4.3.7.8 Groundwater Flood Risk

486. The SEPA Flood Maps indicate where groundwater flooding is caused by water rising from underlying rocks or flowing from springs.

487. Groundwater is generally a contributing factor to flooding rather than the primary source. The groundwater Flood Map shows where groundwater could influence the duration and extent of flooding from other sources. It does not show where groundwater alone could cause flooding.

488. The groundwater Flood Map, available on the SEPA Flood Map (SEPA, 2026), has been reviewed and there is no indication that there is a risk of flooding associated with groundwater sources throughout the hydrology and flood risk study area.

489. Therefore, based on the above information and data available from SEPA on groundwater flooding that groundwater flood risk is not considered further in this Scoping Report.

7.5 Potential Impacts

490. Potential impacts arising from the Bellrock Onshore Transmission Infrastructure during the construction, O&M and decommissioning phases are outlined below and summarised in **Table 7.7**.

491. In addition, the whole project assessment (**Section 7.6.4**), potential for cumulative impacts (**Section 7.6.5**) and transboundary impacts (**Section 7.6.6**), as well as inter-relationships and interactions between impacts will also be determined and assessed.

7.5.1 Potential Construction Phase Impacts

492. Potential impacts during the construction phase of the Bellrock Onshore Transmission Infrastructure may arise from activities associated with construction works which are outlined in **Chapter 3: Project Description**.

493. These activities may result in the following impact pathways:

- Direct disturbance of surface water and groundwater bodies;
- Increased sediment supply to surface water bodies;
- Changes to surface, fluvial and groundwater flows (including impact on flood risk and water resources); and
- Supply of contaminants to surface water and groundwater, including risk to potable water supply sources.

494. Impact pathways which commence during the construction phase and continue throughout the operational life of the Bellrock Onshore Transmission Infrastructure will be assessed as part of the O&M phase assessment, as this represents the point at which the maximum spatial extent of these impacts is reached following completion of installation activities. This approach recognises that these impacts are initiated during construction and may continue through the O&M phase and into decommissioning where infrastructure remains in-situ, but that they represent a continuation of the same impact pathway rather than separate impacts for each development phase. This approach avoids unnecessary duplication of assessment across development phases.

7.5.2 Potential Operation and Maintenance Phase Impacts

495. Potential impacts during O&M of the Bellrock Onshore Transmission Infrastructure arise from both the long-term presence and operation of Onshore Transmission Infrastructure and periodic, planned and unplanned, maintenance activities.

496. These activities may result in the following impact pathways:

- Direct disturbance of surface water and groundwater bodies;
- Changes to surface, fluvial and groundwater flows (including impact on flood risk and water resources); and
- Supply of contaminants to surface water and groundwater, including risk to potable water supply sources.

7.5.3 Potential Decommissioning Phase Impacts

497. Potential impacts during the decommissioning of the Bellrock Onshore Transmission Infrastructure will depend on the final decommissioning strategy, including the extent to which infrastructure is removed or left in-situ.

498. Where Onshore Transmission Infrastructure is removed, decommissioning activities are expected to result in localised land disturbance, broadly similar in nature to construction activities, although typically of reduced overall magnitude, as activities are likely to be more targeted.

499. Where infrastructure is left in-situ (either partially or wholly), impacts associated with the continued presence of infrastructure are considered in the O&M phase and are not duplicated here.

7.5.4 Embedded Mitigation

500. Embedded mitigation has been identified, as presented in **Table 7.6** and **Appendix B: Mitigation and Monitoring Register (Volume 1)**, in accordance with the mitigation hierarchy, with the aim of avoiding, preventing, reducing, and where possible, offsetting potential adverse environmental effects. Consistent with the Institute of Environmental Management and Assessment ((IEMA), now the Institute of Sustainability and Environmental Professionals (ISEP)) guidance (2024), primary (inherent design measures) and tertiary (standard good practice) mitigation are embedded within the project design and are, therefore, considered in the assessment of effects. Secondary mitigation measures will be identified where required through the EIA process, informed by the outcomes of the initial impact assessment.

501. The current embedded mitigation measures may be refined as the project design evolves. In addition, further embedded mitigation measures may be developed as part of the iterative design process during the EIA process.

502. Embedded mitigation measures relevant to hydrology and flood risk are outlined in **Table 7.6.**

Table 7.6: Embedded Mitigation Measures Relevant to Hydrology and Flood Risk

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	✓	X	Site selection was informed by the Bellrock OnTDA Design Principles and included consideration of sensitive receptors.	The site selection process avoided locating Onshore Transmission Infrastructure within areas of high flood risk or in proximity to known PWS where possible. In locations where large areas of exposed ground lie adjacent to watercourses, buffer strips of vegetation will be retained where possible to prevent runoff.	Primary
✓	✓	✓	Following relevant industry guidance and best practice, whilst ensuring compliance with applicable national and international legislation.	Compliance with relevant international and national legislation, regulations and industry guidance will be maintained throughout construction, O&M, and decommissioning phases of the Bellrock OnTDA. This will ensure that activities are undertaken in accordance with established requirements and reduce the likelihood of impacts to hydrology and flood risk.	Tertiary
✓	X	X	Where obstacles such as watercourses cannot be crossed by a trench, trenchless techniques (e.g. HDD) will be used for onshore export cable installation.	Major watercourses will be crossed by trenchless techniques. This will reduce the risk of impacts to ecologically sensitive watercourses.	Primary
✓	X	X	Production of a DIA.	This will contain measures to manage site drainage within the OnTDA and ensure that downstream impacts are minimised. Where required, for the operational phase, SuDS will be designed and constructed to manage runoff from the 0.5% Annual Exceedance Probability (AEP) (1 in 200 year) rainfall event, including an allowance for climate change.	Tertiary
✓	X	X	In areas where the onshore export cable corridor is required to cross natural watercourses, where trenchless techniques are proposed to be used, a buffer zone of at least 10 m between the	These distances will reduce the likelihood of sediment runoff into watercourses.	Tertiary

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
			watercourse and any above ground works will be retained, except at locations of crossings of the Cowie and Ury Burns, where the buffer zone will be at least 15 m. In other areas of the Bellrock OnTDA, the Applicant will look to retain a precautionary 50 m buffer zone between above ground works and natural watercourses, where practicable.		
✓	X	X	Wheel washing is carried out in a designated area of hardstanding prior to entering the public highway.	This will reduce the likelihood of sediment entering watercourses or drainage.	Tertiary
✓	X	X	Adherence to measures to intercept sediment runoff at source.	This will reduce the likelihood of sediment runoff into watercourses.	Primary
✓	X	X	Use of textile site fencing at the toe of the slope, where appropriate.	This will reduce the movement of silt, and should be installed before soil stripping has begun and construction vehicles start tracking over the site.	Primary
✓	X	X	Routing of drainage through the site drainage system, where practicable.	This will retain sediment on-site. Settlement ponds or filtration may be used.	Primary
✓	X	X	Minimise amount of time stripped ground and soil stockpiles are exposed prior to seeding or covering.	This will slow runoff from stripped ground and soil stockpiles entering the groundwater.	Tertiary
✓	X	X	Temporary works areas (e.g. construction compounds and trenchless crossing areas) within the Bellrock OnTDA will comprise hardstanding of permeable material where practicable.	This will allow infiltration of water into the ground and prevent rapid runoff.	Tertiary

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	✓	X	Appropriate capture and treatment of water prior to discharge under an Environmental Authorisation.	This will protect watercourses from any contamination.	Primary
✓	X	X	Diversion of clean water away from the area of construction work.	This will minimise the risk to watercourses from contamination/sediment supply.	Tertiary
✓	X	X	Avoidance of known mapped flood likelihood events for storage of construction materials and equipment, where possible.	This will prevent contaminated material from entering watercourses.	Primary
✓	X	X	Development of and adherence to a Drilling Fluid Management Plan.	The Drilling Fluid Management Plan will document how risks of any fluid breakouts will be reduced, and in the event of an outbreak from trenchless construction works, how any breakout will be managed and mitigated. The Drilling Fluid Management Plan will consider breakout of drilling fluids or muds that could be released to the environment.	Tertiary
✓	X	X	Production of Hydrogeological Risk Assessments, if required.	Hydrogeological risk assessments, informed by ground investigations, will be undertaken in areas where potential risks to groundwater receptors have been identified. This ensures that potential impacts to groundwater resources are fully understood.	Tertiary

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7.6 Scoping of Potential Impacts

7.6.1 Construction Phase

7.6.1.1 Direct Disturbance of Surface Water Bodies

503. Construction activities for the Bellrock Onshore Transmission Infrastructure could directly impact upon the geomorphology, hydrology, water quality, physical habitats of the identified surface water bodies. Disturbance could occur from the installation of new structures and buildings along with buried electrical cables/pipelines and associated infrastructure (e.g. temporary access crossings over surface watercourses).

504. In addition, installation of buried infrastructure beneath watercourses and associated flood defences could potentially constrain any future upgrades to these defences. The impact of direct disturbance on surface water bodies during construction will, therefore, be **scoped in** for further assessment in the EIA.

7.6.1.2 Increased Sediment Supply to Surface Water Bodies

505. Construction activities have the potential to increase soil erosion and the supply of fine sediment (e.g. clays, fine silts and sands) to local watercourses. The source of supply could arise from earthworks and vegetation removal undertaken to construct the Bellrock Onshore Transmission Infrastructure. Although considered highly unlikely with the appropriate mitigation measures being implemented, a significant and continuous increase in sediment supply to local watercourses could increase turbidity levels within the water column, resulting in greater fine sediment deposition on the channel bed. In turn this could alter local geomorphological adjustment rates and impact upon in-channel morphological features.

506. Higher sediment loads could also smother bed habitats, reduce light penetration, and decrease temperature and dissolved oxygen levels. These impacts could adversely affect stream biota, such as fish, macroinvertebrates and macrophytes. Increased sediment supply during construction activities will, therefore, be **scoped in** for further assessment in the EIA.

7.6.1.3 Changes to Surface, Fluvial and Groundwater Flows and Flood Risk

507. Site preparation and construction activities for the Bellrock Onshore Transmission Infrastructure could lead to an increase in surface water runoff due to alterations in surface drainage patterns and surface flows. Infiltration rates could be reduced because of soil compaction by construction vehicles and surface infrastructure. Increased surface runoff could have an adverse impact on the geomorphology of surface watercourses (e.g. through associated bed and bank scour and increase in fine sediment input). Sub-surface excavations and associated dewatering could also result in changes to sub-surface flow patterns and an increase in surface flows.

508. Flood risk could be altered and/or increased, particularly in flood zones designated as ‘Medium’ and ‘High Likelihood’ of flooding. Sub-surface flow behaviour could also be altered due to potential changes in infiltration rates and surface flow patterns (e.g. associated with trenchless techniques). Increased surface water runoff could affect watercourses that rely on assisted pumping as a mitigation measure.

509. In addition to the physical environmental impacts described above, changes to surface and groundwater flows could potentially affect the availability of water to support PWS.

510. Changes to surface, fluvial and groundwater flows and associated surface and fluvial flood risk during construction will, therefore, be **scoped in** for further assessment in the EIA. Changes to groundwater and reservoir flood risk will, however, be **scoped out** on the basis of the baseline evidence presented in **Section 7.4.3**.

7.6.1.4 Supply of Contaminants to Surface and Groundwater

511. Use of construction machinery working in or adjacent to surface watercourses has the potential for accidental release of lubricants, fuels and oils into surface water bodies. Trenchless techniques, such as HDD, as well as any foundation construction works, could also introduce contaminants to the underlying groundwaters and aquifers. Contamination could also be caused by spillages, leakage and in-wash from vehicle storage areas following rainfall, accidental release of foul waters (e.g. from welfare facilities) and construction materials, such as cement and inert drilling fluids (bentonite) at trenchless crossings. Such contaminants could enter the aquatic system and adversely affect water quality. This could have associated impacts upon stream biota (assessed in **Chapter 9: Onshore Ecology and Nature Conservation** and **Chapter 10: Onshore Ornithology**).

512. Temporary discharges during the construction phase, including treated effluent from welfare facilities, could also impact upon surface and groundwater quality.

513. Any construction activities that disturb the ground, such as excavation or trenchless crossings, could discharge contaminants below ground and potentially adversely affect groundwater quality and quantity elements. Groundwater quality and quantity could also be affected by saline ingress in relation to sub-surface activities (e.g. HDD). However, a DIA will be used to define embedded design measures.

514. The storage of materials used in the construction phase of the Bellrock Onshore Transmission Area has the potential to negatively impact upon the water quality of surface waters and groundwaters if stored incorrectly. Good practice methods for the storage of materials will be put in place through the implementation of a Construction Environment Management Plan which will minimise the risk of construction materials physically interfering with the hydrology and flood risk study area of the Bellrock OnTDA.

515. Contaminant supply to surface and groundwater will, therefore, be **scoped out** of further assessment in the EIA.

516. Note that potential impacts on the quality of PWS will be considered in **Chapter 6: Geology and Ground Conditions**.

7.6.2 Operation and Maintenance Phase

7.6.2.1 Changes to Surface, Fluvial and Groundwater Flows and Flood Risk

517. Any long-term or permanent Bellrock Onshore Transmission Infrastructure is likely to see a small increase in total impermeable area within the surface water catchments. This increase could

reduce rainfall infiltration rates locally and permanently or alter surface water runoff pathways which may result in an increase in local flood risk. The greatest flood risk impact from these potential changes is likely to be in areas of the hydrology and flood risk study area identified as at 'Medium' and 'High Likelihood' of both surface water and river flooding.

518. Ground disturbance during installation of the cable trench, ducting or foundations is likely to change the hydraulic transmissivity of the soil which overlays the cable infrastructure after reinstatement and may, therefore, become a preferential route for sub-surface water flow. Alterations to the amount of groundwater embodied in surface waters has the potential to alter water chemistry and impact upon the quality of water-dependent habitats.

519. Changes to surface, fluvial and groundwater flows and associated surface and fluvial flood risk during operation and maintenance will, therefore, be **scoped in** for further assessment in the EIA. Changes to groundwater and reservoir flood risk will, however, be **scoped out** on the basis of the baseline evidence presented in **Section 7.4.3**.

7.6.2.2 Direct Disturbance of Surface Water and Groundwater Bodies

520. There will be no mechanisms by which elements of the Bellrock Onshore Transmission Infrastructure could directly disturb surface water bodies during the O&M phase. Any increased surface water runoff discharged from the Bellrock OnSS area will be controlled and regulated to the greenfield runoff rate, to be derived using the industry standard approach based on the Flood Estimation Handbook (FEH) as required by Aberdeenshire Council and SEPA, and through the subsequent implementation of a suitable SuDS design. This can, therefore, be **scoped out** of further assessment in the EIA.

7.6.2.3 Supply of Contaminants to Surface and Groundwater

521. There is the potential for accidental release of contaminants such as sediment, oils, fuels and lubricants to surface and groundwater during planned and unplanned operational maintenance. This could adversely affect the geomorphology and water quality of the surface water drainage network. Accidental spillage or leakage of fuel oils or lubricants could also impact upon the surface water quality and connected groundwater quality. This in turn could impact aquatic ecology and the use of water resources for abstractions.

522. However, a DIA will be used to define embedded design measures. O&M activities will also adhere to the best practice measures set out in **Section 7.6.1.4**. Supply of contaminants to surface and groundwater during O&M can, therefore, be **scoped out** of further assessment in the EIA.

7.6.3 Decommissioning Phase

523. At the end of operational life, the Bellrock Offshore Transmission Infrastructure will be decommissioned. The final decommissioning approach, including the extent to which infrastructure is removed or left in-situ, will be determined through the preparation of a Decommissioning, Restoration and Aftercare Strategy, and will consider relevant legislation, guidance, and industry best practice.

524. Where infrastructure is removed, decommissioning activities are expected to result in localised land disturbance, broadly similar in nature to construction activities, although typically of reduced overall magnitude, as activities are likely to be more targeted.

525. Where infrastructure is left in-situ (either partially or wholly), impacts associated with the continued presence of infrastructure are considered in the O&M phase and are not duplicated here.

526. The same potential impacts identified for construction will, therefore, be **scoped in** to the EIA for the decommissioning phase. Impacts from decommissioning are anticipated to be no worse than those identified during the construction phase. Decommissioning activities would be assessed using industry good practice and would comply with the relevant statutory requirements and regulatory framework at the time of decommissioning.

7.6.4 Bellrock OnTDA Whole Project Assessment

527. The Bellrock OnTDA Whole Project Assessment will follow the general methodology set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessmen**t and will consider how whether interactions between the Bellrock Onshore Transmission Infrastructure and the Bellrock Offshore Transmission Infrastructure and/or the Bellrock Wind Farm Infrastructure have the potential to alter the magnitude of impacts and significance of effects on hydrology and flood risk receptors identified in the Bellrock OnTDA-alone assessment. Refer to **Plate 4.3 (Chapter 4: Approach to Scoping and Environmental Impact Assessment**) for the approach and methodology that will be followed for the Bellrock OnTDA Whole Project Assessment.

528. Interactions between the Bellrock Onshore Transmission Infrastructure and the Offshore Transmission Infrastructure have the potential to alter the potential effects in relation to increased sediment supply and changes to surface water, river and groundwater flows and flood risk, as identified in **Sections 7.6.1** and **7.6.2**. This has the potential to occur in the nearshore water bodies. Therefore, the Bellrock OnTDA Whole Project Assessment is **scoped in** for the effects upon increased sediment supply and changes to surface water, river and groundwater flows and flood risk only.

7.6.5 Potential Cumulative Effects

529. The Bellrock OnTDA Cumulative Effects Assessment (CEA) will be undertaken in accordance with the methodology set out in **Section 4.7** of **Chapter 4: Approach to Scoping and Environmental Impact Assessment**. An overview of the Bellrock OnTDA assessment process, including the relationship between the Bellrock OnTDA Whole Project Assessment and the CEA, is provided in **Plate 4.3.**

530. Overall, the CEA is a two-staged process, with the first stage assessing the impacts as a result of the Bellrock OnTDA Whole Project Assessment (**Section 7.6.4**) together with the Hurlie substation. The second stage will then assess the impacts as a result of the Bellrock OnTDA Whole Project Assessment together with the Hurlie substation plus impacts arising from other reasonably foreseeable plans and projects where there is conceptual, spatial, and/or temporal overlap. This will determine the potential for cumulative impacts and subsequent cumulative effects on hydrology and flood risk receptors.

531. There is potential for cumulative impacts on hydrology and flood risk receptors where there is a spatial or temporal overlap between the Bellrock Onshore Transmission Infrastructure and other plans and projects. Cumulative effects are, therefore, **scoped in** for further assessment.

532. The CEA will consider other plans and projects with the potential to affect receptors through the same or similar impact pathways. Spatial screening of plans and projects will be defined proportionately, considering the Zone of Influence associated with each impact pathway, alongside the potential for conceptual and temporal overlap, to ensure that only plans/projects with realistic potential for cumulative interaction are included.

7.6.6 Potential Transboundary Effects

533. Transboundary effects on hydrology and flood risk receptors are not anticipated to arise from the construction, O&M, or decommissioning of the Bellrock Onshore Transmission Infrastructure. Impact pathways are typically localised with impacts confined to the footprint of infrastructure.

534. There is no plausible mechanism for transboundary effects to occur. Transboundary effects are, therefore, **scoped out** of further assessment in the EIA.

7.6.7 Summary of Potential Hydrology and Flood Risk Impacts Scoped In and Scoped Out

535. **Table 7.7** outlines the hydrology and flood risk impacts which are proposed to be scoped in or scoped out of the EIA. These may be refined through other consultation activities, and as additional project information and site-specific data become available.

Table 7.7: Summary of Potential Hydrology and Flood Risk Impacts Proposed to be Scoped In (✓) or Scoped Out (X)

Potential Impact	Scoped In (✓) or Scoped Out (X)		
	Construction	O&M	Decommissioning
Direct disturbance of surface water bodies	✓	X	✓
Increased sediment supply to surface water bodies	✓	X	✓
Supply of contaminants to surface water and groundwater bodies (including impacts to PWS)	X	X	X
Changes to surface water, river and groundwater flows (including impacts to PWS) and flood risk (surface water and fluvial)	✓	✓	✓
Changes to coastal and reservoir flood risk	X	X	X

Potential Impact	Scoped In (✓) or Scoped Out (X)		
	Construction	O&M	Decommissioning
Bellrock OnTDA Whole Project Assessment*	✓ (increased sediment supply and changes to surface water, river and groundwater flows and flood risk only)	✓ (increased sediment supply and changes to surface water, river and groundwater flows and flood risk only)	✓ (increased sediment supply and changes to surface water, river and groundwater flows and flood risk only)
Cumulative Impacts	✓	✓	✓
Transboundary Effects	X	X	X
Notes: * see **Section 7.6.4** for further details on the scoping of the Bellrock OnTDA Whole Project Assessment for Hydrology and Flood Risk.			

7.7 Proposed Approach to Impact Assessment

7.7.1 Approach to Data Gathering

536. As part of the EIA process, the existing environment with respect to freshwater quality and resource will be described, including, but not limited to the following:

- The hydrology, geomorphology and quality of freshwater features, including rivers, canals, lakes and drainage ditches;
- The quality and quantity of groundwaters;
- Surface and groundwater abstractions, including PWS;
- Designated sites with potential to be affected by changes to freshwater quality and resource; and
- Surface water and fluvial flood risk.

537. Further data collection, including targeted geomorphological walkover surveys at key crossing locations and PWS surveys will be undertaken to inform the next stage of the assessment.

538. PWS surveys are proposed to entail a walkover survey for each relevant PWS with the purpose of seeking to identify its source, in order to understand the potential impacts of the Bellrock Onshore Transmission Infrastructure upon the source of each PWS. The scope of the PWS survey will include all PWS identified on Aberdeenshire Council and SEPA's records, within 250 m of the Bellrock OnTDA (as presented within the PPP Application), for which the source is not identified within the Aberdeenshire Council or SEPA's records. Other PWS not on Aberdeenshire Council or SEPAs records will be added to the scope, should they be raised to the Applicant by the relevant

landowner or household. Monitoring of PWS is not proposed at this stage; should any monitoring be required following the baseline data collection and assessment, this would be proposed to be undertaken in order to inform the Application for Approval of MSC.

7.7.2 Definitions of Sensitivity and Magnitude

539. The EIA will focus on potential impacts of two groups of receptors:

- Water resources, including the hydrology, geomorphology and water quality of surface waters; the quantity and quality of groundwater; abstractions from surface waters and groundwaters; and
- Flood risk to the Bellrock Onshore Transmission Infrastructure from surface water and fluvial sources. This will also include changes in flood risk from surface water and fluvial sources resulting from the Bellrock Onshore Transmission Infrastructure to other potential receptors.

540. The EIA will identify sensitive receptors and implement an approach to understand the magnitude of impacts on the identified receptors. The definitions for use in the EIA are provided in **Table 7.8**, and **Table 7.9** for sensitivity, magnitude and significance of effect.

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Table 7.8: Definition of Sensitivity for a Hydrology and Flood Risk Receptor

Sensitivity	Definition
High – The receptor has no or very limited capacity to tolerate changes to hydrology, geomorphology, water quality or flood risk and has little potential for substitution. This includes water resources which support human health and/or the economic activity at a regional scale, or receptors with a high vulnerability to flooding.	**Hydrology/water resources:** ▪ A water environment with an unmodified, naturally diverse hydrological regime, a naturally diverse geomorphology with no barriers to the operation of natural processes, and good water quality; ▪ Supports habitats or species that are highly sensitive to changes in surface hydrology, geomorphology or water quality; ▪ Supports High or Very High Productivity Aquifer with public water supply abstractions by provision of recharge; and ▪ Site is within a DWPA. **Flood risk:** ▪ Essential Infrastructure and Most Vulnerable Land Use, as defined by Flood Risk and Land Use Vulnerability Guidance (SEPA, 2024); and ▪ A residential area containing more than 100 dwellings, representing a high-sensitivity human receptor.
Medium – The receptor has limited capacity to tolerate changes to hydrology, geomorphology, water quality or flood risk. This includes water resources which support human health and/or economic activity at a local scale or receptors with a high vulnerability to flooding.	**Hydrology/water resources:** ▪ A water environment with hydrology that sustains natural variations, geomorphology that sustains natural processes, and water quality that is not contaminated to the extent that habitat quality is constrained; ▪ Supports or contributes to habitats or species that are sensitive to changes in surface hydrology, geomorphology and/or water quality; and ▪ Supports Moderate Productivity aquifers. **Flood risk:** ▪ Highly Vulnerable Land Use, as defined by Flood Risk and Land Use Vulnerability Guidance (SEPA, 2024); and ▪ A residential area with up to 100 residential dwellings, representing a moderate-sensitivity human receptor.

Sensitivity	Definition
Low – The receptor has moderate capacity to tolerate changes to hydrology, geomorphology and water quality or flood risk. This includes water resources that support human health and/or economic activity at a neighbourhood (multiple property) scale and receptors with a moderate vulnerability to flooding.	**Hydrology/water resources:** ▪ A water environment with hydrology that supports limited natural variations, geomorphology that supports limited natural processes, and water quality that may constrain some ecological communities; and ▪ Supports or contributes to habitats that are not sensitive to changes in surface hydrology, geomorphology or water quality. **Flood risk:** ▪ Least Vulnerable Land Use, as defined by Flood Risk and Land Use Vulnerability Guidance (SEPA, 2024); and ▪ Land containing ten or fewer industrial properties considered to be a low-sensitivity receptor.
Negligible – The receptor is generally tolerant of changes to hydrology, geomorphology, water quality or flood risk. This includes water resources that support human health and/or economic activity at a single property scale and receptors with a low vulnerability to flooding.	**Hydrology/water resources:** ▪ A water environment with hydrology that does not support natural variations, geomorphology that does not support natural processes, and water quality that does not constrain ecological communities; ▪ Aquatic or water-dependent habitats and/or species are tolerant to changes in hydrology, geomorphology or water quality; and ▪ Non-productive strata that does not support groundwater resources. **Flood risk:** ▪ Water Compatible Land Use as defined Flood Risk and Land Use Vulnerability Guidance (SEPA, 2024); and ▪ Land with limited constraints and a low probability of flooding of residential and industrial properties.

Table 7.9: Definition of Magnitude of Impact for a Hydrology and Flood Risk Receptor

Magnitude	Definition
High – Permanent/irreversible, or large-scale changes, over the whole receptor affecting usability, risk, or value. This causes fundamental changes to key features of the receptor's character or distinctiveness.	**Hydrology/water resources:** ▪ Permanent changes to geomorphology and/or hydrology that prevent natural processes operating; ▪ Permanent and/or wide scale effects on water quality or availability; ▪ Permanent loss or long-term degradation of a water supply source resulting in prosecution; ▪ Permanent or wide scale degradation of habitat quality; ▪ Deterioration in SEPA surface water body status or prevention of achieving future status objectives; and ▪ Deterioration in groundwater levels, flows or quality leading to a deterioration in SEPA groundwater body status. **Flood risk:** ▪ Permanent or major change to existing flood risk; ▪ Reduction in on-site flood risk by raising ground level in conjunction with provision of compensation storage; ▪ Increase in off-site flood risk due to raising ground levels without provision of compensation storage; and ▪ Failure to meet either sequential or exception test (if applicable).
Medium – Partial loss or noticeable change over the majority of the receptor, and/or discernible alteration to key features of the receptor's character or distinctiveness. Moderate permanent or long-term reversible change may result affecting usability, value, or risk, over the medium-term or local area.	**Hydrology/water resources:** ▪ Medium-term effects on water quality or availability; ▪ Medium-term degradation of a water supply source, possibly resulting in prosecution; ▪ Habitat change over the medium-term; ▪ Potential temporary downgrading in the status of individual WFD elements, without affecting the ability of the surface water to achieve future objectives; and ▪ Medium-term deterioration in groundwater levels, flow or quality leading to potential temporary downgrading of status. **Flood risk:** ▪ Medium-term or moderate change to existing flood risk; ▪ Possible failure of sequential or exception test (if applicable); and ▪ Reduction in off-site flood risk within the local area due to the provision of a managed drainage system.

Magnitude	Definition
Low – Discernible temporary change over a minority of the receptor, and/or with minimal effect on usability, risk or value. There may also be a potential discernible alteration to key features of the receptor's character or distinctiveness.	**Hydrology/water resources:** ▪ Short-term or local effects on water quality or availability; ▪ Short-term degradation of a water supply source; ▪ Habitat change over the short-term; and ▪ No change to groundwater body status. **Flood risk:** ▪ Short-term temporary or minor change to existing flood risk; and ▪ Localised increase in on-site or off-site flood risk due to increase in impermeable area.
Negligible – Temporary change, undiscernible over longer timescales, with no effect on usability, risk or value. This may result in light, or no, alteration to the characteristics or features of the receptor's character or distinctiveness.	**Hydrology/water resources:** ▪ Temporary impact on local water quality or availability; ▪ Temporary or no degradation of a water supply source; and ▪ Very slight local changes to habitat that have no observable impact on dependent receptors. **Flood risk:** ▪ Temporary or very minor change to existing flood risk; and ▪ Highly localised increase in on-site or off-site flood risk due to increase in impermeable area.

541. The approach to assessment will be discussed and agreed with stakeholders. Consultation will be undertaken at key stages throughout the EIA process. Following any refinement of the Bellrock OnTDA, further liaison with the stakeholders including SEPA and Scottish Water will be undertaken to agree the approach and methodology for data collection for EIA purposes and the specific assessment methodology.

7.7.3 Supporting Assessments

542. The Bellrock OnTDA EIA will be supported by two additional assessments which will be submitted with the PPP Application:

- An FRA will be carried out in accordance with NPF4 requirements and the accompanying SEPA Technical Flood Risk Guidance for Stakeholders to assess the flood risk both to and from the Bellrock Onshore Transmission Infrastructure within the hydrology and flood risk study area. The FRA will consider each element of the Bellrock Onshore Transmission Infrastructure individually, both during construction and once operational. The FRA will inform the identification of any necessary mitigation measures that should be implemented. The FRA will cross reference the Outline DIA, which will include the provision of SuDS to manage runoff from the 0.5% Annual Exceedance Probability (AEP) (1 in 200 year) rainfall event, including an allowance for climate change, for permanent infrastructure; and
- A WFD Compliance Assessment (which includes risks to ecological status) will be carried out to assess compliance with the requirements of the EASR associated with water management activities. Impacts to ecological receptors are considered in **Chapter 9: Onshore Ecology and Nature Conservation**.

543. An Outline DIA will be provided which will demonstrate that a viable surface water drainage/SuDS strategy can be accommodated for the OnSS, including the broad proposed means of managing and discharging surface water from the OnSS and the principles for managing surface water during construction. A detailed DIA, including the detailed design, calculations, attenuation/storage requirements and SuDS measures, will be provided with the subsequent Application for Approval of MSC, once the detailed layout is established.

7.8 Scoping Questions to Consultees

544. The following questions are posed to consultees to help them frame and focus their response to the hydrology and flood risk scoping exercise which will in turn inform the EIA:

- Do you agree with the characterisation of the existing environment?
- Have all the hydrology and flood risk impacts resulting from the Bellrock Onshore Transmission Infrastructure been identified in the Scoping Report?
- Do you agree with the hydrology and flood risk impacts that have been scoped in for/out from further consideration within the EIA?
- Have all the relevant data sources been identified in the Scoping Report?

- Do you have any further information on the location of PWS and do you agree to the proposed approach to assessing impacts on PWS, as outlined in **Section 7.7.1**?
- Do you agree with the proposed design of SuDS to manage runoff from the 0.5% Annual Exceedance Probability (AEP) (1 in 200 year) rainfall event, including an allowance for climate change, for the permanent infrastructure?
- Do you have any requirements with respect to the storm return period that temporary construction stage infrastructure should be designed to?
- Do you agree with the proposed assessment approach?

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8 Land Use and Agriculture

8.1 Introduction

545. This Chapter of the **Bellrock Onshore Transmission Development Area (OnTDA) Scoping Report** considers the potential impacts on land use and agriculture receptors associated with the construction, operation and maintenance (O&M), and decommissioning of the Bellrock Onshore Transmission Infrastructure.

546. The Bellrock OnTDA Scoping Boundary (shown in **Figure 1.1 (Appendix A (Volume 1)**) defines the area within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process (as discussed in **Section 1.4** in **Chapter 1: Introduction**) to form the boundary of the Bellrock OnTDA Planning Permission in Principle (PPP) Application.

547. For the purposes of this **Bellrock OnTDA Scoping Report**, the Bellrock OnTDA Scoping Boundary encompasses the anticipated Onshore Transmission Infrastructure and associated activities for the Bellrock OnTDA landward of Mean Low Water Springs (MLWS). The Bellrock OnTDA Scoping Boundary overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) between Mean High Water Springs (MHWS) and MLWS.

548. The Bellrock Onshore Transmission Infrastructure includes:

- **Landfall**: located at Cowie, Aberdeenshire, where between two and six ducts are installed using trenchless techniques, allowing the offshore export cables to be brought ashore and connected to onshore export cables within the transition joint bay;
- **Onshore export cables**: up to six underground High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) onshore cable circuits, each up to 18 km in length, installed between landfall and the onshore substation;
- **Onshore substation (OnSS)**: electrical equipment (such as converters, transformers, switchgear, and protection and control systems) enabling renewable electricity from the Bellrock Wind Farm Development Area (WFDA) received via the onshore export cables to be exported to the National Electricity Transmission System, and ancillary infrastructure; and
- **Hurlie substation connection works**: Infrastructure between the Bellrock OnSS to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the National Electricity Transmission System.

549. In addition, associated works are required to facilitate construction and O&M of the Onshore Transmission Infrastructure, including: access, signage, haul roads, spoil storage, material storage, fencing, borrow pits (if any), earthworks, welfare, security, landscape mitigation, ecological mitigation, biodiversity enhancement, operational lighting and drainage.

550. As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Wind Farm Infrastructure (located within the Bellrock WFDA) was presented in the **Bellrock WFDA Environmental Impact Assessment (EIA) Report**, which was submitted in support of the Section 36 Consent and Marine Licence Application for the Bellrock Wind Farm Infrastructure in April 2026 (Bellrock Offshore Wind Farm Limited, 2026a). The **Bellrock WFDA EIA Report** considered the potential impacts and subsequent effects of the Bellrock Wind Farm Infrastructure on the environment. An EIA Scoping Report for the Bellrock Offshore Transmission Infrastructure was also submitted to Scottish Ministers on 17 August 2026 (Bellrock Offshore Wind Farm Limited, 2026b), with an EIA Report in support of the Marine Licence Application proposed to be submitted in 2027.

551. This Chapter of the **Bellrock OnTDA Scoping Report** provides an overview of the existing environment and sets out the proposed methodology and approach to assessing effects on land use and agriculture receptors within the Bellrock OnTDA EIA Report. This Chapter has been prepared by Haskoning.

552. This Chapter should be read in conjunction with the following chapters of the **Bellrock OnTDA Scoping Report**:

- **Chapter 6: Geology and Ground Conditions;**
- **Chapter 7: Hydrology and Flood Risk;**
- **Chapter 9: Onshore Ecology and Nature Conservation;** and
- **Chapter 15: Socioeconomics, Tourism and Recreation.**

553. This Chapter is likely to have key inter-relationships with the above receptors, which will be considered appropriately where relevant in the Bellrock OnTDA EIA Report.

8.2 Legislation, Policy and Guidance

554. **Table 8.1** sets out the legislation, policy and guidance relevant to the land use and agriculture assessment, where appropriate. The overarching legislation relevant to the Bellrock Offshore Transmission Infrastructure is described in **Chapter 2: Legislative and Policy Context**.

Table 8.1: Summary of Relevant Legislation, Policy and Guidance Relevant for Land Use and Agriculture Assessment

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Legislation	
Countryside (Scotland) Act 1967	Aims to ensure the provision for the better enjoyment of the Scottish countryside and improvement of recreational and other facilities.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Town and Country Planning (Scotland) Act 1997	Provides a comprehensive framework for regulating and managing development and land use. The key objectives of the Act are to ensure sustainable use of land, promote sustainable economic development, encourage regeneration, and maintain and enhance natural and cultural heritage assets.
Land Reform (Scotland) Act 2003	Establishes statutory public rights of access to land for recreational and educational purposes.
Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 ('EIA Regulations')	Schedule 4 states that the description of the likely significant effects should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.
Forestry and Land Management (Scotland) Act 2018	The primary piece of legislation governing forestry and public land management in Scotland. Establishes Scottish Forestry and Forestry and Land Scotland (FLS), sets of the requirement for developing a National Forestry Strategy and governs the rules regarding land management and tress felling for forestry operations in Scotland.
The Forestry (Felling) (Scotland) Regulations 2019	Set out the operational rules and application processes for tree felling permissions under the Forestry and Land Management (Scotland) Act 2018.
Planning (Scotland) Act 2019	The legislation provides details on how land is developed and used. It aims to strengthen development planning, community involvement, and the role of the National Planning Framework (NPF). The plan-led system aims to support inclusive growth, housing delivery, infrastructure development and community empowerment. The Act requires alignment of local plans with national priorities and long-term spatial strategies.
The Agricultural and Rural Communities (Scotland) Act 2024	Provides a framework for agricultural support and rural communities. The aims are: ▪ *'The adoption and use of sustainable and regenerative agricultural practices;* ▪ *The production of high-quality food;* ▪ *The promotion and support of agricultural practices that protect and improve animal health and welfare;* ▪ *The facilitation of on-farm nature restoration, climate mitigation and adaptation; and* ▪ *Enabling rural communities to thrive.'*
Policy	
Scotland's Forestry Strategy 2019–2029 (Scottish Government, 2019a)	The long-term policy framework to direct the expansion, protection, and management of the Scotland's woodlands, focussing on economic growth, environmental resilience and social well-being.
National Planning Framework 4 (NPF4), 2023 (Scottish Government, 2023)	Presents the principles to inform future planning in Scotland. The following policies are considered relevant to the assessment: ▪ **Policy 5: Soils** aims to *'protect carbon-rich and peatland soils, including those which support agricultural productivity*;

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
	▪ **Policy 6: Forestry, Woodland and Trees** – aims to *protect forests, woodland and trees and ensure any development on areas of woodland are managed sustainably;* ▪ **Policy 8: Green Belts** aims toprevent inappropriate growth and sustainable management of land; and ▪ **Policy 29: Rural Development** aims to support the sustainable development of rural areas, including farms and agricultural land.
Aberdeenshire Local Development Plan (Aberdeenshire Council, 2023)	Sets out the long-term vision for change to the local authority area, which covers the whole of Aberdeenshire except for areas that lie within the Cairngorms National Park. The Local Development Plan (LDP) provides the framework for development management decisions on planning applications. The following sections of the LDP are considered relevant to the Land Use and Agriculture assessment: ▪ **Policy R2: Development Proposals Elsewhere in the Countryside** notes the use of brownfield land is preferable to greenfield land; ▪ **Policy E3: Woodland** highlights the importance of Abereenshire's forests and woodland areas, and notes that this should be considered in the planning and construction of built development; and ▪ **Policy PR1: Protecting Important Resources** states that developments impacting prime agricultural land, peat and carbon-rich soils and open space should present the public economic or social benefits. Aberdeenshire Council is preparing an updated Aberdeenshire LDP, which is expected to be published in early 2029 and cover the period between 2029 and 2039. On publication, the draft LDP will be a material planning consideration.
Scotland's Fourth Land Use Strategy (Scottish Government, 2026)	Aims to balance demands for land use and where land use and infrastructure may be multifunctional. The strategy's core outcomes focus on: ▪ Environment; ▪ Communities; and ▪ Economy and Education. The core objective of the strategy is to '*enable and enhance knowledge, discussion and insight into the land use system, and support and drive a collaborative and cohesive national environment that supports integrated land use discussion, planning and delivery*'.
Guidance	
Scottish Outdoor Access Code: Public access to Scotland's outdoors (Scottish Natural Heritage, 2005)	Sets out details of public access rights in Scotland, including what constitutes an offence in relation to access.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Defra, 2009)	Assists the construction sector to better protect soil resources. Following this guidance will help to protect and enhance the soil resources on site and achieve cost savings. The Code outlines current guidance and legislation concerning the use of soil in construction projects, offering stage by stage guidance on the use, management and movement of soil on site.
Scottish Government's Policy on Control of Woodland Removal: Implementation Guidance (Scottish Government, 2019b)	Provides guidance on all developers and statutory undertakers involved in woodland removal, and include guidance on what is acceptable woodland removal.
A New Perspective on Land and Soil in Environmental Impact Assessment (Institute of Environmental Management and Assessment (IEMA) (2022)	Proposes a broader approach that involves assessing the natural capital and functional ecosystem services provided by land and soils. The guidelines '*develop, improve, and standardise the approach to soils and land use within a proportionate EIA, to ensure sustainable outcomes from development Projects*'.
Soil Health in Environmental Assessment (ISEP, 2025)	Presents how soil health can be assessed as part of EIAs, with consideration for physical, biological and chemical impacts on the soil ecosystem. The notes present methodologies that can be adapted for projects to determine the significance of impacts on biological or chemical soil health properties.
Regulatory Guidance: Promoting the sustainable reuse of greenfield soils in construction (Scottish Environmental Protection Agency, 2026)	Provides guidance on options available for re-using greenfield soils which cannot not be re-used onsite during construction projects.

8.3 Consultation

555. Consultation with Aberdeenshire Council has been undertaken, including engagement through Aberdeenshire Council's Pre-application Advice Service. A summary of consultation activities undertaken to date is provided in **Table 8.2.**

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Table 8.2: Consultation Relevant to Land Use and Agriculture

Consultee	Date/Document	Comment	How Comment has been Addressed
Aberdeenshire Council (Natural Environment)	19 August 2026 Pre-application Advice letter	*'There are concentrations of core paths around Stonehaven. Public Rights of Way are also present, particularly at the proposed landfall point. Further detail on Rights of Way is available from ScotWays. The EIA should assess the impacts on public access and provide suitable mitigation.* *It is suggested that the Applicant is explore options to enhance public access infrastructure as part of the project.* *The applicants should note proposals for a continuous coastal path around the Aberdeenshire Coast and the need not to present a barrier to that as well as the opportunity to contribute to its development.'*	An assessment of the potential impacts to Public Rights of Way present within the land use and agriculture study area will be undertaken following the refinement of the Bellrock OnTDA and included within the EIA (see **Section 8.7** of this **Bellrock OnTDA Scoping Report**). The assessment will include consideration of the future potential for a continuous coastal path that may interact with the Bellrock OnTDA. The EIA will include a discussion on the proposed mitigation measures to reduce potential impacts on the affected Public Rights of Way. Regarding contributions to the development of a continuous coastal path, the Applicant is supportive of the principles of community benefit although awaits publication of guidance from the Scottish Government prior to committing to community benefit initiatives.
INEOS	19 August 2026 Pre-application Advice letter	*'INEOS FPS (Forties Pipeline System) operate a 36" pipeline that routes between the INEOS FPS Cruden Bay Pump Station and their Kinneil Terminal at Grangemouth. The pipeline transports unstablised crude oil and is classified as a Major Accident Hazard pipeline under the 1996 Pipeline Safety Regulations. The pipeline has an associated Impressed Current Cathodic Protection system (ICCP) for the purposes of preventing external corrosion.* *Project Drawing 11937828_Proposed Onshore Scoping Boundary, indicates the cable circuits will require to cross the pipeline at least once. In addition, an anode groundbed that forms part of the pipeline ICCP system is located within the scoping boundary and the cable circuits may*	Crossings of and construction in proximity to third-party assets will be undertaken in line with the latest relevant guidance. The crossing/construction methodology will be agreed with the relevant asset owner/operator prior to the commencement of the relevant construction works. Crossing and proximity agreements with existing pipeline operators will be sought, if required. Further engagement with asset owners will be undertaken following design refinement of the Bellrock OnTDA.

Consultee	Date/Document	Comment	How Comment has been Addressed
		require cross over, or route on close proximity this apparatus. INEOS FPS have no objection in principle to this proposed development but highlight our key concerns below. 1. *Damage to pipeline during construction activities.* 2. *Interaction/ interference between the cable circuits and the pipeline/ ICCP groundbed, affecting the integrity of pipeline and/ or effectiveness of the ICCP groundbed.* *Prior to commencement of any works associated with the proposed development, INEOS FPS will request that a Pipeline Management Plan is developed and approved by the Planning Authority in conjunction with INEOS FPS. This should include the following key elements:* 1. *Prior to any site works (including pre work, ground investigations etc.) within 50m of the pipeline, the Applicant shall consult with INEOS FPS to agree work scopes, construction methods, specifications of pipeline crossing, risk mitigation measures and programme. The extents of the pipeline corridor shall be agreed before any construction activities and be clearly demarcated on site by means of temporary fencing and signage, or as agreed with INEOS FPS, for the duration of the construction works. No work shall take place within the agreed pipeline corridor without prior agreement from INEOS FPS..* 2. *Prior to the use of any existing access tracks or access over the pipeline at any other location by heavy vehicles or plant, INEOS FPS shall be consulted to ensure that suitable and sufficient*	

Consultee	Date/Document	Comment	How Comment has been Addressed
		protection measures are agreed and are in place. 3. *The developer should ensure the design and routing of the cable circuits do not present unacceptable levels of AC/DC interference to INEOS FPS pipeline & ICCP apparatus.* 4. *To ensure the risk of stray current interference/ electrical interaction between the new HV cable circuits and the pipeline/ ICCP system is understood and managed, INEOS FPS will require the developer to provide a suitable and sufficient technical assessment to determine the potential level of risk to pipeline (under normal and fault conditions), and to identify where any required mitigation measures are required prior to and after development commissioning and during the operational phase of the development.'*	
Shell	19 August 2026 Pre-application Advice letter	*'As the proposal is crossing the Shell Major Accident Hazzard pipeline, Shell offers the following observation: whilst Shell has no objection in principle to the Installation of Onshore Transmission Infrastructure Including Installation of Electrical Cables, Erection of Substation and Associated Enabling and Ancillary Works to Connect the Aspen Offshore Wind Farm to the National Electricity Transmission System at Bellrock Offshore Wind Farm.* 1. *The development does not encroach into the pipeline servitude.* 2. *Potential pipeline crossings during construction.*	Crossings of and construction in proximity to third-party assets will be undertaken in line with the latest relevant guidance. The crossing/construction methodology will be agreed with the relevant asset owner/operator prior to the commencement of the relevant construction works. Crossing and proximity agreements with existing pipeline operators will be sought, if required. Further engagement with asset owners will be undertaken following design refinement of the Bellrock OnTDA.

Consultee	Date/Document	Comment	How Comment has been Addressed
		3. *The risk of AC and DC induced interference affecting the integrity of our pipeline.* *If the application is to proceed, we would be pleased to meet with the developer to address our concerns and to ensure that any risk to the pipeline is reduced to as low as reasonably practicable.'*	
National Gas Transmission	19 August 2026 Pre-application Advice letter	*'National Gas Transmission exercises its right to place a Holding Objection to the above proposal which will cross our High-Pressure Gas Pipeline – Feeder providing the below conditions are adhered to: Holding Objection National Gas Transmission operates high-pressure gas pipelines that runs through the land parcels proposed for development. FEEDER 13 - ABERDEEN - ARBROATH and FEEDER 24 ST FERGUS - LOCHSIDE could be affected by AC and/or DC interference from the proposed installation.* *The pipeline has a land easement in operation of either side of the pipeline. No development, construction or landscaping is permitted within the easement without formal written approval from National Gas Transmission.* *There are specific criteria that must be adhered to for developing electrical infrastructure near National Gas Transmission's gas pipelines to avoid unacceptable levels of interference. Subject to compliance with the acceptable interference criteria in the standards, the installation can be built adjacent to pipelines but never within the easement. It is possible that the pipelines are already experiencing acceptable levels of interference, and in such cases the level of acceptance for new constructions shall be restricted to levels that do not raise the existing*	Crossings of and construction in proximity to third-party assets will be undertaken in line with the latest relevant guidance. The crossing/construction methodology will be agreed with the relevant asset owner/operator prior to the commencement of the relevant construction works. Crossing and proximity agreements with existing pipeline operators will be sought, if required. Further engagement with asset owners will be undertaken following design refinement of the Bellrock OnTDA.

Consultee	Date/Document	Comment	How Comment has been Addressed
		levels beyond the acceptable levels defined in the standards. *Utility crossings over National Gas Transmission's gas pipelines are restricted and require formal written permission in the form of a Deed of Consent before any installation/construction within the pipeline easement is permitted.* *The developer is to engage with National Gas Transmission for further guidance in the early stages of design to ensure the required integrity assessments are agreed, and consideration has been given to electrical interference, security, crossing points, future access and safe construction methods, all of which must be mutually agreed prior to undertaking any works on site.* *The developer shall contact National Gas Transmission to arrange a meeting and to discuss the proposal in more detail. The developer should be familiar with the relevant standards for constructing the proposed installation. All parties are reminded to comply with The Pipelines Safety Regulations 1996 such that 'No person shall cause such damage to a pipeline as may give rise to a danger to persons'.'*	

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8.4 Existing Environment

8.4.1 Study Area

556. The land use and agriculture study area comprises all land within the Bellrock OnTDA Scoping Boundary. The appropriateness of the land use and agriculture study area will be reviewed and refined as required based on updated information presented in the Land Use and Agriculture Chapter for the Bellrock OnTDA EIA Report.

557. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process to form the boundary of the Bellrock OnTDA. The land use and agriculture study area will be updated for the Bellrock OnTDA EIA Report to reflect this refinement (**Section 1.2.1** in **Chapter 1: Introduction**).

558. The temporal scope relates to the lifespan of the Bellrock Onshore Transmission Infrastructure, through construction, O&M, and decommissioning, estimated to be up to 40 years.

8.4.2 Data and Information Sources

559. The baseline data to inform the land use and agriculture assessment is listed in **Table 8.3.** This data has been used to inform the identification of key land use and agricultural areas and potential sensitivities within the land use and agricultural study area. These data will be subject to further detailed review and analysis to inform the Bellrock OnTDA EIA.

Table 8.3: Key Data Sources for Land Use and Agricultural Assessment

Dataset	Temporal Coverage	Description
Soil Map of Scotland (Scotland's Soils, 1980)	1980	National mapping of the main soil types across Scotland (based on data collected between 1947 – 1981), which can be used to identify soil types within the land use and agriculture study area.
Land Capability for Agriculture (Partial Cover) (James Hutton Institute) (Scotland's Environment Web, 1984)	1984-87	Presents information at a greater resolution than the 'National Scale Land Capability for Agriculture' on the types of crops that may be grown in different areas dependent on the environmental and soil characteristics. This dataset enables the identification of land classification within the land use and agriculture study area.
Core Paths Map (GOV.SCOT, 2009)	2009	Path or any other means of crossing land to facilitate, promote and manage the exercise of access rights. This data source will be used to identify Core Paths which may interact with the land use and agriculture study area.
AddressBase Data (Ordnance Survey, 2011)	2011	Database that provides property records for England, Wales and Scotland and will be used to source information for receptors which may be impacted by the Bellrock OnTDA.

Dataset	Temporal Coverage	Description
Map – Scotland's Environment (2011)	2011	Contains a range of environmental information (including planning, water, marine, ecological, cultural heritage, forestry, soil etc. data) that can be added onto Scotland's Land Map as a Map Data Layer.
The Crofting Register (Registers of Scotland, 2126)	2012	Managed by the Registers of Scotland, this is a public, map-based register of crofts, common grazing and runrig land in Scotland. This can be used to identify crofts which may interact with the land use and agriculture study area.
Scottish Government Agricultural Land Mapping (Scottish Government, 2017)	2017	Map showcasing the different environmental and soil characteristics across Scotland. Contains information on the 'class' of soils and their respective ranges to be used to identify which areas may interact with the land use and agriculture study area.
Green Belts – Scotland (Scottish Government, 2021)	2021	Database that identifies areas of land that have been allocated 'green belt' status in Scotland and used to determine whether green belt areas interact with the Bellrock Onshore Transmission Infrastructure.
Aberdeenshire Local Plan Maps (Aberdeenshire Council, 2023)	2023	An interactive map containing the live/up-to-date information regarding land allocation areas in the Aberdeenshire area under the Aberdeenshire Council Local Development Plan 2023. It identifies land allocations including: Opportunity Sites (Employment Land and Housing), Protected Areas and Reserved Sites, Strategic Reserve Employment Land Sites, Existing Employment Land, and Conservation Areas.
Mearns Forestry Management Plan (FLS, 2025)	2025	A strategic 10-year framework developed by the FLS to guide sustainable management, timber production and environmental conservation of the Mearns forest from 2025 – 2035. Provides detailed information to help identify forestry areas that may interact with the land use and agriculture study area.
Results from the Scottish Agricultural Census (Scottish Government, 2025)	2025	Provides Scotland totals from the published results of the annual June Scottish Agricultural Census. The Census is on land use, crop areas, livestock and the number of people working on agricultural holdings and can be used to determine sensitive receptors in the land use and agriculture study area.
Ury Estate Masterplan (Yeoman McAllister Architects, 2025)	2025	Information in relation to the proposed residential, retail and golf course development of the Ury Estate within the land use and agriculture study area. It is noted that the development is in the early stages and as such may not be progressed.
Aberdeenshire Council Planning Portal (Aberdeenshire Council, 2026)	2026	Online portal used by residents, developers and the local community to manage and access all relevant planning information – including but not limited to planning applications, building standards and local development policies/plans.
Energy Consents Unit (Scottish Government, 2026)	2026	Online portal for applications which are decided by Scottish Ministers, including onshore electricity generating stations over 50 MW, overhead line, and oil and gas pipelines.

Dataset	Temporal Coverage	Description
FLS Land Shapefile (FLS, 2026)	2026	A shapefile/map-based register of the national forests and land that is managed by FLS. Including all land and buildings that the FLS manage and used to identify FLS land which may interact with the land use and agriculture study area.
Google Earth Pro (Google, 2026)	2026	Desktop mapping and geospatial analysis software, including aerial imagery.
National Library of Scotland: Scotland – Land Use Viewer (NLS, 2026)	2026	Database of historic mapping for Scotland, comparing the land use from the 1930s to 2015.

8.4.3 Baseline Conditions

560. The land use within the land use and agriculture study area is a mix of agricultural land and areas of actively-managed plantation forestry (Fetteresso Forest) towards the west of the land use and agriculture study area. Settlements have largely been avoided, although a number of properties to the north of Stonehaven are included in the land use and agriculture study area, and scattered properties and farmsteads are located throughout the land use and agriculture study area.

561. The soils within the land use and agriculture study area are primarily humus-iron podzols and peaty podzols, with some areas of brown earths with gleying, basin peat and noncalcareous gleys. Soil types, derived from the National Soil Map of Scotland, are presented in **Figure 8.1 (Appendix A (Volume 1))**. Impacts to ecological receptors associated with peat is considered in **Chapter 9: Onshore Ecology and Nature Conservation.**

562. The Land Capability for Agriculture dataset (James Hutton Institute, 1984-86) indicates that the land within the land use and agriculture study area is predominantly Class 3.2 (i.e. land capable of producing consistently high yields of a narrow range of crops and/or moderate yields of a wider range), with areas of Class 3.1 (i.e. land capable of average production though high yields of barley, oats and grass can be obtained). The land capability ranges from Classes 1 to 7, with Class 1 to 3.1 being defined as prime agricultural land. There are also areas of Classes 4.1, 4.2, 5.2, 5.3, 6.1, 6.2 and urban areas present within the land use and agriculture study area which are of lower agricultural value, and much of this is forested land.

563. A breakdown of the agricultural capability, including definitions of the Classes, is presented in **Table 8.4**. The land capability for agriculture within the land use and agriculture study area is presented in **Figure 8.2** (**Appendix A (Volume 1)**).

Table 8.4: Overview of Land Capability for Agriculture Classes within the Land Use and Agriculture Study Area

Class	Definition	Area (ha)	Percentage of Study Area (%)
3.1	Land capable of producing consistently high yields of a narrow range of crops and/ or moderate yields of a wider range. Short grass leys are common.	640	13.9
3.2	Land capable of average production though high yields of barley, oats and grass can be obtained. Grass leys are common.	1,975	43.0
4.1	Land capable of producing a narrow range of crops, primarily grassland with short arable breaks of forage crops and cereal.	376	8.2
4.2	Land capable of producing a narrow range of crops, primarily on grassland with short arable breaks of forage crops.	460	10.0
5.2	Land capable of use as improved grassland. Few problems with pasture establishment but may be difficult to maintain.	536	11.7
5.3	Land capable of use as improved grassland. Pasture deteriorates quickly.	450	9.8
6.1	Land capable of use as rough grazings with a high proportion of palatable plants.	12	0.3
6.2	Land capable of use as rough grazings with moderate quality plants.	122	2.6
Urban	Built-up area.	11	0.2
	Total:	**4,582**	**99.7***
Notes: * Does not equal 100% due to rounding.			

564. It is unknown at this stage whether there are any agri-environment climate schemes present within the land use and agriculture study area. Should data become available for the EIA and further landowner engagement, this will be considered as part of the land use and agriculture assessment.

565. Fetteresso Forest forms part of the land use and agriculture study area, towards the westernmost area, largely for commercial purposes managed by FLS. FLS land covers approximately 1,469 ha of the land use and agriculture study area, equivalent to 32%. The area is known to be popular for recreational use, including walkers, bikers and horse riders, and wildlife including deer, foxes and birds of prey are known to frequent the forest.. The area of Fetteresso Forest within the land use and agriculture study area is largely coniferous. Access to tracks within Fetteresso Forest is periodically restricted to accommodate forestry operations, including thinning, felling and civil

engineering activities. Access may also be temporarily restricted during recreational events, such as rally stages and cycling events.

566. Throughout the land use and agriculture study area, there are areas of National Forest Inventory woodland, and further areas of ancient woodland (long established (of plantation origin) and ancient (of semi-natural origin)). Further consideration of the ecological and biodiversity value of National Forest Inventory woodland and ancient woodland is considered separately in **Chapter 9: Onshore Ecology and Nature Conservation. Figure 8.3** (**Appendix A (Volume 1)**) presents the forestry baseline within the land use and agriculture study area, including FLS land, land covered by the Forestry Grant Scheme, Ancient Woodland Inventory and the National Forest Inventory.

567. Core Paths have been identified within the land use and agriculture study area, predominantly to the east between the Stonehaven Bay and the A957, as shown in **Figure 8.4** (**Appendix A (Volume 1)**). Although not core paths, Fetteresso Forest is known to be a popular area for recreation. Small stretches of the National Cycle Network (NCN) are included within the land use and agriculture study area and are shown in **Figure 8.4** (**Appendix A (Volume 1)**). The recreational value of core paths and NCN's and effects upon receptors are included within **Chapter 15: Socioeconomics, Tourism and Recreation,** and are not considered further within this Chapter.

568. Other land uses within the land use and agriculture study area include a golf course and the following land designations as allocated in the Aberdeenshire Local Development Plan 2023 (Aberdeenshire Council, 2023), and shown in **Figure 8.5** (**Appendix A (Volume 1)**):

- Protected Areas and Reserved Sites (Protected Areas and Reserved Land) – P9, P12, R1;
- Opportunity Sites (Housing Land) – OP2, OP3, OP4, OP5, OP6;
- Indicative Routes: Indicative Link Road; and
- Existing Employment Land – BUS3.

569. Please note that the economic effects of the Bellrock Onshore Transmission Infrastructure on new development in the local area is considered further in **Chapter 15: Socioeconomics, Tourism and Recreation**.

570. A review of available information on utilities, and pre-scoping consultation, has identified the presence of INEOS FPS, Shell and National Gas Transmission assets within the land use and agriculture study area. Additionally, it is anticipated that domestic utilities are also present within the land use and agriculture study area. These are likely to include telecommunications, buried and above ground electricity cables, gas and public water mains. Detailed utilities data will be sought once the Bellrock OnTDA has been refined and presented within the EIA Report. Utilities are also considered within **Chapter 19: Major Accidents and Disasters**.

8.5 Potential Impacts

571. Potential impacts arising from the Bellrock Onshore Transmission Infrastructure during the construction, O&M, and decommissioning phases are outlined below and summarised in **Table 8.6**.

572. In addition, the Bellrock OnTDA Whole Project Assessment, potential for cumulative (**Section 8.6.5**) and transboundary (**Section 8.6.6**) impacts, as well as inter-relationships and interactions between impacts will also be determined and assessed.

8.5.1 Potential Construction Phase Impacts

573. Potential impacts during the construction phase of the Bellrock Onshore Transmission Infrastructure may arise from activities associated with construction works which are outlined in **Chapter 3: Project Description.**

574. These activities may result in the following impact pathways:

- Soil degradation and erosion;
- Impacts to agricultural drainage;
- Disruption to farming practices and productivity;
- Loss of protected areas as defined in the Aberdeenshire Council LDP;
- Disruption to and loss of commercial forestry;
- Temporary disturbance to green belt; and
- Impacts to existing utilities.

575. Impact pathways which commence during the construction phase and continue throughout the operational life of the Bellrock Onshore Transmission Infrastructure will be assessed as part of the O&M phase assessment, as this represents the point at which the maximum spatial extent of these impacts is reached following completion of installation activities. This approach recognises that these impacts are initiated during construction and may continue through O&M into decommissioning where infrastructure remains in situ, but that they represent a continuation of the same impact pathway rather than separate impacts for each development phase. This approach avoids unnecessary duplication of assessment across development phases.

8.5.2 Potential Operation and Maintenance Phase Impacts

576. Potential impacts during the O&M phase of the Bellrock Onshore Transmission Infrastructure arise from both the long-term presence and operation of infrastructure and periodic, planned and unplanned, maintenance activities.

577. The presence of infrastructure, including the OnSS, onshore export cables and the Hurlie substation connection works, will result in permanent changes to land use in some areas of the Bellrock OnTDA. Where possible, land along the onshore export cable route will be reinstated and

returned to its former use, noting however that trees would not be permitted to be planted above the onshore export cables themselves. In addition, the presence of onshore export cables could potentially give rise to localised thermal emissions in the immediate vicinity of the onshore export cables. Planned and unplanned maintenance activities, such as inspections, repair, and replacement works, may give rise to localised and temporary disturbance, similar in nature to that occurring during the construction phase, but typically of a smaller spatial extent and lower magnitude.

578. These activities may result in the following potential impact pathways:

- Soil degradation and erosion;
- Localised soil heating;
- Impacts to agricultural drainage;
- Disruption to farming practices and productivity;
- Loss of protected area as defined in the Aberdeenshire Council LDP;
- Permanent loss of commercial forestry; and
- Permanent loss of green belt land.

8.5.3 Potential Decommissioning Phase Impacts

579. Potential impacts during the decommissioning phase of the Bellrock Onshore Transmission Infrastructure will depend on the final decommissioning strategy, including the extent to which infrastructure is removed or left in-situ (see **Chapter 4: Approach to Scoping and Environmental Impact Assessment**).

580. Where infrastructure is removed, decommissioning activities are expected to result in localised land disturbance, broadly similar in nature to construction activities, although typically of reduced overall magnitude, as activities are likely to be more targeted.

581. Where infrastructure is left in-situ (either partially or wholly), impacts associated with the continued presence of infrastructure are considered in the O&M phase and are not duplicated here.

582. Decommissioning activities may result in the following potential impact pathways:

- Soil degradation and erosion;
- Impacts to agricultural drainage;
- Disruption to farming practices and productivity;
- Loss of protected area as defined in the Aberdeenshire Council LDP;
- Disruption to and loss of commercial forestry;
- Temporary disturbance to green belt land; and
- Impacts to existing utilities.

8.5.4 Embedded Mitigation Measures

583. Embedded mitigation has been identified, as presented in **Table 8.5** and **Appendix B: Mitigation and Monitoring Register (Volume 1)**, in accordance with the mitigation hierarchy, with the aim of avoiding, preventing, reducing, and where possible, offsetting potential adverse environmental effects. Consistent with the Institute of Environmental Management and Assessment (IEMA) guidance (2024) (now known as Institute of Sustainability and Environmental Professionals (ISEP)), primary (inherent design measures) and tertiary (standard good practice) mitigation are embedded within the Bellrock Onshore Transmission Infrastructure design and are therefore considered in the assessment of effects. Secondary mitigation measures will be identified where required through the EIA process, informed by the outcomes of the initial impact assessment.

584. The current embedded mitigation measures may be refined as the Bellrock Onshore Transmission Infrastructure design evolves. In addition, further embedded mitigation measures may be developed as part of the iterative design process during the EIA process.

Table 8.5: Embedded Mitigation Measures Relevant to Land Use and Agriculture

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	X	X	Development of and adherence to a Soil Management Plan.	To ensure reinstatement of land subjected to works associated with the installation of onshore export cables to its existing condition, or better, as far as practicable.	Tertiary
✓	X	X	Development of and adherence to a Construction Environment Management Plan.	To contain measures that will avoid or mitigate potential impacts on land use and agriculture. The Construction Environment Management Plan will include measures on land reinstatement to ensure maintenance of access for farm vehicles. The CEMP would include measures related the use of an Agricultural Liaison Officer, recording of field drainage and irrigation infrastructure and reinstatement.	Tertiary
✓	X	X	Development of and adherence to a CTMP.	To contain measures that will avoid or mitigate potential traffic-related impacts on land use and agriculture.	Tertiary
✓	✓	X	Site selection was informed by the Bellrock OnTDA Design Principles and included consideration of sensitive receptors	The site selection process avoided locating Onshore Transmission Infrastructure within areas of land allocations, community assets and housing. To avoid effects upon these receptors through site selection.	Primary
✓	✓	✓	Selection of access routes to make best use of the existing highway network.	Access to be taken via highways and private access routes where possible. Temporary closure or diversion of core paths and NCN's during the construction or decommissioning	Tertiary

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
				will be agreed in consultation with Aberdeenshire Council and landowners. This will minimise effects upon access.	
✓	✓	X	Link boxes will be located as close to field boundaries as possible.	To minimise disruption to farming practices.	Primary
X	✓	X	Onshore export cables and the cable trench will be designed to minimise thermal losses and maintain cable temperatures within acceptable operating limits.	To minimise any effects from soil heating.	Primary
✓	✓	X	Transition joint bay(s), joint bays and onshore export cables will be located underground.	To allow land to be reinstated and returned to its former use (with the exception of tree planting).	Primary
X	X	✓	Production of a Decommissioning, Restoration and Aftercare Strategy.	Details associated with the scope and methodology of decommissioning activities will be detailed within the Decommissioning, Restoration and Aftercare Strategy.	Tertiary

8.6 Scoping of Potential Impacts

8.6.1 Construction Phase

8.6.1.1 Soil Degradation and Erosion

585. Soil degradation and erosion during the construction phase has the potential to occur through the disturbance associated with groundworks. Disruption to soils can affect biological and chemical properties of the soil, leading to a loss or change to agricultural productivity. Soil degradation may occur as a result of excavation, storage or reinstatement that may occur during the construction phase. The impact of soil degradation and erosion will therefore be **scoped in** for further assessment in the EIA.

8.6.1.2 Impacts to Agricultural Drainage

586. Impacts to agricultural drainage may occur during the construction phase through site preparation works and groundworks during construction, which has the potential to impact natural and artificial drainage systems. There are also risks associated with surface water runoff and flooding to agricultural land and the surrounding environment, which is also considered further in **Chapter 7: Hydrology and Flood Risk**. The impacts on agricultural drainage will therefore be **scoped in** for further assessment in the EIA.

8.6.1.3 Disruption to Farming Practices and Productivity

587. A large area of the land use and agriculture study area consists of areas of agricultural production, including areas of prime agricultural land. There is potential for disruption to farming practices associated with temporary loss of land availability, restricted access and disruption resulting from construction vehicles. Biosecurity risk and plant health will also be considered under this impact. Biosecurity risk related to invasive non-native species (INNS) is considered in **Chapter 9: Onshore Ecology and Nature Conservation.** Disruption to farming practices will therefore be **scoped in** for further assessment in the EIA.

8.6.1.4 Loss of Protected Areas as Defined in the Aberdeenshire Council Local Development Plan

588. There is a protected area (P9), as allocated in the 2023 Aberdeenshire LDP (Aberdeenshire Council, 2023), within the land use and agriculture study area. There is potential for the temporary loss of the protected area during the construction phase of the Bellrock Onshore Transmission Infrastructure associated with construction activities. The loss of protected areas will there be **scoped in** for further assessment in the EIA.

8.6.1.5 Disruption to and Loss of Commercial Forestry

589. There are areas of commercial forestry within the land use and agriculture study area which will be impacted as a result of works during the construction phase due to land take and potential impacts to planting and felling cycles. Biodiversity impacts resulting from the loss of forestry is considered in **Chapter 9: Onshore Ecology and Nature Conservation**, and socioeconomic impacts to loss of commercial forestry is considered in **Chapter 15: Socioeconomics, Tourism and Recreation**. Disruption to and loss of commercial forestry will therefore be **scoped out** of further assessment

in the Land Use and Agriculture chapter of the EIA, and will be considered in **Chapter 9: Onshore Ecology and Nature Conservation** and **Chapter 15: Socioeconomics, Tourism and Recreation**.

8.6.1.6 Loss of Green Belt Land

590. Within the land use and agriculture study area, there are no areas designated as green belt land by Aberdeenshire Council, therefore there are unlikely to be impacts to green belt land during the construction phase. Loss of green belt land is therefore **scoped out** of further assessment in the EIA.

8.6.1.7 Impacts to Existing Utilities

591. During the construction phase, cable installation activity has the potential to impact on INEOS FPS, Shell and National Gas Transmission assets as well as telecommunications, water, power and gas infrastructure through intrusive excavation works or associated disruption. Therefore, potential impacts on existing utilities has been **scoped in** for further assessment in the EIA. Potential impacts involving existing utilities are also considered within **Chapter 19 Major Accidents and Disasters**.

8.6.2 Operation and Maintenance Phase

8.6.2.1 Soil Degradation and Erosion

592. Soil degradation and erosion are not anticipated to occur during the O&M phase due to the reinstatement of land that will be undertaken during the construction phase. Impacts associated with soil degradation and erosion during the O&M phase are therefore **scoped out** of further assessment in the EIA.

8.6.2.2 Soil Heating

593. Soil heating may theoretically occur due to buried cable systems which may impact soil properties. The onshore export cables will be designed to minimise heat loss to a level which is not likely to affect crop growth. Soil heating during the O&M phase is there **scoped out** of further assessment in the EIA.

8.6.2.3 Impacts to Agricultural Drainage

594. Following the completion of construction works, all agricultural drainage will be fully reinstated under commercial agreements with the relevant landowners. Impacts to agricultural drainage during the O&M phase are therefore **scoped out** from further assessment in the EIA.

8.6.2.4 Disruption to Farming Practices and Productivity

595. The presence of permanent Onshore Transmission Infrastructure associated with the OnSS, buried cables and associated joint bays have the potential to result in long term loss of land and a loss of agricultural productivity. Given the presence of agricultural land classed as 3.1 within the land use and agriculture study area, there may be a loss of prime agricultural land as a result of the Bellrock Onshore Transmission Infrastructure. Disruption to farming practices is therefore **scoped in** for further assessment in the EIA.

8.6.2.5 Loss of Protected Areas as Defined in the Aberdeenshire Council Local Development Plan

596. The presence of Onshore Transmission infrastructure associated with the onshore export cable corridor would not result in the loss of protected areas during the O&M phase of the Bellrock Onshore Transmission Infrastructure. There are no protected areas within the preferred OnSS Area of Search. The loss of protected areas will there be **scoped out** of further assessment in the EIA.

8.6.2.6 Permanent Loss of Commercial Forestry

597. The presence of permanent Onshore Transmission Infrastructure within the Fetteresso Forest associated with the OnSS has the potential to cause permanent loss of commercial forestry through land take. Biodiversity impacts resulting from the loss of forestry is considered in **Chapter 9: Onshore Ecology and Nature Conservation**, and socioeconomic impacts to loss of commercial forestry is considered in **Chapter 15: Socioeconomics, Tourism and Recreation**. Disruption to and loss of commercial forestry will therefore be **scoped out** of further assessment in the Land Use and Agriculture chapter of the EIA, and will be considered in **Chapter 9: Onshore Ecology and Nature Conservation** and **Chapter 15: Socioeconomics, Tourism and Recreation**.

8.6.2.7 Permanent Loss of Green Belt Land

598. Within the land use and agriculture study area, there are no areas designated as green belt land by Aberdeenshire Council, therefore there are unlikely to be impacts to green belt land during the O&M phase. Loss of green belt land is therefore **scoped out** of further assessment in the EIA.

8.6.3 Decommissioning Phase

599. At the end of operational life, the Bellrock Onshore Transmission Infrastructure will be decommissioned. The final decommissioning approach will be determined through the preparation of a Decommissioning, Restoration and Aftercare Strategy, and will consider relevant legislation, guidance, and industry best practice. However, decommissioning activities are anticipated to result in impact pathways that are similar to, or no greater than, those associated with construction activities. Therefore, the impacts **scoped in** to the assessment for the construction phase are also considered applicable to the decommissioning phase.

8.6.4 Bellrock OnTDA Whole Project Assessment

600. The Bellrock OnTDA Whole Project Assessment will follow the general methodology set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessmen**t and will consider how potential combined interactions between the Bellrock Onshore Transmission Infrastructure, the Bellrock Offshore Transmission Infrastructure and the Bellrock Wind Farm Infrastructure may influence the magnitude of impacts and significance of effects on land use and agricultural receptors. Refer to **Plate 4.3 (Chapter 4: Approach to Scoping and Environmental Impact Assessmen**t) for the approach and methodology that will be followed for the Bellrock OnTDA Whole Project Assessment.

601. No pathway-based interactions are anticipated between the Bellrock OnTDA and the Bellrock OfTDA, as there is no spatial overlap except within the intertidal zone. Within the intertidal zone, the impacts identified above would not occur. The whole project assessment in therefore **scoped out** of further consideration in the EIA.

8.6.5 Potential Cumulative Effects

602. The Bellrock OnTDA Cumulative Effects Assessment (CEA) will be undertaken in accordance with the methodology set out in **Section 4.7** of **Chapter 4: Approach to Scoping and Environmental Impact Assessmen**t. An overview of the Bellrock OnTDA assessment process, including the relationship between the Bellrock OnTDA Whole Project Assessment and the CEA, is provided in **Plate 4.3.**

603. Overall, the CEA is a two-staged process, with the first stage assessing the impacts as a result of the Bellrock OnTDA Whole Project Assessment (**Section 8.6.4**) together with the Hurlie substation. The second stage will then assess the impacts as a result of the Bellrock OnTDA Whole Project Assessment together with the Hurlie substation plus impacts arising from other reasonably foreseeable plans and projects where there is conceptual, spatial, and/or temporal overlap. This will determine the potential for cumulative impacts and subsequent cumulative effects on land use and agriculture receptors.

604. There is potential for cumulative impacts on land use and agriculture receptors where the Bellrock Onshore Transmission Infrastructure and other plans and projects have conceptual overlap through a shared or similar source-pathway-receptor linkage, where there is spatial and temporal overlap. In general, many impact pathways are spatially constrained to the immediate footprint of the Bellrock Onshore Transmission Infrastructure and therefore have a limited Zone of Influence. However, other impact pathways may extend over a wider area and therefore have greater potential to contribute to cumulative interaction. Therefore, at this stage cumulative effects have been **scoped in** for further assessment in the EIA.

605. The CEA will consider other plans and projects with the potential to affect receptors through the same or similar impact pathways. Spatial screening of plans and projects will be defined proportionately, considering the Zone of Influence associated with each impact pathway, alongside the potential for conceptual and temporal overlap, to ensure that only plans/projects with realistic potential for cumulative interaction are included.

8.6.6 Potential Transboundary Effects

606. Transboundary effects on land use and agriculture receptors are not anticipated to arise from the construction, O&M, or decommissioning of the Bellrock Onshore Transmission Infrastructure. Impact pathways are typically localised with impacts confined to the footprint of infrastructure.

607. There is no plausible mechanism for transboundary effects to occur. Transboundary effects are therefore **scoped out** of further assessment in the EIA.

8.6.7 Summary of Potential Land Use and Agriculture Impacts Scoped In and Scoped Out

608. **Table 8.6** summarises the outcomes of the scoping assessment presented in **Section 8.6.1** to **8.6.6**, identifying the relevant impacts for land use and agriculture and confirming whether these have been scoped in or scoped out of further assessment in the EIA.

Table 8.6: Summary of the Potential Land Use and Agriculture Impacts Scoped In (✓) or Scoped Out (X)

Potential Impact	Scoped In (✓) or Scoped Out (X)		
	Construction	O&M	Decommissioning
Soil degradation and erosion	✓	X	✓
Localised soil heating	X	X	X
Impacts to agricultural drainage	✓	X	✓
Disruption to farming practices and productivity	✓	✓	✓
Loss of protected areas	✓	X	✓
Disruption to and loss of commercial forestry	X	X	X
Loss of green belt land	X	X	X
Impacts to existing utilities	✓	X	✓
Bellrock OnTDA Whole Project Assessment*	X	X	X
Cumulative effects	✓	✓	✓
Transboundary effects	X	X	X
Notes: * see **Section 8.6.4** for further details on the scoping of the Bellrock OnTDA Whole Project Assessment for Land Use and Agriculture.			

8.7 Proposed Approach to Impact Assessment

609. The existing environment will be determined through a desk-based review of existing datasets within the land use and agriculture study area. Desk-based sources will include those outlined in **Table 8.3**, and data from landowner discussions held during the development of the Bellrock OnTDA. This will include the identification of relevant receptors. Where relevant, site surveys for other topic-specific assessments will be considered as part of the land use and agriculture desk-based review.

610. Ongoing consultation with relevant stakeholders, including Aberdeenshire Council and landowners, will inform the desk-based review to identify the existing environment.

611. Consideration of relevant guidance will also form the basis of the assessment, including the Design Manual for Roads and Bridges (DMRB) LA 109 Scotland National Application Annex to LA 109

Geology and Soils (Highways England, 2019), DMRB LA 112 Population and Human Health (Highways England, 2020), Scottish Environmental Protection Agency's Planning Advice Note 'Assessing the impact of developments on peatland and carbon rich soils' (Scottish Environmental Protection Agency, 2026) and Soil Health in Environmental Assessment (ISEP, 2025).

612. In accordance with the EIA methodology outlined in **Section 4.5**, the sensitivity of receptors and magnitude of impact will be used to determine the overall significance of effects.

8.7.1 Definitions of Sensitivity and Magnitude

613. The EIA will identify sensitive receptors and implement an approach to understand the of magnitude of impacts on the identified receptors. The definitions for use in the EIA are provided in **Table 8.7** and **Table 8.8** for sensitivity and magnitude respectively.

Table 8.7: Definitions of Sensitivity for Land Use and Agriculture Receptors

Sensitivity	Land Use	Agriculture and Soils
High	▪ Receptor has very limited capacity to accommodate changes; ▪ Permanent restriction to the use of land, including future large-scale planning applications; and ▪ Regionally distinctive land uses that cannot be replaced or adapted.	▪ Receptor has very limited capacity to accommodate changes; ▪ Prime agricultural land (Classes 1 to 3.1); ▪ Intensive livestock and cropping systems; and ▪ Soil which is susceptible to degradation and erosion.
Medium	▪ Receptor has limited capacity to accommodate changes; ▪ Temporary acute restriction to the use of land, including allocated sites in the 2023 Aberdeenshire LDP; and ▪ Regionally important land uses for agriculture.	▪ Receptor has limited capacity to accommodate changes; ▪ Agricultural land of Class 3.2; ▪ Moderate intensity livestock and cropping systems; and ▪ Soil which is vulnerable to degradation and erosion.
Low	▪ Receptor has moderate capacity to accommodate changes; ▪ Temporary minor restrictions to the land use; ▪ No impacts to land allocated in the 2023 Aberdeenshire LDP; and ▪ Large agricultural holdings or ordinary agricultural land use.	▪ Receptor has moderate capacity to accommodate changes; ▪ Agricultural land of Classes 4 to 6.3; ▪ Medium to coarse soil with some resistance to structural damage; and ▪ Arable or pasture grassland.
Negligible	▪ Receptor is tolerant of changes; and ▪ No restrictions to the land use.	▪ Receptor is tolerant of changes; ▪ Agricultural land of Class 7 or urban; ▪ Land which is not agricultural, arable or pasture grassland; and ▪ Soils with a greater resistance to structural damage.

Table 8.8: Definitions of Magnitude for Land Use and Agriculture Receptors

Magnitude	Land Use	Agriculture and Soils
High	▪ Permanent (>10 years) or irreversible changes to the land use receptor, with effects to usability, risk and value; ▪ Existing land use would be unable to continue on >5 ha of land, or the entire land of a landowner or occupier (where <5 ha), where land is no longer viable for agriculture; and ▪ Permanent changes to land management required.	▪ Permanent loss of >20 ha prime agricultural land and associated soil functions; ▪ Permanent impacts to agricultural land drainage systems; and ▪ Full land recovery in >10 years.
Medium	▪ Moderate, permanent or long-term (5-10 years) reversible changes over the majority of the land use receptor, with effects to usability, risk and value; and ▪ Existing land use would be unable to continue on <5 ha of land.	▪ Medium to long term (2-10 years) loss of prime agricultural land and associated soil functions; ▪ Temporary impacts to agricultural drainage systems over >20 ha area; ▪ Permanent loss of between 5 and 20 ha of agricultural land and associated soil functions; and ▪ Full land recovery within 5-10 years.
Low	▪ Temporary (<5 years) change with effects to usability and risk; and ▪ Permanent change over a small area with minimal effects to usability, risk and value.	▪ Short term (<2 years) loss of prime agricultural land and associated soil functions; ▪ Permanent loss of Class 3.2 – 7 agricultural land and associated soil functions; ▪ Temporary impacts to agricultural drainage systems over <20 ha area; and ▪ Full land recovery within 5 years.
Negligible	▪ Minor permanent or temporary change with no effect to usability, risk or value. Effects are undiscernible over the medium and short term.	▪ No identifiable change to soil resource; ▪ Minimal of no disruption to agricultural land drainage systems; and ▪ Small areas of agricultural land are permanently lost (<1,000 m^2).

8.8 Scoping Questions to Consultees

614. The following questions are posed to consultees to help them frame and focus their response to land use and agriculture scoping exercise, which will in turn inform the EIA:

- Have all the potential land use and agriculture impacts resulting from the Bellrock OnTDA been identified in the Scoping Report?
- Do you agree with the effects scoped in and scoped out of further assessment in the EIA?
- Do you agree with the characterisation of the existing environment?
- Have all the relevant data sources been identified in the Scoping Report?
- Do you agree with the proposed assessment approach?

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9 Onshore Ecology and Nature Conservation

9.1 Introduction

615. This Chapter of the **Bellrock Onshore Transmission Development Area (OnTDA) Scoping Report** considers the potential impacts on ecology and nature conservation receptors associated with the construction, operation and maintenance (O&M), and decommissioning of the Bellrock Onshore Transmission Infrastructure.

616. The Bellrock OnTDA Scoping Boundary (shown in **Figure 1.1 (Appendix A (Volume 1))**) defines the area within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process (as discussed in **Section 1.4** in **Chapter 1: Introduction**) to form the boundary of the Bellrock OnTDA Planning Permission in Principle (PPP) Application.

617. For the purposes of this **Bellrock OnTDA Scoping Report**, the Bellrock OnTDA Scoping Boundary encompasses the anticipated Onshore Transmission Infrastructure and associated activities for the Bellrock OnTDA landward of Mean Low Water Springs (MLWS). The Bellrock OnTDA Scoping Boundary overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) between Mean High Water Springs (MHWS) and MLWS.

618. The Bellrock Onshore Transmission Infrastructure includes:

- **Landfall:** located at Cowie, Aberdeenshire, where between two and six ducts are installed using trenchless techniques allowing the offshore export cables to be brought ashore and connected to onshore export cables within the transition joint bay;
- **Onshore export cables:** up to six underground High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) onshore cables, each up to 18 km in length, installed between landfall and the onshore substation;
- **Onshore substation (OnSS):** electrical equipment (such as converters, transformers, switchgear, and protection and control systems) enabling renewable electricity from the Bellrock Wind Farm Development Area (WFDA) received via the onshore export cables to be exported to the National Electricity Transmission System, and ancillary infrastructure; and
- **Hurlie substation connection works:** Infrastructure between the Bellrock OnSS to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the National Electricity Transmission System.

619. In addition, associated works are required to facilitate construction and O&M of the Onshore Transmission Infrastructure, including: access, signage, haul roads, spoil storage, material

storage, fencing, borrow pits (if any), earthworks, welfare, security, landscape mitigation, ecological mitigation, biodiversity enhancement, operational lighting and drainage.

620. As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Wind Farm Infrastructure (located within the Bellrock WFDA) was presented in the **Bellrock WFDA Environmental Impact Assessment (EIA) Report**, which was submitted in support of the Section 36 consent and Marine Licence Application for the Bellrock Wind Farm Infrastructure in April 2026 (Bellrock Offshore Wind Farm Limited, 2026a). The **Bellrock WFDA EIA Report** considered the potential impacts and subsequent effects of the Bellrock Wind Farm Infrastructure on the environment. An EIA Scoping Report for the Bellrock Offshore Transmission Infrastructure was also submitted to Scottish Ministers on 17 August 2026 (Bellrock Offshore Wind Farm Limited, 2026b), with an EIA Report in support of the Marine Licence Application proposed to be submitted by the end of 2027.

621. This Chapter of the **Bellrock OnTDA Scoping Report** provides an overview of the existing environment and sets out the proposed methodology and approach to assessing effects on onshore ecology and nature conservation receptors in the Bellrock OnTDA EIA Report. This Chapter has been prepared by Haskoning.

622. This Chapter should be read in conjunction with the following chapters of the **Bellrock OnTDA Scoping Report**:

- **Chapter 5: Landscape and Visual Impact;**
- **Chapter 7: Hydrology and Flood Risk;**
- **Chapter 10: Onshore Ornithology;**
- **Chapter 13: Noise and Vibration;** and
- **Chapter 14: Air Quality.**

623. This Chapter is likely to have key inter-relationships with the above receptors, which will be considered appropriately where relevant in the Bellrock OnTDA EIA Report.

9.2 Legislation, Policy and Guidance

624. **Table 9.1** identifies the legislation, policy and guidance relevant to the onshore ecology and nature conservation assessment, where appropriate. The overarching legislation relevant to the Bellrock Onshore Transmission Infrastructure is described in **Chapter 2: Legislative and Policy Context**.

Table 9.1: Summary of Relevant Legislation, Policy and Guidance for the Onshore Ecology and Nature Conservation Assessment

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Legislation	
Wildlife and Countryside Act 1981 (as amended)	The Wildlife and Countryside Act 1981 (as amended) contains four parts and 17 schedules which cover: ▪ Part 1: Wildlife – the protection of birds, animals, plants and measures to prevent the establishment of non-native species which may be detrimental to native wildlife; ▪ Part 2: Nature conservation – the countryside and National Parks (including the designation of protected areas); ▪ Part 3: Public rights of way; and ▪ Part 4: Miscellaneous provisions of the act. Under the Wildlife and Countryside Act 1981 (as amended) NatureScot have a duty to notify any area of land which is 'of special interest by reason of any of its flora, fauna, or geological or physiographical features'. These sites are known as Sites of Special Scientific Interest (SSSIs). The Act also implements the Birds Directive and Bern Convention in Great Britain, but has been amended and supplemented over the intervening decades.
Protection of Badgers Act 1992	The Protection of Badgers Act 1992 provides protection to badgers from several actions which can result from development, including but not limited to: ▪ Wilfully killing, injuring, or taking a badger (or attempt to do so); ▪ Intentionally or recklessly damaging, destroying or obstructing access to a badger sett; and ▪ Disturbing a badger when it is occupying a sett.
The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)	These regulations transpose the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive) into domestic law and provide the legal framework for the designation of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). The Habitats Directive lists habitats (Annex I) and species (Annex II) of community interest.
Town and Country Planning (Scotland) Act (1997)	Principal legislative framework for Scotland's planning system, requiring material considerations to be taken into account in the preparation of development plans and the determination of development proposals.
Nature Conservation (Scotland) Act 2004	The Nature Conservation (Scotland) Act 2004 sets out a series of measures designed to conserve biodiversity, and to protect and enhance the biological and geological natural heritage. This Act also provides amendments to the Wildlife and Countryside Act 1981 and enacts requirements under the Bern Convention 1979.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Wildlife and Natural Environment (Scotland) Act 2011	Amends and strengthens wildlife protection in Scotland, including certain provisions of the Wildlife and Countryside Act 1981. Introduces measures for control of invasive non-native species (INNS) and reinforces the biodiversity duty on Scottish public bodies. Section 17 of the Wildlife and Natural Environment (Scotland) Act 2011 repeals Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), replacing it with a more flexible system that allows Scottish Ministers to designate INNS through secondary legislation. Therefore, designated INNS in Scotland and England differ, with Scotland having additional non-native species listed as species of 'conservation concern' without the legal title of 'INNS'.
The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017	Schedule 4 states that the description of the likely significant effects should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.
Policy	
Northeast Scotland Local Biodiversity Action Plan (LBAP) (Northeast Scotland Biodiversity Partnership (NESBiP), 2019)	The Northeast Scotland LBAP identifies locally important species and habitats which should be prioritised when considering development impacts and design of enhancement. This now also includes six broad habitat statements to build on the previous Northeast Scotland LBAP Habitat and Species Plans, intended to be used by developers to identify important habitats and opportunities for enhancement.
National Planning Framework 4 (NPF4) (Scottish Government, 2023)	The following other NPF4 policies are considered relevant to onshore ecology and nature conservation: ▪ **Policy 1: Tackling the climate and nature crises** aims to facilitate development to support nature recovery and protect biodiversity; ▪ **Policy 2: Climate mitigation and adaptation** considers the resilience of habitats and species to developments and climate change risks; ▪ **Policy 3: Biodiversity** supports development that helps to secure positive effects for biodiversity. The Policy states that development proposals should seek to "*conserve, restore and enhance biodiversity, including nature networks so they are in a demonstrably better state than without intervention*"; ▪ **Policy 4: Natural places** supports the protection and restoration of locally, regionally, nationally and internationally important habitats; ▪ **Policy 5: Soils** supports carbon-rich and peatland soils, including habitats and ecosystem services; ▪ **Policy 6: Forestry, woodland and trees** aims to protect and enhance woodland, including the habitats, species and connectivity associated with trees; ▪ **Policy 9: Brownfield, vacant and derelict land and empty buildings** highlights the need to consider the biodiversity value of brownfield land; ▪ **Policy 11: Energy** supports the development of renewable energy, which should consider biodiversity and impacts to woodland; ▪ **Policy 14: Design, quality and place** aims to promote developments which are healthy, pleasant and sustainable, which nature and biodiversity can contribute towards;

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
	▪ **Policy 20: Blue and green infrastructure** aims to support the protection and enhancement of blue and green infrastructure, which deliver functions including nature restoration and biodiversity; ▪ **Policy 23: Health and safety** seeks to support developments which protects people and places from environmental harm, which nature and biodiversity can contribute towards; and ▪ **Policy 29: Rural development** aims to support developments in rural areas through the improvement or restoration of the natural environment.
Aberdeenshire Local Development Plan (LDP) (Aberdeenshire Council, 2023a)	The Aberdeenshire LDP sets out a range of local policies to be followed during development within Aberdeenshire: ▪ **Policy P1: Layout, Siting and Design** (in line with NPF4 Policy 3) identifies the need to enhance biodiversity in proportion to the opportunities available and the scale of the development. Where this is not practical to achieve within a development site, off-site contributions towards biodiversity enhancement may be required; and ▪ **Policy E1: Natural Heritage** states that unacceptable adverse effects on a nature conservation site designated for its biodiversity, species, habitat importance will not be permitted without appropriate evidence-based decision making, compensation and mitigation.
Scottish Biodiversity Strategy to 2045 (Environment and Forestry Directorate, 2024)	The Scottish Biodiversity Strategy to 2045 is a strategic vision which aims to restore and regenerate biodiversity across Scotland by 2045. This strategy has set outcomes for achieving this vision, including: ▪ Ecosystems will be diverse, healthy, resilient and deliver a wide range of ecosystem services; ▪ Protected areas will be larger, better connected and in good condition; ▪ The abundance and distribution of species will have recovered and there will be no loss of diversity within species; ▪ Scotland's internationally important species will have increased in numbers and have healthy resilient populations; ▪ Natural capital will be embedded in policy making; ▪ Nature-based solutions, such as tree-planting, peatland and blue carbon habitat restoration, will be central to our efforts to deliver net zero and adapt to climate change; ▪ INNS will be managed so that established INNS no longer degrade native habitats and species or impede their restoration and regeneration, and new introductions are managed quickly and effectively; and ▪ Biodiversity as a concept will be understood and valued across the population and embedded in educational curricula.
Scottish Biodiversity List (SBL) (Environment and Forestry Directorate, 2025)	The SBL accompanies and supports the Scottish Biodiversity Strategy to 2045 - listing species and habitats that are nationally important to further the conservation of biodiversity in Scotland, as required by the Nature Conservation (Scotland) Act 2004.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Guidance	
Buffer Strips Planning Advice PA2023-16 (Aberdeenshire Council, 2023b)	This guidance provides details of the requirements for buffer strips adjacent to watercourses and water bodies as outlined in the Aberdeenshire LDP and NPF4 Policy 3.
Baseline Ecological Survey Planning Advice PA2023-17 (Aberdeenshire Council, 2023c)	This guidance provides details of the requirements for baseline ecological surveys in order to allow a full assessment of the impacts of a proposed development on both habitats and species but also the wider ecosystem services provided by the site, in line with NPF4 Policy 3.
Trees and Development Planning Advice PA2023-20 (Aberdeenshire Council, 2023d)	This guidance details best practice guidance to help planning applicants avoid damage to, or loss of, trees on development sites, in line with NPF4 Policy 3.
Biodiversity Enhancement on Development Sites (Aberdeenshire Council, 2025)	This guidance details the requirements for biodiversity enhancement as outlined in Policy P1 Layout, Siting and Design of the Aberdeenshire LDP and NPF4 Policy 3. This guidance highlights that the recommended method for quantifying biodiversity losses is calculations using Department for Environment, Food and Rural Affairs (Defra) Biodiversity Metric (Defra, 2026).
Guidance on Biodiversity Enhancement and Compensatory Planting Requirements for Energy Infrastructure Development (Aberdeenshire Council, 2026)	This guidance outlines the approach required by Aberdeenshire Council for the delivery of biodiversity enhancement measures, and for compensatory planting where woodland removal is required, in relation to large scale energy infrastructure developments, particularly where off-site provision is likely to form part of the proposals. This guidance aligns with Policy 3 of NPF4, securing proportional enhancement of biodiversity.

9.3 Consultation

625. Consultation with Aberdeenshire Council and NatureScot has been undertaken, including engagement through Aberdeenshire Council's Pre-application Advice Service. A summary of consultation activities undertaken to date is provided in **Table 9.2**.

Table 9.2: Consultation relevant to Onshore Ecology and Nature Conservation Consultation

Consultee	Date/Document	Comment	How Comment has been Addressed
NatureScot	2 April 2026 Meeting Minutes	*'Bellrock Offshore Wind Farm Ltd. are proposing a suite of onshore ecological surveys in 2026, and are seeking feedback from NatureScot on the scope and methodologies of these surveys, as the Statutory Nature Conservation Body. A scope document was circulated to NatureScot on the 27th of March 2026 for comment. […] [NatureScot] has had a check of the survey methodology, and nothing appears to conflict with the NatureScot standing advice.* *[The Applicant] noted that the Bellrock Offshore Wind Farm is located outwith the Garron Point SAC [740m away at the closest point].* *[NatureScot] noted that they would expect to see HRA Screening in relation to the Garron Point SAC.* *[NatureScot] noted that Northern Brown Argus Aricia artaxerxes butterfly (an interest feature of the Garron Point SSSI) is recorded adjacent to the Bellrock Offshore Wind Farm Project landfall area. […] [The Applicant noted that] the only likely impact pathways would be via dust/runoff, and mitigation would need to be in place to manage these.* *[NatureScot] asked the Project to liaise with the NatureScot geology team regarding the effects of the Project's landfall works on the geological SSSI.'*	All ecological surveys will follow NatureScot's advice on the relevant ecological receptor (see **Section 9.4.2**). Likely Significant Effects on the Garron Point SAC have been considered within the Bellrock OnTDA HRA Screening (see **Bellrock OnTDA HRA Screening Report (Volume 2)**). Northern brown argus surveys will be undertaken as part of the Bellrock OnTDA's baseline ecological surveys (see **Section 9.4.2**).
NatureScot	21 April 2026 Email correspondence	*'[NatureScot's geologist advised] advised that if the directional drilling does not disrupt/cover/remove any of the surface rock outcrops in the SSSI, there is likely to be no negative impact on the SSSI Earth science features. Secondly, if data can be obtained on the rock drilled through, that might also be of scientific interest.'*	Commitment of trenchless techniques at landfall avoid direct impacts on Garron Point SSSI (see **Section 9.5.4**). Commitment was made to make information available for scientific study about any relevant data obtained through future ground investigation works beneath the SSSI.

Consultee	Date/Document	Comment	How Comment has been Addressed
Aberdeenshire Council	11 June 2026 Meeting Minutes	Aberdeenshire Council noted no objection in principle to using data from nearby projects if valid and if it reduces the need for disruption for local communities. The Applicant noted that compensation for forestry loss would look to be achieved onsite where possible, as would any biodiversity enhancement requirements. However compensation measures may be required outside of the OnTDA. This will be discussed with Forestry and Land Scotland (FLS). Aberdeenshire Council would defer to FLS with regards to forestry compensation. Future technical discussion deferred to a future pre-application meeting proposed for 23 July 2026.	Consultation with FLS will continue throughout the EIA process in regard to biodiversity enhancement requirements (see **Section 9.6.2**).
Aberdeenshire Council	19 August 2026 Pre-application Advice letter	**Impacts on Trees** *'The proposal would result in woodland loss, particularly in Fetteresso. The cumulative loss of woodland proposed in this area for energy infrastructure is a significant concern for the Council and for the community. The requirements of NPF4 policy and the Control of Woodland Removal Policy (CoWRP) will apply. We would highlight our new Planning advice for development of this type which sets out our expectation for compensatory planting. A particular aspect to note in this Planning Advice is the expectation that compensatory woodland planting is provided as close as possible to the site of loss.* *It is noted that application via Planning Permission in Principle is proposed. The applicants should note that we need detail on compensatory planting with planning applications, so we are able to assess them against policy requirements in NPF4 and CoWRP.* *We will look for proposals to avoid smaller areas of woodland in the open landscapes as well as larger forestry/woodland blocks. Out with Fetteresso, the relatively open farmed landscape of this area is enhanced ecologically by the smaller woodland elements within it, not just the ancient woodland, and so we consider their importance to be high. The option to use trenchless techniques in proximity to areas of ancient woodland is strongly encouraged. However, complete avoidance of such areas should be the initial priority.'*	Measures within the Outline Biodiversity Enhancement Plan (BEP) will be designed in line with Aberdeenshire Council (2026)'s *Guidance on Biodiversity Enhancement and Compensatory Planting Requirements for Energy Infrastructure Development* (see **Section 9.6.2**). Consultation with FLS will continue throughout the EIA process in regard to biodiversity enhancement requirements (see **Section 9.6.2**).

Consultee	Date/Document	Comment	How Comment has been Addressed
Aberdeenshire Council	19 August 2026 Pre-application Advice letter	**Impacts on Habitats and Species** *'As per standard EIA ecological and ornithological requirements, we will expect appropriate assessment of these elements in relation to the project. Generally, we are content with what is proposed but some particular points of note are presented below. […]* *There are queries in the supplied presentation regarding survey coverage and landowner access. We are not in a position to say, for example, what minimum percentage area coverage is required for an EIA. Fundamentally we will look for a competent EIA which adequately assesses impacts and provides suitable mitigation. So, we hope that full land access can be secured. Where it can't, the implications and risks associated with this will need to be clearly communicated in the EIA. For some aspects of the natural environment, such as habitat, existing data from sources such as Nesbrec are likely to allow a good level of characterisation. Aerial imagery may be able to supplement this. For species, again data is available for Nesbec and other sources. However, the applicant will need to consider risks and mitigation for protected species, such as badger and nesting birds for example, in any areas not fully accessed.'*	All ecological surveys set out in **Table 9.4** will follow NatureScot's advice on the relevant ecological receptor (see **Section 9.4.2**). Desk-based data sources have been used alongside field survey data to characterise the baseline environment (see **Table 9.3**). This includes data obtained from NESBReC (see **Section 9.4.3.3**).
Aberdeenshire Council	19 August 2026 Pre-application Advice letter	**Impacts on Protected Sites** *'There are a range of protected and notable sites within the area of search which should be taken account of in the EIA, NautreScot will have input on this aspect.* *The proposal comes onshore via Garron Point SSSI (and adjacent to Garron point SAC) and Portlethen & Muchalls coast Local Nature Conservation Site (LNCS). Protection of the noted elements of these sites will be a key requirement and the effects appropriately assessed. Nesbrec can provide more detail on LNCS and biological records for the study area generally. There is a query on the presentation regarding the need to survey for invertebrates. Although it's not fully clear the extent of potential impacts on Garron Point from the proposals, it is reasonable to assume surveys for the qualifying interests of the SSSI are required. We anticipate NatureScot providing detail on their requirements in relation to Garron Point.* *We would also highlight for consideration Red Moss of Netherly SSSI and SAC, Fowlsheugh SPA, & various LNCS- Portlethen and Muchalls coast, Red Moss ofNetherly, Muchalls to Stonehaven Bay, Fetteresso, Elfhill & Meagrie LNCS.'*	Likely Significant Effects on the Garron Point SAC have been considered within the Bellrock OnTDA HRA Screening (see **Bellrock OnTDA HRA Screening Report (Volume 2)**). Commitment of trenchless techniques at landfall avoid direct impacts on Garron Point SSSI (see **Section 9.5.4**). Designated sites for nature conservation within the baseline environment set out in **Section 9.4.3.1** have been considered within and up to 5 km from the OnTDA Scoping Boundary (herein the 'designated sites study area').

Consultee	Date/Document	Comment	How Comment has been Addressed
Scottish Environmental Protection Agency (SEPA)	19 August 2026 Pre-application Advice letter	**Impact on Peat** *'SEPA welcome the identification of peat constraint on the Constraints mapping. The final cable routing should attempt to minimise the impact on this area as much as possible. Detailed peat probing will be required to identify the true extent of the area and a PMP will be required to be submitted alongside the application. Please refer to Version 2 of the SEPA PAN - Assessing the impact of developments on peatland and carbon rich soils available on the planning section of the SEPA website for further information requirements in this regard.'*	Peat probing surveys will be conducted to inform the EIA should the Bellrock OnTDA overlap with areas of carbon-rich soils (i.e. Class 1, 2, 3 or 5) (Scotland's Soils, 2016). Survey outputs and resulting mitigation measures will be set out within an Outline Peat Management Plan (PMP), if required (see **Table 9.6**).
Aberdeenshire Council	6 October 2026 Email correspondence	**Arboricultural Assessment** *'We need an outline assessment at PPP stage, just to get an indication of scale, & potential quality of trees. Then a detailed arboricultural assessment etc. can be conditioned.* *We welcome an outline compensatory planting plan. We need to be comfortable that suitable compensatory planting can be provided and have an idea of the scale.* *We agree that a tree constraints plan and tree protection plan could be conditioned.'*	A Tree Survey will be undertaken within the Bellrock OnTDA and provided with the EIA Report in support of the PPP Application, with a Tree Constraints Plan and Tree Protection Plan not provided with the PPP Application and instead provided in the Application for Approval of Matters Specified in Conditions (MSC). An Outline WCPP, that establishes the planting principles and indicative areas to be developed in more detail in the Application for Approval of MSC, will be provided with the PPP Application.
Aberdeenshire Council	6 October 2026 Email correspondence	**Peat** *'SEPA are the relevant consultee in relation to peat, so as long as the approach conforms with their guidance/advice then we are content.'*	Peat probing surveys will be conducted to inform the EIA should the Bellrock OnTDA overlap with areas of carbon-rich soils (i.e. Class 1, 2, 3 or 5) (Scotland's Soils, 2016). Survey outputs and resulting mitigation measures will be set out within an Outline PMP, if required (see **Table 9.6**).
Aberdeenshire Council	6 October 2026 Email correspondence	**Biodiversity Enhancement** *'While the final detail can be conditioned, we need to be comfortable of the broad level of enhancement required, and that it can be delivered, preferably on site. For offsite enhancement, we would want detail of the location. We may look to use suspensive conditions if there is not sufficient detail available. We are happy to discuss BNG in more detail along with our Natural Heritage Planner.'*	Measures within the Outline BEP will be designed in line with Aberdeenshire Council (2026)'s *Guidance on Biodiversity Enhancement and Compensatory Planting Requirements for Energy Infrastructure Development* (see **Section 9.6.2**).

9.4 Existing Environment

9.4.1 Study Area

626. The Bellrock OnTDA Scoping Boundary defines the study area for all receptors considered in this Chapter (herein the 'habitats and species study area') with the exception of national/international designated sites for nature conservation, which have been considered within and up to 5 km from the Bellrock OnTDA Scoping Boundary (herein the 'designated sites study area'), as shown in **Figure 9.1 (Appendix A (Volume 1))**.

9.4.2 Data and Information Sources

627. The onshore ecology and nature conservation EIA will be informed by a combination of desk-based data searches and field survey data collected through targeted surveys to be undertaken from 2026 to 2027.

628. **Table 9.3** summarises the existing desk-based data that has been used to inform this section and would also be used to inform the EIA. Any additional datasets would be identified through the Scoping Opinion and stakeholder consultation.

Table 9.3: Key Data Sources to Inform the Onshore Ecology and Nature Conservation Assessment

Dataset	Temporal Coverage	Data Contents
Carbon and Peatland 2016 Map (Scotland's Soils, 2016)	2016	Carbon and peatland class (Class 1 to 5).
Habitat Map of Scotland (Scotland's Environment, 2020)	2020	SBL habitats.
Ancient Woodland Inventory (NatureScot, 2022)	2022	Ancient woodland sites.
National Forest Inventory Scotland 2024 (Forestry Commission, 2025)	2024	Woodland types and parcels.
Northeast Scotland Biological Recording Centre (NESBReC)*	2026	Records of protected species, notable species and INNSs.
SiteLink (NatureScot, 2026a)	2026	Statutory designated sites, including: ▪ International sites (Ramsar sites); ▪ European Sites SACs and SPAs; and ▪ National sites SSSI, National Nature Reserve and Local Nature Reserve.
Notes: * NESBReC data search conducted 15th April 2026. Available at: https://nesbrec.org.uk/services/ (Accessed April 2026). The data search included all records held by NESBReC (i.e. did not temporally filter records).		

629. **Table 9.4** describes the field surveys that will be undertaken to support the assessment. The Preliminary Ecological Appraisal (PEA) survey will precede and inform the species-specific surveys, subject to landowner access being granted.

630. All proposed onshore ecology and nature conservation surveys will be undertaken by suitably qualified ecologists, within their optimal surveying windows and in accordance with industry accepted survey guidance. Survey methodologies have been discussed with NatureScot and Aberdeenshire Council.

631. Species-specific surveys for badgers, wildcats and INNS will be captured during the PEA and its desk study. These are included separately within **Table 9.4**.

632. Surveys are ongoing at the time of writing. Initial results from the PEA surveys undertaken to date (see **Appendix C (Volume 1)**) have been used to inform the baseline presented in **Section 9.4.3**. The full results of the ecological surveys will be presented as part of the EIA Report.

Table 9.4: Onshore Ecology and Nature Conservation Surveys

Survey	Estimated Date of Survey	Survey Details	Guidance Followed
PEA	April – September 2026	Survey will cover all accessible land within and up to 50 m of the Bellrock OnTDA. The survey will classify all broad habitat types and identify the suitability of habitats to support legally protected and notable species. The survey will be used to define the scope of all species-specific ecology surveys.	▪ Amphibian Reptile Group United Kingdom (UK) Advice Note 5 Great Crested Newt Habitat Suitability Index (Oldham et al., 2000); ▪ Bat Conservation Trust's Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th ed): (Collins, 2023); ▪ Ecology of the European Otter Conserving Natura 2000 Rivers (Chanin, 2003); ▪ Reptile Habitat Management Handbook (Edgar, Foster and Baker, 2010); ▪ Standing Advice for Planning Consultations – Pine Martens (NatureScot, 2024a); ▪ Standing advice for planning consultations - Red Squirrels (NatureScot, 2024b); ▪ Surveying for Badgers Good Practice Guidelines (Scottish Badgers, 2018); and ▪ The Water Vole Mitigation Handbook (Dean et al., 2016).
Badger survey	April – September 2026	Survey will cover all accessible suitable habitat within and up to 100 m of the Bellrock OnTDA, and the findings will be presented in the PEA Report.	▪ NatureScot's Standing Advice on Badgers (NatureScot, 2024a); and ▪ Surveying for Badgers Good Practice Guidelines (Scottish Badgers, 2018).
Wildcat survey	April – September 2026	Survey will cover all accessible suitable habitat within and up to 200 m of the Bellrock OnTDA, and the findings will be presented in the PEA Report.	▪ Guidance - Wildcat Survey Methods (NatureScot, 2014); ▪ Standing advice for planning consultations – Wildcats (NatureScot, 2024); and ▪ The Mammal Society's UK Biodiversity Action Plan Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation (Cresswell et al., 2012).

Survey	Estimated Date of Survey	Survey Details	Guidance Followed
INNS survey	April – September 2026	Survey will cover all accessible land within and up to 50 m of the Bellrock OnTDA, and the findings will be presented in the PEA Report.	Identify and report invasive non-native species (NatureScot, 2025).
National Vegetation Classification (NVC) survey	April – August 2026 April – July 2027	Survey will cover all habitats that may be affected by the Bellrock Onshore Transmission Infrastructure, and which may support rare or notable flora, as well as potential GWDTEs, within and up to 250 m of the Bellrock OnTDA.	Rodwell (2006) NVC Users' Handbook and accompanying NVC habitat descriptions (Rodwell et al., 1991-2000).
Pine marten survey	May 2026 May 2027	Survey will cover all suitable habitats within and up to 50 m of the Bellrock OnTDA.	NatureScot's Standing Advice on Pine Martens (NatureScot, 2024g).
Red squirrel survey	May 2026 May 2027	Survey will cover all suitable habitats within and up to 50 m from the Bellrock OnTDA.	▪ Forestry Commission's Practical Techniques for Surveying and Monitoring Squirrels (Forestry Commission, 2009); and ▪ NatureScot's Standing Advice on Red Squirrels (NatureScot, 2024f).
Reptile survey	April, May and September 2026 April and May 2027	Survey will cover all suitable habitats that may support significant populations of reptiles within and up to 50 m of the Bellrock OnTDA.	▪ FrogLife's Advice Sheet 10 Reptile Survey (FrogLife, 1999); ▪ Joint Nature Conservation Committee's Herpetofauna Worker's Manual (Gent and Gibson, 2003); and ▪ NatureScot's Standing Advice on Reptiles (NatureScot, 2024e).
Northern brown argus survey	June – July 2026	Survey will cover all suitable habitats in the vicinity of Garron Point SSSI that may be affected by the Bellrock Onshore Transmission Infrastructure, within and up to 50 m of the Bellrock OnTDA.	▪ UKBMS's Ng1: Monitoring Butterflies by Annual Timed Counts: Timed Count Guidance Notes (UKBMS, 2026a); ▪ UKBMS's Northern Brown Argus Egg Count Guidance Note (draft) (UKBMS, 2026b).

Survey	Estimated Date of Survey	Survey Details	Guidance Followed
Bat static detector survey	April – October 2026 April – July 2027	Survey will cover all suitable key commuting and foraging habitats identified through the PEA that may be affected by the Bellrock Onshore Transmission Infrastructure.	Bat Conservation Trust's Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th ed): (Collins, 2023).
Night-time bat walkover survey	April – October 2026 April – July 2027	Survey will cover all suitable commuting and foraging habitats that may be affected by the Bellrock Onshore Transmission Infrastructure.	Bat Conservation Trust's Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th ed): (Collins, 2023).
Bat ground level tree assessment and bat potential roost features aerial inspection survey	All year round 2026 Up to July 2027	Survey will cover all features, including buildings and trees, with the potential to support bat roosts that may be affected by the Bellrock Onshore Transmission Infrastructure.	Bat Conservation Trust's Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th ed): (Collins, 2023).
Otter survey	June – August 2026 June – July 2027	Survey will cover all suitable water features within and up to 200 m of the Bellrock OnTDA.	▪ Ecology of the European Otter Conserving Natura 2000 Rivers (Chanin, 2003); and ▪ NatureScot's Standing Advice on Otters (NatureScot, 2024c).
Water vole survey	June – August 2026 June – July 2027	Survey will cover all suitable water features within and up to 50 m of the Bellrock OnTDA Scoping Boundary, together with areas up to 200 m upstream and downstream of all watercourses within the Bellrock OnTDA.	▪ NatureScot's Standing Advice on Water voles (NatureScot, 2024d); and ▪ The Water Vole Mitigation Handbook (Dean et al., 2016).
Fish habitat assessment	June – August 2026 June – July 2027	Survey will cover all suitable water features within and up to 50 m of the Bellrock OnTDA Scoping Boundary, together with areas extending up to 200 m upstream and downstream of all watercourses within the Bellrock OnTDA.	Collection Protocols Inventory (Scottish Fisheries Coordination Centre (SFCC), 2022).

Survey	Estimated Date of Survey	Survey Details	Guidance Followed
Tree survey	January 2026	Survey will cover all trees and woodland within and within 50 m of the Bellrock OnTDA.	BS 5837: Trees in relation to design, demolition and construction: Code of practice.

9.4.3 Baseline Conditions

9.4.3.1 Designated Sites for Nature Conservation

633. A total of 12 designated sites for nature conservation have been identified within the designated sites study area. Of these, five sites are located within or directly adjacent to the Bellrock OnTDA Scoping Boundary and include National, European, International and LNCS.

634. LNCS (apart from those directly adjacent to the Bellrock OnTDA Scoping Boundary) were not considered within the designated sites study area where beyond the OnTDA Scoping Boundary itself.

635. A summary of such designated sites is presented below in **Table 9.5**, and illustrated in **Figures 9.2** and **9.3**.

636. Further details on ornithological designated sites and their associated features are presented in **Chapter 10: Onshore Ornithology**. Further details on the geological features of these designated sites are presented in **Chapter 6: Geology and Ground Conditions**.

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Table 9.5: Designated Sites for Nature Conservation of Relevance to Onshore Ecology and Nature Conservation

Site Name	Designation	Distance from Bellrock OnTDA Scoping Boundary	Qualifying Features/Reasons for Designations
National, European, International and LNCS Sites located within or directly adjacent to the Bellrock OnTDA Scoping Boundary			
Garron Point	SSSI	Within Bellrock OnTDA Scoping Boundary	Garron Point SSSI is a coastal site comprising maritime cliffs and species-rich grasslands on the Aberdeenshire coast, including a range of coastal plant species that are uncommon within Aberdeenshire. The biological interest features of the site include its maritime cliff habitat, populations of the narrow-mouthed whorl snail (*Vertigo angustior)* and northern brown argus butterfly.
Mergie	LNCS	Within Bellrock OnTDA Scoping Boundary	The Mergie LNCS has a habitat mosaic comprising neutral and acid grassland, broadleaved and coniferous woodland, wet heath, scrub, bracken, bog, pond, rivers and rush pasture alongside the Cowie Water. Locally important plant species present include lesser twayblade (*Neottia cordata*) and bog myrtle (*Myrica gale*).
Muchalls to Stonehaven Bay	LNCS	Within Bellrock OnTDA Scoping Boundary	The Muchalls to Stonehaven Bay LNCS has rocky cliffs and shore with a rich coastal flora. Species associated with base-rich soils are present, including invertebrates such as the narrow-mouthed whorl snail at Garron Point.
Elfhill	LNCS	Directly adjacent to the south of the Bellrock OnTDA Scoping Boundary	The Elfhill LNCS forms a fairly steep sided river valley, with semi-natural broadleaved woodland, gorse scrub and acid grassland. It hosts a diverse range of plant species and is particularly important for the native bluebell (*Hyacinthoides non-scripta*).
Fetteresso	LNCS	Directly adjacent to the south of the Bellrock OnTDA Scoping Boundary	The Fetteresso LNCS contains broadleaved woodland on the slopes of the railway line, down to the Carron Water, with neutral grassland and gorse scrub also present. The site has a good woodland flora including the locally uncommon wood stitchwort (*Stellaria nemorum*).
National, European and International Sites located within the Designated Sites Study Area (i.e. 5 km of the Bellrock OnTDA Scoping Boundary)			
Garron Point	SAC	0.03 km east of the Bellrock OnTDA Scoping Boundary	The Annex II narrow-mouthed whorl snail is the primary reason for the selection of the Garron Point SAC.
Loch of Lumgair	SSSI	2.36 km south of the Bellrock OnTDA Scoping Boundary	Loch of Lumgair SSSI is a small freshwater wetland site in Aberdeenshire, designated for its well-developed basin fen (schwingmoor type) habitat and associated wet woodland. The site supports a floating mat of peat-forming vegetation around the loch margins, representing a scarce and distinctive wetland habitat in Scotland.

Site Name	Designation	Distance from Bellrock OnTDA Scoping Boundary	Qualifying Features/Reasons for Designations
Red Moss of Netherley	SSSI	3.03 km north of the Bellrock OnTDA Scoping Boundary	Red Moss of Netherley SSSI is an extensive lowland peatland in Aberdeenshire designated for its raised bog habitat. The site represents an important remnant of a once more widespread habitat type and supports characteristic bog vegetation associated with active peat-forming wetland systems.
	SAC	3.03 km north of the Bellrock OnTDA Scoping Boundary	The Annex I habitats for which the Red Moss of Netherley SAC is primarily designated are its active raised bogs and degraded raised bogs still capable of natural regeneration.
River Dee	SAC	3.50 km northwest of the Bellrock OnTDA Scoping Boundary	The River Dee SAC comprises a large river catchment extending across Aberdeenshire and Aberdeen City. The Annex II species that are a primary reason for selection of this site are Atlantic salmon (*Salmo salar*), freshwater pearl mussel (*Margaritifera margaritifera*), and otter (*Lutra lutra*).
Fowlsheugh	SSSI	4.80 km southeast of the Bellrock OnTDA Scoping Boundary	The Fowlsheugh SSSI is located on the east coast of Aberdeenshire, with sheer cliffs that provide ideal sites for cliff nesting seabirds. The site has the largest colony of breeding seabirds in the north-east of Scotland and one of the largest colonies in mainland Britain. The qualifying features of SSSI are as follows: ▪ Breeding seabird colony; ▪ Fulmar (*Fulmarus glacialis*, breeding); ▪ Guillemot (*Uria aalge*, breeding); ▪ Kittiwake (*Rissa tridactyla*, breeding); ▪ Puffin (*Fratercula arctica*, breeding); and ▪ Razorbill *(Alca torda*, breeding). The Fowlsheugh SSSI and SPA are considered within **Chapter 10: Onshore Ornithology**.
	SPA	2.98 km southeast of the Bellrock OnTDA Scoping Boundary	The Fowlsheugh SPA covers the east coast of Aberdeenshire from Old Hall Bay to Catterline Bay (i.e. a larger area than the Fowlsheugh SSSI). The qualifying features of SPA are as follows: ▪ Breeding seabird colony; ▪ Fulmar (breeding);

Site Name	Designation	Distance from Bellrock OnTDA Scoping Boundary	Qualifying Features/Reasons for Designations
			▪ Kittiwake (breeding); ▪ Guillemot (breeding); ▪ Razorbill (breeding); and ▪ Herring gull (*Larus argentatus*, breeding). The Fowlsheugh SSSI and SPA are considered within **Chapter 10: Onshore Ornithology**.

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9.4.3.2 Habitats

9.4.3.2.1 Scottish Biodiversity List Habitats

637. SBL habitats as listed by the Environment and Forestry Directorate (2025) within the habitat and species study area include the following, as shown in **Figure 9.4 (Appendix A (Volume 1))**:

- Lowland fen;
- Lowland heathland;
- Lowland mixed deciduous woodland;
- Native pine woodlands;
- Upland oakwood;
- Upland mixed ashwoods; and
- Wet woodland.

638. The rivers and streams surveyed to date and reported on within the Interim PEA Report (**Appendix C (Volume 1)**) are not considered priority rivers as defined by the SBL.

639. Other habitats of regional importance have been recorded in the habitat and species study area to date (see **Appendix C (Volume 1)**), including:

- Scrub;
- Native hedgerow;
- Rivers and streams;
- Maritime cliff and slopes;
- Littoral rock; and
- Dry stone walls.

9.4.3.2.2 Nationally Important Peatlands

640. Nationally important peatlands are defined as Class 1 and Class 2 peatlands within the Carbon and Peatland 2016 map (Scotland's Soils, 2016). One nationally important peatland area is present within the northeast extents of the habitat and species study area, as shown in **Figure 9.5 (Appendix A (Volume 1))**.

9.4.3.2.3 National Forestry Inventory and Ancient Woodland

641. The following woodland types according to the National Forestry Inventory (Forestry Commission, 2024) within the habitat and species study area, as shown in **Figure 9.6 (Appendix A (Volume 1))**:

- Conifer;
- Broadleaved;
- Mixed mainly broadleaved;
- Mixed mainly conifer;
- Young trees;
- Assumed woodland;
- Felled;
- Windblown; and
- Ground prep.

642. Some, but not all, woodland types overlap with the SBL habitats presented in **Section 9.4.3.2.1**.

643. A total of seven ancient woodland sites of semi-natural origin were present in the habitat and species study area, as shown in **Figure 9.7 (Appendix A (Volume 1))**.

644. An additional 48 parcels of long-established woodland of plantation origin were also present within the habitat and species study area, as shown in **Figure 9.7 (Appendix A (Volume 1))**. Even though these woodlands are not ancient, these sites originated as plantations prior to 1750 AD and have been continuously wooded ever since (NatureScot, 2023). These long-established semi-natural woodlands have subsequently developed rich, semi-natural characteristics over the last few centuries (NatureScot, 2023).

645. The Interim PEA Report (**Appendix C (Volume 1)**) recorded two woodland types – other coniferous woodland and other broadleaved woodland (line of trees).

9.4.3.2.4 Groundwater Dependent Terrestrial Ecosystems

646. Groundwater Dependent Terrestrial Ecosystems (GWDTE) require NVC field surveys alongside hydrological and geological assessment to determine their presence. GWDTEs will be considered at the preceding stages of EIA once such field survey information is available. As a precaution, GWDTEs have been assumed to be present within the habitat and species study area as evidenced by desk-based information and the Interim PEA Report (**Appendix C (Volume 1)**).

647. Of the SBL habitats listed above in **Section 9.4.3.2.1**, lowland fen, heathland and wet woodland have the potential to be groundwater dependent.

648. The Interim PEA Report (**Appendix C (Volume 1)**) identified two areas of *Holcus Juncus* grassland which were considered equivalent to NVC MG10 *Holcus lanatus – Juncus effusus rush-pasture* and the Functional Wetland Typology's 'Marshy Grassland' classification (Scottish and Northern Ireland Forum for Environmental Research, 2009). As both areas of *Holcus Juncus* grassland were

located at the bottom of slopes/depressions and in proximity of the Burn of Day, these areas were both considered to be predominantly surface water fed. However, the frequency of rush throughout these areas may suggest that groundwater is a major influence within these areas as per SEPA guidance.

9.4.3.3 Protected, Notable and Invasive Non-native Species

649. A review of biological data records obtained to date from NESBReC indicates that there are historic records for the following legally protected species within the habitat and species study area:

- Badger (*Meles meles*);
- Bat species (roosting and commuting/foraging);
- Brown hare (*Lepus europaeus*);
- Mountain hare (*L. timidus*);
- European hedgehog (*Erinaceus europaeus*);
- Pine marten (*Martes martes*);
- Red squirrel (*Sciurus vulgaris*);
- Scottish wildcat (*Felis silvestris*);
- Water vole (*Arvicola amphibius*);
- Otter;
- Reptiles (including common lizard (*Zootoca vivipara*));
- Amphibians (including common toad (*Bufo bufo*));
- Fish (including diadromous species Atlantic salmon, brown/sea trout (*Salmo trutta*) and European eel (*Anguilla anguilla*));
- Terrestrial invertebrates (including various protected lepidopteran species); and
- Higher plants (including heath cudweed (*Gnaphalium sylvaticum*), wild pansy (*Viola tricolor*) and knot grass (*Acronicta rumicis*)).

650. Following the desk study using NESBReC records, the Interim PEA Report (**Appendix C (Volume 1)**) identified the following legally protected species during the field survey (see **Appendix C (Volume 1)** for specific observations):

- Bat Potential Roosting Features such as stone outbuildings, a railway shed, a railway bridge and various trees. Suitable bat commuting/foraging habitats (notably connecting to wider landscape features with similar suitability) in the form of woodland rides, clearings and edges, rough grassland, scrub, hedgerow, lines of trees and watercourses;
- Suitable otter commuting/foraging habitats (notably connecting to wider landscape features with similar suitability) in the form of burns and ditches. Woodland and scrub adjacent to these habitats would potentially offer resting sites for otter;
- Suitable but poor-quality watercourses for supporting water voles;

- Red squirrel foraging signs (foraged cones) were identified within coniferous woodland. The same coniferous woodland also offers opportunities for drey creation, especially where trees are semi-mature or older;
- Suspected pine marten scats within more open areas within coniferous plantation. Coniferous woodland and scrub present offer foraging sheltered commuting and den creation habitat for pine marten;
- Field evidence of badger was identified during the survey. Suitable badger habitat for primary and secondary foraging, as well as for sett creation;
- Suitable wild cat habitat within woodlands and specifically potential den creation sites in tree roots;
- Suitable hedgehog foraging habitats including grazed pastureland, vegetated field margins, mown grassland, as well as scrub offering sheltering habitat, with potential hibernation opportunities;
- A brown hare was sighted in farmland/pasture during the survey. The mixed arable and pastureland with vegetated margins throughout the habitat and species study area offers suitable foraging and resting habitat for brown hare, with rough grassland on field margins and in the east offering sheltering and breeding opportunities;
- Common lizards were observed in felled woodland and alongside tracks. The wider mosaic of habitats across the habitat and species study area is suitable for supporting reptiles;
- One juvenile common frog (*Rana temporaria*) was sighted on a track and tadpoles were sighted in small temporary pools within a woodland. Areas of wet grassland offer foraging and commuting opportunities for amphibians, with additional terrestrial habitat present in grassland and woodland;
- A range of common invertebrate pollinators were observed during the field survey. At landfall, suitable coastal grasslands for the northern brown argus butterfly were identified; and
- Watercourses with suitable foraging and residing habitat for salmonids and European eel.

651. INNS historically recorded by NESBReC within the habitat and species study area included:

- Himalayan Balsam (*Impatiens glandulifera*);
- Japanese Knotweed (*Reynoutria japonica)*; and
- Rhododendron (*Rhododendron ponticum)*.

652. The Interim PEA Report (**Appendix C (Volume 1)**) identified the following INNS during field surveys:

- Rhododendron;
- Garden/hybrid bluebell (*Hyacinthoides x massartiana*);
- Buddleia (*Buddleja davidii*);
- Japanese rose (*Kerria japonica*); and
- Sea buckthorn (*Hippophae rhamnoides*).

9.5 Potential Impacts

9.5.1 Potential Construction Phase Impacts

653. Potential impacts on onshore ecology and nature conservation receptors during the construction phase of the Bellrock OnTDA may arise from the following activities, as outlined in **Chapter 3: Project Description**:

- Site clearance and preparation, including vegetation clearance and topsoil stripping, across the OnTDA;
- Excavation for the onshore export cable corridor, Hurlie substation connection works and OnSS construction;
- Trenchless techniques (e.g. Horizontal Directional Drilling (HDD)) at landfall and where significant obstacles (e.g. watercourses) prevent trenched crossings;
- Infrastructure that facilitates construction such as temporary construction compounds, temporary construction access and haul roads; and
- Increased presence of plant, vehicle movements and personnel on site as well as the existing road network.

654. Potential impact pathways arising from these construction activities may include:

- Indirect impacts upon statutory and non-statutory designated sites, habitats and species including disturbance from noise, dust, air emissions/pollutants (e.g. Nitrous Oxides (NOx)), lighting, vibration, changes in hydrology and accidental pollution events;
- Permanent and temporary loss of terrestrial habitats, including within designated sites;
- Habitat fragmentation and species isolation, including features associated with designated sites;
- Impacts on protected species and/or their resting/breeding sites, including features associated with designated sites; and
- Spread of INNS.

9.5.2 Potential Operation and Maintenance Phase Impacts

655. Potential impacts on onshore ecology and nature conservation receptors during the O&M phase of the Bellrock OnTDA may arise from the following activities/elements:

- Operational lighting and noise;
- Maintenance activities (both planned and unplanned);
- Reactive, emergency remedial works; and
- Habitat enhancements and landscaping.

656. Potential impact pathways arising from these O&M elements/activities may include:

- Indirect disturbance of species from operational noise and lighting, including within designated sites;
- Localised, temporary impacts on protected species and/or their resting/breeding sites during maintenance, including those associated with designated sites; and
- Enhancement and restoration of habitat connectivity.

9.5.3 Potential Decommissioning Phase Impacts

657. Potential impacts during the decommissioning phase of the Bellrock Onshore Transmission Infrastructure will depend on the final decommissioning strategy, including the extent to which infrastructure is removed or left in-situ (see **Chapter 3: Project Description**).

658. Where infrastructure is removed, decommissioning activities are expected to result in localised land disturbance, broadly similar in nature to construction activities, although typically of reduced overall magnitude, as activities are likely to be more targeted.

659. Where infrastructure is left in-situ (either partially or wholly), impacts associated with the continued presence of infrastructure are considered in the O&M phase and are not duplicated here.

660. Decommissioning activities may result in the following potential impact pathways:

- Temporary loss of habitats, including within designated sites;
- Habitat fragmentation and species isolation, including those associated with designated sites;
- Impacts on protected species and/or their resting/breeding sites, including those associated with designated sites;
- Indirect impacts upon designated sites, habitats and species including disturbance from noise, dust, lighting, vibration, changes in hydrology and accidental pollution events; and
- Spread of INNS.

9.5.4 Embedded Mitigation Measures

661. Embedded mitigation has been identified, as presented in **Table 9.6** and **Appendix B**: **Mitigation and Monitoring Register (Volume 1),** in accordance with the mitigation hierarchy, with the aim of avoiding, preventing, reducing, and where possible, offsetting potential adverse environmental effects. Consistent with Institute of Environmental Management and Assessment (IEMA, now Institute of Sustainable and Environmental Professionals (ISEP)) guidance (2024), primary (inherent design measures) and tertiary (standard good practice) mitigation are embedded within the project design and are, therefore, considered in the assessment of effects. Secondary mitigation measures will be identified where required through the EIA process, informed by the outcomes of the survey findings.

662. The current embedded mitigation measures may be refined as the project design evolves. In addition, further embedded mitigation measures may be developed as part of the iterative design process during the EIA process.

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Table 9.6: Embedded Mitigation Measures Relevant to Onshore Ecology and Nature Conservation

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation type
Construction	O&M	Decommissioning			
✓	✓	✓	Trenchless techniques (e.g. HDD) will be utilised at landfall to install underground ducting (or other conduit) between the onshore entry point and the offshore exit point (the latter being seaward of MLWS).	Avoidance of sensitive habitats and species associated with Garron Point SSSI.	Primary
✓	X	X	Where obstacles such as watercourses cannot be crossed by a trench, trenchless techniques (e.g. HDD) will be used for onshore export cable installation.	Avoidance of sensitive watercourse habitats.	Primary
✓	✓	X	Site selection was informed by the Bellrock OnTDA Design Principles and included consideration of sensitive receptors	The site selection process will seek to avoid sensitive habitats and statutory and non-statutory designated sites where practicable through iterative design development and refinement of the site layout. Where practicable, trenchless techniques (e.g. HDD) will also be employed to avoid or minimise direct temporary and permanent impacts.	Primary
✓	✓	✓	Post-construction monitoring surveys will be undertaken following land reinstatement.	Land not required for permanent above ground Onshore Transmission Infrastructure (i.e. OnSS) will be reinstated following completion of the Onshore Transmission Infrastructure construction and monitored through post-construction surveys. Post-construction monitoring surveys and reinstatement measures will be detailed within the outline Construction Environmental Management Plan (CEMP). This will ensure that habitats temporarily lost during construction are reinstated to an acceptable standard.	Tertiary

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation type
Construction	O&M	Decommissioning			
				Monitoring will commence prior to the end of construction and will be specified in the CEMP, and so is relevant to construction as well as O&M.	
✓	X	✓	The working width required for hedgerow removal will be kept to a minimum.	Minimum working widths will be specified within the outline CEMP. This will minimise hedgerow loss during construction.	Primary
X	✓	X	Permanent external operational lighting will only be required within the OnSS.	The OnSS will typically be unmanned, and permanent external lighting will only be activated when required for maintenance visits, emergency access or security purposes, with any security lighting likely to be motion-activated. Additional task lighting for maintenance and repair activities will be localised to the area of activity. This will minimise the effect of lights spill on sensitive habitats and species.	Primary
✓	✓	✓	Development of and adherence to a BEP.	The BEP will identify opportunities to deliver biodiversity enhancement and habitat improvement associated with the Bellrock Onshore Transmission Infrastructure. The BEP will be submitted in an application for Approval of MSC, with an outline version submitted with the PPP Application.	Tertiary
✓	✓	✓	Development of and adherence to a Woodland Compensatory Planting Plan (WCPP).	The WCPP will set out the approach to compensatory woodland planting required for the Bellrock Onshore Transmission Infrastructure, including the location, extent and composition of replacement planting. The plan will identify measures to deliver successful woodland establishment, with the aim of compensating for woodland losses and supporting biodiversity enhancement. The WCPP will be submitted in an application for Approval of MSC, with an outline version submitted with the PPP Application.	Tertiary

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation type
Construction	O&M	Decommissioning			
✓	X	X	Development of and adherence to a CEMP.	The CEMP will set out the overarching environmental management framework for construction of the Bellrock Onshore Transmission Infrastructure and will include appropriate additional construction mitigation measures for protected and notable species following the PEA, as well as INNS management measures. The CEMP will be submitted in an Application for Approval of MSC, with an outline version submitted with the PPP Application.	Tertiary
✓	X	X	Construction lighting will be controlled, as set out in the CEMP, to minimise light spill onto sensitive habitats.	Construction lighting will be limited to working hours except in instances where 24-hour shift working is required for critical activities where safety, security and/or emergency conditions require. This will be included within the CEMP. This will minimise the effect of lights spill on sensitive habitats and species.	Tertiary
✓	X	X	An Ecological Clerk of Works will supervise ecologically sensitive activities during construction.	The scope of the Ecological Clerk of Works role and responsibilities will be set out in the outline CEMP. This ensures compliance with ecological mitigation recommended by the EIA and detailed in the CEMP.	Tertiary
✓	X	X	All excavations left open overnight will include an escape ramp with adequate grip, at least 30 cm wide and set at an angle of no greater than 45° and fences will be used when the construction site is not manned.	This measure will be included within the outline CEMP. As a precautionary measure, appropriate safeguards will be implemented during construction to prevent large mammals, such as otter and badger, from becoming trapped in excavations.	Tertiary
✓	X	X	Pre-construction ecology surveys will be undertaken prior to the commencement of any works where relevant.	Ecological mitigation measures secured through the CEMP will be informed by up-to-date baseline information.	Tertiary

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation type
Construction	O&M	Decommissioning			
✓	X	X	Peat probing surveys will be conducted should the Bellrock OnTDA overlap with areas of carbon-rich soils (i.e. Class 1, 2, 3 or 5) (Scotland's Soils, 2016).	Survey outputs and resulting mitigation measures will be detailed within a PMP, if required. This will minimise potential impacts to sensitive peat habitat.	Tertiary

9.6 Scoping of Potential Impacts

9.6.1 Construction Phase

9.6.1.1 Statutory and Non-statutory Designated Sites

663. Although present in the OnTDA Scoping Boundary, statutory and non-statutory designated sites will be avoided wherever practicable through the design process. Where avoidance is not possible, trenchless techniques (e.g. HDD) will be considered, for example at landfall, to potentially avoid direct impacts on statutory designated sites. As such, direct impacts on statutory and non-statutory designated sites are **scoped out** of the EIA.

664. Habitat loss that occurs within areas of functionally linked land may have indirect negative impacts on qualifying species. Furthermore, indirect impacts may occur where construction activities are undertaken in proximity to designated sites, including disturbance from noise, dust, lighting, vibration, changes in hydrology and temporary increase in NOx and ammonia (NH_3), emissions arising from road traffic movements during the construction of the Bellrock Onshore Transmission Infrastructure and accidental pollution events. Therefore, indirect impacts to statutory and non-statutory designated sites are **scoped in** to the EIA.

9.6.1.2 Permanent and Temporary Loss of Terrestrial Habitats

665. Construction of permanent infrastructure at the Bellrock OnSS will result in the permanent loss of terrestrial habitats within its footprint. The main habitat present within the preferred OnSS Area of Search is Other Coniferous Woodland (w2c)[24], with some Mixed Scrub (h3h) and Cereal Crops (c1c) present. Construction activities would also result in direct, but temporary, habitat loss within working areas, access routes, temporary construction compounds and the onshore export cable corridor. Where temporary habitat losses cannot be avoided, habitats would be reinstated following completion of construction works.

666. Sensitive habitats (such as SBL habitats, peatlands, ancient woodlands and watercourses) will be avoided where practicable through the design process and route refinement. Furthermore, the use of trenchless techniques (e.g. HDD), where feasible and possible to do so, would be adopted to avoid direct permanent and temporary impacts.

667. It is anticipated that there would be a temporary loss of sections of hedgerows along the onshore export cable corridor as a result of trenched crossings and haul road visibility splays. Any hedgerow removal would be restricted to a minimum working width where practicable, and hedgerows would be reinstated on completion of works (see **Table 9.6**).

668. Potential impacts from permanent and temporary habitat loss would be assessed as part of the EIA once the Bellrock OnTDA has been refined, and are, therefore, **scoped in** to the EIA.

[24] UKHab codes provided in brackets after habitat types.

9.6.1.3 Habitat Fragmentation and Species Isolation

669. The linear nature of the Bellrock Onshore Transmission Infrastructure, particularly the onshore export cable corridor, has the potential to result in habitat fragmentation and species isolation during construction. Fragmentation and species isolation is particularly applicable for habitats such as woodlands, watercourses, hedgerows and field boundary features, for which protected and notable species rely on for commuting, foraging or shelter (e.g. bats, reptiles and arboreal mammals).

670. Where possible, important habitat features and ecological corridors identified during ecological baseline surveys would be avoided or crossed using trenchless techniques. Habitat removal would be minimised and temporarily affected habitats reinstated following completion of works. These potential impacts on habitat fragmentation and species isolation would be assessed as part of the EIA once the Bellrock OnTDA has been refined, and are, therefore, **scoped in** into the EIA.

9.6.1.4 Impacts on Protected Species and/or their Resting/Breeding Sites

671. There is potential for direct impacts on protected and notable species through increased mortality arising from vegetation clearance, excavations and other construction activities.

672. Indirect impacts may also occur where construction activities result in disturbance or displacement associated with noise, vibration, lighting, dust, temporary increase in NOx and NH_3 emissions arising from road traffic movements and increased human presence. Ecological surveys have not yet been completed and, therefore, at this stage it is assumed that protected and notable species are present within the Bellrock OnTDA Scoping Boundary. Such species include those listed in **Section 9.4.3.3** and targeted by the suite of ecological surveys outlined in **Table 9.4**.

673. Following the PEA and species-specific surveys, appropriate additional construction mitigation measures for protected and notable species will be detailed within the Outline CEMP proposed to be submitted with the PPP Application.

674. These potential impacts on protected species and their resting or breeding sites would be assessed as part of the EIA and are, therefore, **scoped in** to the EIA.

9.6.1.5 Spread of Invasive Non-native Species

675. There is potential for INNS to be encountered during construction as they are present within the habitats and species study area. Construction activities may facilitate the spread of INNS such as the movement of vehicles, machinery, materials and soils as well as working near watercourses.

676. The control and management of INNS, where required, would be included within the Outline BEP and Outline CEMP. These potential impacts arising from the spread of INNS would be assessed as part of the EIA and are, therefore, **scoped in** to the EIA.

9.6.2 Operation and Maintenance Phase

677. Planned maintenance at the Bellrock OnSS and routine access to/maintenance of link boxes along the onshore export cable corridor would be required during O&M. All works associated with such planned maintenance would be localised and temporary in nature. Remedial works may be required in the unlikely event of a cable failure. Any remedial works or reactive repairs would have

potential impacts similar to those of construction; however, any such effects would occur on a much smaller scale and would be localised and temporary in nature. As such, it is anticipated that any impacts on onshore ecological and nature conservation receptors would be limited to temporary, indirect disturbance of the adjacent habitats and species.

678. During the operation stage, there is a low risk that Bellrock OnSS operational noise and lighting could result in disturbance of adjacent habitats and species. It is expected that both operational lighting and noise would be controlled, and lighting would be designed in a sensitive manner in line with relevant best practice guidance (ensuring it is both low-level and directional). Security lighting is likely to be motion activated or activated remotely, reducing unnecessary illumination.

679. Any biodiversity enhancements included as part of landscaping proposals at the Bellrock OnSS could result in a beneficial impact for local protected and notable species, contributing towards delivering enhancement of biodiversity as obligated under Policy 3 of the NPF4. For example, such measures could provide additional habitat resources in order to enhance and restore habitat connectivity, strengthening nature networks in the wider local landscape. Biodiversity enhancement measures will be prioritised within the Bellrock OnTDA Scoping Boundary. Where it is not feasible to deliver appropriate enhancement measures within the Scoping Boundary, opportunities for biodiversity enhancement outside the Scoping Boundary, and where possible within the PPP Application boundary, may be considered, subject to landownership and other relevant constraints. All habitat and landscaping enhancements will be detailed within the Outline BEP, which will prescribe measures for years 1, 3, 5, 10, 15 and 20 following completion of landscaping in line with Aberdeenshire Council guidance (Aberdeenshire Council, 2026). Biodiversity enhancements will be quantified using the Defra Statutory Biodiversity Metric (Defra, 2026). This approach to biodiversity enhancements is in line with Aberdeenshire Council guidance on the implementation of NPF4 Policy 3 in developments (Aberdeenshire Council 2025 and 2026).

680. These potential impacts during the O&M stage would be assessed as part of the EIA and are, therefore, **scoped in** to the EIA.

9.6.3 Decommissioning Phase

681. At the end of operational life, the Bellrock Onshore Transmission Infrastructure will be decommissioned. The final decommissioning approach will be determined through the preparation of a Decommissioning, Restoration and Aftercare Strategy, and will consider relevant legislation, guidance, and industry best practice. However, decommissioning activities are anticipated to result in impact pathways that are similar to, or no greater than, those associated with construction activities. Therefore, the impacts **scoped in** to the assessment for the construction phase are also considered applicable to the decommissioning phase.

9.6.4 Bellrock OnTDA Whole Project Assessment

682. The Bellrock OnTDA Whole Project Assessment will follow the general methodology set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessment** and will consider whether interactions between the Bellrock Onshore Transmission Infrastructure and the Bellrock Offshore Transmission Infrastructure and/or the Bellrock Wind Farm Infrastructure have the potential to alter the magnitude of impacts and significance of effects on ecology and nature conservation receptors identified in the Bellrock OnTDA-alone assessment. Refer to **Plate 4.3**

(Chapter 4: Approach to Scoping and Environmental Impact Assessment) for the approach and methodology that will be followed for the Bellrock OnTDA Whole Project Assessment.

683. The Bellrock OnTDA Scoping Boundary encompasses the area landward of MLWS. The Bellrock OnTDA Scoping Boundary overlaps with the Bellrock OfTDA Scoping Boundary between MLWS and MHWS. No pathway-based interactions are anticipated between the Bellrock OnTDA and the Bellrock WFDA for onshore ecology and nature conservation. The Bellrock OnTDA Whole Project Assessment will, therefore, focus on the impacts identified for the Bellrock OnTDA Infrastructure and consider whether interactions with the Bellrock Offshore Transmission Infrastructure influence the magnitude of those impacts and the significance of the resulting effects. The Bellrock OnTDA Whole Project Assessment is, therefore, **scoped in** for further consideration.

9.6.5 Potential Cumulative Effects

684. The Bellrock OnTDA Cumulative Effects Assessment (CEA) will be undertaken in accordance with the methodology set out in **Section 4.7** of **Chapter 4: Approach to Scoping and Environmental Impact Assessmen**t. An overview of the Bellrock OnTDA assessment process, including the relationship between the Bellrock OnTDA Whole Project Assessment and the CEA, is provided in **Plate 4.3**.

685. Overall, the CEA is a two-staged process, with the first stage assessing the impacts as a result of the Bellrock OnTDA Whole Project Assessment (**Section 9.6.4**) together with the Hurlie substation. The second stage will then assess the impacts as a result of the Bellrock OnTDA Whole Project Assessment together with the Hurlie substation plus impacts arising from other reasonably foreseeable plans and projects where there is conceptual, spatial, and/or temporal overlap. This will determine the potential for cumulative impacts and subsequent cumulative effects on onshore ecology receptors.

686. There is potential for cumulative impacts on ecology and nature conservation receptors where the Bellrock Onshore Transmission Infrastructure and other plans and projects have conceptual overlap through a shared or similar source-pathway-receptor linkage, where there is spatial and temporal overlap. In general, many impact pathways are spatially constrained to the immediate footprint of the Bellrock Onshore Transmission Infrastructure and, therefore, have a limited Zone of Influence. However, other impact pathways may extend over a wider area and, therefore, have greater potential to contribute to cumulative interaction.

687. The CEA will consider other plans and projects with the potential to affect receptors through the same or similar impact pathways. Spatial screening of plans and projects will be defined proportionately, considering the Zone of Influence associated with each impact pathway, alongside the potential for conceptual and temporal overlap, to ensure that only plans/projects with realistic potential for cumulative interaction are included. Cumulative effects are, therefore, **scoped in** to the EIA.

9.6.6 Potential Transboundary Effects

688. Transboundary effects on onshore ecology and nature conservation receptors are not anticipated to arise from the construction, O&M, or decommissioning of the Bellrock Onshore Transmission

Infrastructure. Impact pathways are typically localised with impacts confined to the footprint of infrastructure.

689. There is no plausible mechanism for transboundary effects to occur. Transboundary effects are, therefore, **scoped out** of further assessment in the EIA.

9.6.7 Summary of Potential Onshore Ecology and Nature Conservation Effects Scoped in and Scoped Out

690. **Table 9.7** provides a summary of the impacts which are proposed to be **scoped in** to and/or **scoped out** of the EIA. This can be refined through the EIA process as additional information and data becomes available.

Table 9.7: Summary of Potential Onshore Ecology and Nature Conservation Effects Scoped in (✓) or Scoped Out (X)

Potential impact	Scoped In (✓) or Scoped Out (X)		
	Construction	O&M	Decommissioning
Direct impacts on statutory and non-statutory designated sites	X	X	X
Indirect impacts on statutory and non-statutory designated sites	✓	✓	✓
Permanent and temporary loss of terrestrial habitats	✓	✓	✓
Habitat fragmentation and species isolation	✓	✓	✓
Impacts on protected species and/or their resting/breeding sites	✓	✓	✓
Spread of INNS	✓	✓	✓
Bellrock OnTDA Whole Project Assessment*	✓	✓	✓
Cumulative effects	✓	✓	✓
Transboundary effects	X	X	X
Notes: * see **Section 9.6.4** for further details on the scoping of the Bellrock OnTDA Whole Project Assessment for Onshore Ecology and Nature Conservation.			

9.7 Proposed Approach to Impact Assessment

691. The EIA will be undertaken following the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal Version 1.3 (CIEEM, 2024).

692. The importance assigned to ecological receptors is subjective, as ecological receptors can be important for a variety of reasons. CIEEM (2024) states that the determined importance of a receptor should reflect the relevant policy and legislative status of the receptor, including consideration of its geographical context (i.e. a species which may be not recognised on a national biodiversity list may be locally in decline, and, therefore, its local importance is greater than its national importance). The proposed definitions of importance to be used within the EIA are set out in **Table 9.8**.

Table 9.8: Proposed Importance Categories for Onshore Ecology and Nature Conservation Receptors

Overall Level of Importance for EIA	Geographic Importance	Definition
High	International	▪ Designated, candidate or proposed SACs, SPAs and Ramsar sites; United Nations Educational, Scientific and Cultural Organization (Ecological) World Heritage Sites; United Nations Educational, Scientific and Cultural Organization Biosphere Reserves; Biogenetic Reserves. ▪ A viable area of habitat included in Annex I of the Habitats Directive; a habitat area that is critical for a part of the life cycle of an internationally important species. ▪ Habitats or species that form part of the cited interest within an internationally designated site. ▪ A European Protected Species; an International Union for Conservation of Nature Red Data Book species that is globally Vulnerable, Endangered or Critically Endangered.
	National	▪ Designated, candidate or proposed SSSIs and National Nature Reserves; National Parks. ▪ Habitats or species that form part of the cited interest within a nationally designated site. ▪ SBL habitats and species. ▪ Ancient woodlands. ▪ An International Union for Conservation of Nature Red Data Book species that is Vulnerable, Endangered or Critically Endangered in the UK. ▪ Schedule 5 (animal) or Schedule 8 (plant) species included in the Wildlife and Countryside Act 1981 (as amended).
Medium	Regional	▪ Regional Parks. ▪ Northeast Scotland LBAP habitats and species. ▪ Nationally scarce species and an assemblage of regionally scarce species.

Overall Level of Importance for EIA	Geographic Importance	Definition
	County	▪ LNCS; Local Nature Reserves; Woodland Trust Sites; Royal Society for the Protection of Birds Sites.
Low	Local	▪ Semi-natural habitats that are unique or important in the local area. ▪ Species as defined by Local Authority lists.
	Site	▪ Common and widespread habitats and species, not covered above.
Negligible	Negligible	▪ Habitats not considered to have any importance.

693. Magnitude is defined within CIEEM's Ecological Impact Assessment (EcIA) guidelines (CIEEM, 2024) as referring to impact "*size, amount, intensity and volume. It should be quantified if possible and expressed in absolute or relative terms e.g. the amount of habitat lost, percentage change to habitat area, percentage decline in a species population*". The proposed definitions of magnitude to be used within the EIA are set out in **Table 9.9**.

Table 9.9: Proposed Magnitude Categories for Onshore Ecology and Nature Conservation Receptors

Magnitude	Definition
High	The impact is likely to have an adverse effect on the integrity of a site or the conservation status of a species or species assemblage.
Medium	The impact adversely affects an ecological receptor but is unlikely to adversely affect its integrity or conservation status.
Low	The impact adversely affects an ecological receptor but would not adversely affect its integrity or conservation status.
Negligible	There would be minimal effect on the ecological receptor.
No change	There would be no detectable change from the baseline condition of the ecological receptor.

694. Duration within CIEEM's EcIA guidelines (CIEEM, 2024) is defined in relation to ecological characteristics (such as the lifecycle of a species) as well as human timeframes. As such, the definitions set out in **Table 9.10** of duration are proposed for the EIA.

Table 9.10: Proposed Duration Categories for Onshore Ecology and Nature Conservation Receptors

Duration	Definition
Short-term	Effects which at most occur over a part of, or over a part of a key period of, a species' active season or a habitat's growing season (i.e. typically impacts which occur over a matter of days or weeks).

Duration	Definition
Medium-term	Effects which occur over the full duration of a species' active season or a habitat's growing season (i.e. typically impacts which occur over a matter of months or one year).
Long-term	Effects which occur over the multiple active or growing seasons (i.e. typically impacts which occur over more than one year).

695. The approach to assessment and the scope of field surveys will be discussed and agreed as part of stakeholder consultation prior to commencement. Consultation will be undertaken at key stages throughout the EIA process.

696. In addition, the following guidelines would be adhered to during data collection and EIA:

- British Standard 42020:2013 – Biodiversity. Code of Practice for planning and development;
- CIEEM Guidelines for PEA (CIEEM, 2017);
- Defra (2022) Local Air Quality Management Technical Guidance Local Air Quality Management (LAQM);
- Institute of Air Quality Management (IAQM) (2024) Guidance on the Assessment of Dust from Demolition and Construction;
- IAQM (2020) A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites;
- Natural England (2018) Natural England's Approach to Advising Competent Authorities on the Assessment of Road Traffic Emissions under the Habitats Regulations (whilst this guidance document relates to the consenting regime in England, the underlying principles will be followed for the air quality assessment for the Bellrock OnTDA);
- NatureScot (2026b) Standing advice on protected species (namely badgers, bats, great crested newt, otter, pine marten, red squirrel, reptiles and water voles), habitat management, Natura sites, and peatlands;
- Surveying for Badgers Good Practice Guidelines (Scottish Badgers, 2018);
- Fish Data Collection Protocols Inventory (SFCC, 2022);
- Electrofishing Training Manual (SFCC, 2021a) and Electrofishing Team Leader Manual (SFCC, 2021b);
- The Amphibian Habitat Management Handbook (Baker *et al*., 2011);
- Great crested newt Habitat Suitability Index (Oldham *et al.* 2000);
- FrogLife's Advice Sheet 10 Reptile Survey (FrogLife, 1999);
- The Reptile Habitat Management Handbook (Edgar, Foster and Baker, 2010);
- The Water Vole Mitigation Handbook (Dean *et al*., 2016);
- Guidance on the ecology of otters (Chanin, 2003);

- The Bat Conservation Trust's Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2023);
- Practical Techniques for Surveying and Monitoring Squirrels (Forestry Commission, 2009); and
- NVC User's Handbook and associated definitions of plant communities (Rodwell, 1991-2000 and Rodwell, 2006).

697. Other documents expected to accompany the EIA include the outline CEMP, BEP, PMP (if the Bellrock OnTDA overlaps with carbon-rich soils) and WCPP. Such assessments will be prepared in line with the Aberdeenshire Council Guidance and Planning Advice documents set out in **Table 9.1**.

9.7.1 Proposed Approach to Biodiversity Enhancement

698. The BEP will be created in line with Aberdeenshire Council's Guidance on Biodiversity Enhancement and Compensatory Planting Requirements for Energy Infrastructure Development (Aberdeenshire Council, 2026).

699. For the PPP Application, an outline BEP will be submitted. Aberdeenshire Council recognise that applications seeking PPP inherently have a lower level of detail available (Aberdeenshire Council, 2026). The Outline BEP will identify biodiversity enhancement measures based on the information available at the time of application, with measures to be refined post-consent as more detailed project information becomes available for the final BEP.

700. The Defra Statutory Biodiversity Metric (or forthcoming Scottish metric, if available at the time of writing) will be used within the BEP to quantify biodiversity losses and gains within the Bellrock OnTDA. These calculations will be based on the UKHab data collected during the PEA, habitat reinstatement measures and any post-development landscaping proposals at the OnSS.

701. In line with Aberdeenshire Council guidance (2026), biodiversity enhancement and compensatory planting will be prioritised within the Bellrock OnTDA (i.e. on-site) where practicable. Where this is not possible, biodiversity enhancement and compensatory planting would be provided outside of the Bellrock OnTDA (i.e. off-site). Off-site compensation/enhancement areas would be located as close as possible to the Bellrock OnTDA. Off-site compensation/enhancement areas would be subject to the same baseline UKHab and habitat condition surveys as the Bellrock OnTDA to allow their net gains to be quantified within the metric. Alternatively, evidence of an agreement with a third party for biodiversity enhancement on their landholdings may be provided with the outline BEP, in lieu of specific off-site locations where the enhancements will be located. Where this is not available, this information will be provided as part of the Application for approval of MSC.

702. The Outline BEP will include the following key elements:

- Habitat plans showing the location of any on- and off-site habitat enhancements, where available;
- Habitat management measures for all areas subject to reinstatement, enhancement or creation;

- Review and monitoring programme for the BEP to ensure the management measures are adaptive;
- Responsible parties for habitat management and monitoring measures;
- Monitoring reporting schedule (including when updates will be provided to Aberdeenshire Council) for years 1, 3, 5, 10, 15 and 20 following the completion of landscaping; and
- Funding sources for the 20-years of habitat management and monitoring.

703. Compensatory planting of woodland habitats specifically will be detailed within the Outline WCPP. As stated above, the WCPP will set out the approach to compensatory woodland planting required, including the location, extent and composition of planting. The WCPP will identify measures to deliver successful woodland establishment, with the aim of compensating for woodland losses and supporting biodiversity enhancement.

9.8 Scoping Questions to Consultees

704. The following questions are posed to consultees to help them frame and focus their response to the onshore ecology and nature conservation scoping exercise which would in turn inform the EIA:

- Do you agree with the proposed habitat and species study area and designated sites study area are appropriate and sufficient to identify and assess all relevant potential impacts?
- Do you agree with the characterisation of the baseline environment?
- Do you agree all the relevant data sources been identified in this **Bellrock OnTDA Scoping Report**?
- Do you agree all the potential impacts on onshore ecology and nature conservation resulting from the Bellrock Onshore Transmission Infrastructure been identified in this **Bellrock OnTDA Scoping Report**?
- Do you agree with the impacts that have been scoped in (or scoped out) of further assessment?
- Do you agree with the proposed approach to assessment?
- Do you agree with the approach to include an outline CEMP, BEP, PMP (if required) and WCPP as part of the Bellrock OnTDA PPP Application and detailed plans to be provided in the Application for Approval of MSC?
- Is there any further information you would like to provide regarding the submission requirements related to biodiversity enhancement for PPP Applications, in addition to that set out in Guidance on Biodiversity Enhancement and Compensatory Planting Requirements for Energy Infrastructure Development (Aberdeenshire Council, 2026)?
- Do you agree with the proposed approach to biodiversity enhancement outlined in **Section 9.7.1**?

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10 Onshore Ornithology

10.1 Introduction

705. This Chapter of the **Bellrock Onshore Transmission Development Area (OnTDA) Scoping Report** considers the scope of potential impacts on onshore ornithology receptors associated with the construction, operation and maintenance (O&M), and decommissioning of the Bellrock Onshore Transmission Infrastructure.

706. The Bellrock OnTDA Scoping Boundary (shown in **Figure 1.1 (Appendix A (Volume 1))**) defines the area within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process (as discussed in **Section 1.4** in **Chapter 1: Introduction**) to form the boundary of the Bellrock OnTDA Planning Permission in Principle (PPP) Application.

707. For the purposes of this **Bellrock OnTDA Scoping Report**, the Bellrock OnTDA Scoping Boundary encompasses the anticipated Onshore Transmission Infrastructure and associated activities for the Bellrock OnTDA landward of Mean Low Water Springs (MLWS). The Bellrock OnTDA Scoping Boundary overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) between Mean High Water Springs (MHWS) and MLWS.

708. The Bellrock Onshore Transmission Infrastructure includes:

- **Landfall:** located at Cowie, Aberdeenshire, where between two and six ducts are installed using trenchless techniques allowing the offshore export cables to be brought ashore and connected to onshore export cables within the transition joint bay;
- **Onshore export cables:** up to six underground High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) onshore cable circuits, each up to 18 km in length, installed between landfall and the onshore substation;
- **Onshore substation (OnSS):** electrical equipment (such as converters, transformers, switchgear, and protection and control systems) enabling renewable electricity from the Bellrock Wind Farm Development Area (WFDA) received via the onshore export cables to be exported to the National Electricity Transmission System, and ancillary infrastructure; and
- **Hurlie substation connection works:** Infrastructure between the Bellrock OnSS to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the National Electricity Transmission System.

709. In addition, associated works are required to facilitate construction and O&M of the Onshore Transmission Infrastructure, including: access, signage, haul roads, spoil storage, material storage, fencing, borrow pits (if any), earthworks, welfare, security, landscape mitigation, ecological mitigation, biodiversity enhancement, operational lighting and drainage.

710. As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Wind Farm Infrastructure (located within the Bellrock WFDA) was presented in the **Bellrock WFDA Environmental Impact Assessment (EIA) Report**, which was submitted in support of the Section 36 Consent and Marine Licence Application for the Bellrock Wind Farm Infrastructure in April 2026 (Bellrock Offshore Wind Farm Limited, 2026a). The **Bellrock WFDA EIA Report** considered the potential impacts and subsequent effects of the Bellrock Wind Farm Infrastructure on the environment. An EIA Scoping Report for the Bellrock Offshore Transmission Infrastructure (located within the OfTDA was also submitted to Scottish Ministers on 17 August 2026 (Bellrock Offshore Wind Farm Limited, 2026b), with an EIA Report in support of the Marine Licence Application proposed to be submitted by the end of 2027.

711. This Chapter of the **Bellrock OnTDA Scoping Report** provides an overview of the existing environment and sets out the proposed methodology and approach to assessing effects on onshore ornithology receptors in the Bellrock OnTDA EIA Report. This Chapter has been prepared by Haskoning.

712. This Chapter should be read in conjunction with the following chapters of the **Bellrock OnTDA Scoping Report**:

- **Chapter 7: Hydrology and Flood Risk;**
- **Chapter 9: Onshore Ecology and Nature Conservation;**
- **Chapter 13: Noise and Vibration;** and
- **Chapter 14: Air Quality.**

713. This Chapter is likely to have key inter-relationships with the above receptors, which will be considered appropriately where relevant in the Bellrock OnTDA EIA Report.

10.2 Legislation, Policy and Guidance

714. **Table 10.1** sets out the legislation, policy and guidance which have been considered in the preparation of this Chapter and will be considered within the Bellrock OnTDA EIA Report where appropriate. The overarching legislation and policy relevant to the Bellrock OnTDA is described in **Chapter 2: Legislative and Policy Context**.

Table 10.1: Summary of Relevant Legislation, Policy and Guidance for Onshore Ornithology

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Legislation	
The Convention on Wetlands 1971 (Ramsar sites)	Ramsar sites are wetlands of international importance designated under the Convention on Wetlands (also called the Ramsar Convention) (adopted in 1971 and came into force in 1975), providing a framework for the conservation and wise use of wetlands and their resources.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
	All Ramsar sites in Scotland are co-designated as European Sites or Sites of Special Scientific Interest (SSSI), but they do not have standalone protection under the Habitats Regulations. It is the Scottish Government's position that any plan or project which could affect a Ramsar site will involve undertaking a Habitats Regulation Appraisal to determine whether the proposal is likely to have a significant effect on the notified natural features of the site (Scottish Government, 2025).
Wildlife and Countryside Act 1981 (as amended)	The Wildlife and Countryside Act 1981 (as amended) provides for the legal protection of all wild birds in Great Britain, including special protection measures for Schedule 1 bird species during the breeding season. Under the Act, NatureScot has a duty to notify any area of land which is 'of special interest by reason of any of its flora, fauna, or geological or physiographical features'. These sites are known as SSSIs.
The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)	The Conservation (Natural Habitats, &c.) Regulations 1994 ('the Habitats Regulations') transpose the Council Directive 92/43/EEC (the Habitats Directive) and the European Directive (2009/147/EC) on the conservation of wild birds (the Birds Directive) into United Kingdom (UK) law. The Habitats Regulations provide for the designation and protection of 'European Sites', including Special Protection Areas (SPA) for birds listed under Annex I of the Birds Directive. The Habitats Regulations convey a statutory requirement for local planning authorities to undertake a Habitats Regulations Appraisal of the potential impacts of plans and projects, including development proposals, on European Sites.
Town and Country Planning (Scotland) Act (1997)	Principal legislative framework for Scotland's planning system, requiring material considerations to be taken into account in the preparation of development plans and the determination of development proposals.
The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017	Schedule 4 states that the description of the likely significant effects should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.
Policy	
National Planning Framework 4 (NPF4) (Scottish Government, 2023)	The following other NPF4 policies are considered relevant to onshore ecology and nature conservation: ▪ **Policy 1: Tackling the climate and nature crises** aims to support nature recovery and protect biodiversity; ▪ **Policy 2: Climate mitigation and adaptation** considers the resilience of ornithological habitats and species to developments and climate change risks; ▪ **Policy 4: Natural places** supports the protection and restoration of locally, regionally, nationally and internationally important ornithological habitats; ▪ **Policy 6: Forestry, woodland and trees** aims to protect and enhance woodland, including the ornithological habitats, species and connectivity associated with trees; ▪ **Policy 11: Energy** supports the development of renewable energy, which should consider impacts to ornithological receptors;

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
	▪ **Policy 20: Blue and green infrastructure** aims to support the protection and enhancement of blue and green infrastructure, which deliver functions including nature restoration and biodiversity; and ▪ **Policy 29: Rural development** aims to support developments in rural areas through the improvement or restoration of the natural environment.
Aberdeenshire Local Development Plan (Aberdeenshire Council, 2023)	The following is considered relevant to ornithology: ▪ **Policy E1: Natural Heritage** of the Aberdeenshire Local Development Plan identifies Local Nature Conservation Sites (LNCS) as part of the family of areas given protection from development except where public benefits clearly outweigh the nature conservation value of the site.
Scottish Biodiversity Strategy to 2045 (Scottish Government, 2024)	The Scottish Biodiversity Strategy to 2045 is a strategic vision which aims to restore and regenerate biodiversity across Scotland by 2045. This strategy has set outcomes for achieving this vision, including: *"Ecosystems will be diverse, healthy, resilient and deliver a wide range of ecosystem services;* *Protected areas will be larger, better connected and in good condition;* *The abundance and distribution of species will have recovered and there will be no loss of diversity within species.;* *Scotland's internationally important species will have increased in numbers and have healthy resilient populations;* *Natural capital will be embedded in policy making;* *Nature-based solutions, such as tree-planting, peatland and blue carbon habitat restoration, will be central to our efforts to deliver NetZero and adapt to climate change;* *Harmful invasive non-native species (INNS) will be managed so that established INNS no longer degrade native habitats and species or impede their restoration and regeneration, and new introductions are managed quickly and effectively; and* *Biodiversity as a concept will be understood and valued across the population and embedded in educational curriculums."*
Guidance	
Chartered Institute of Ecology and Environmental Management (CIEEM, 2018) Guidance for Ecological Impact Assessment (EcIA) in the UK and Ireland – Terrestrial, Freshwater, Coastal and Marine, (CIEEM, 2018).	Standard good practice guidance for ecological evaluation and assessment for proposed developments in terrestrial, freshwater, marine and coastal environments.

10.3 Consultation

715. Consultation with Aberdeenshire Council and NatureScot has been undertaken, including engagement through Aberdeenshire Council's Pre-application Advice service. A summary of consultation activities undertaken to date is provided in **Table 10.2**.

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Table 10.2: Consultation Relevant to Onshore Ornithology

Consultee	Document/Date	Comment	How Comment is Addressed
NatureScot	2 April 2026 Meeting Minutes from the Bellrock Offshore Wind Farm Introductory Meeting.	*'[NatureScot] noted that the typical impact area for pink-footed geese/greylag geese is 15-20km […] Geese may be present on agricultural land over winter. On other projects, geese management plans have been agreed, to stop work or not start work if geese are present and temperatures are low.'*	Geese management plans will be considered as the Bellrock OnTDA design is further refined, with the feasibility and potential effectiveness of such measures assessed within the EIA Report (see **Section 10.6** of this **Bellrock OnTDA Scoping Report**). Consideration will be given to appropriate mitigation, where required.
		'[NatureScot] flagged the presence of purple sandpiper Calidris maritima *in the intertidal area, even though it was not a key species of interest.'*	The results of the Wintering Bird Survey at Cowie Landfall Area of Search 2025/2026 Technical Report **(Appendix D (Volume 1))** has been shared with NatureScot and appended to this Scoping Report. The report includes all species recorded during the surveys (see **Section 10.4.3 Bellrock OnTDA Scoping Report**).
Aberdeenshire Council	11 June 2026 Meeting Notes from the Bellrock Offshore Wind Farm Introductory Meeting.	Aberdeenshire Council advised that they do not consult with the Royal Society for the Protection of Birds (RSPB) as part of scoping, and the Applicant is advised to undertake consultation with RSPB directly.	A consultation meeting with the RSPB was requested to inform the assessment. While the opportunity for engagement was offered, no meeting was held. However, written comments were received from RSPB by email on 7 August 2026, identifying Schedule 1 species and nightjar, as the main ornithological considerations within the area and recommending engagement with relevant local experts and data holders to inform survey design and data collection. The Applicant has approached local experts, and is seeking to obtaining information from them to inform the baseline for the EIA Report.

Consultee	Document/Date	Comment	How Comment is Addressed
		Aberdeenshire Council advised that nightjars (*Caprimulgus europaeus*) should be considered within the application.	Nightjar surveys have been undertaken for the project throughout 2026, and will be reported on in the EIA Report. Potential impacts upon this species have been scoped in (see **Section 10.6 Bellrock OnTDA Scoping Report**).
Aberdeenshire Council (Natural Environment)	19 August 2026 Pre-application Advice letter	*['Nightjar] will require a dedicated, bespoke survey approach. We welcome that his is identified in the submitted presentation. There are also extensive Nightjar survey and data for the site generated by volunteers, and they may be willing to input to the process.'*	Results of the nightjar surveys will be included in the baseline to inform the EIA Report (see **Section 10.6 Bellrock OnTDA Scoping Report**). Engagement was undertaken with a local volunteer recorder, who was invited to contribute to the baseline data.
		'The applicants should note particular concerns regarding ornithological impacts in Fetteresso forest. The proposed development within the forest is extensive and we have concerns regarding the cumulative impact of the proposals. […] Cumulative impact on the species in the areas of Fetteresso it is found is a significant concern.'	The concerns regarding impacts (for the Bellrock Onshore Transmission Infrastructure alone and cumulatively with other plans or projects) on bird species and their habitats within Fetteresso forest will be addressed in detail in the EIA Report (see **Section 10.6 Bellrock OnTDA Scoping Report**).
		'The community also have concerns for Scottish crossbill in Fetteresso.'	The baseline includes records obtained from the local biological records centre, including sightings of crossbills within the Fetteresso area. This baseline will be supplemented by the findings of dedicated breeding bird surveys, the results of which will be used to inform the EIA Report (see **Section 10.4.2 Bellrock OnTDA Scoping Report**).

Consultee	Document/Date	Comment	How Comment is Addressed
NatureScot		*'NatureScot is aware of a nationally important population of nightjar in Fetteresso Forest and we recommend the applicant liaise with SSEN, FLS, Aberdeenshire Council and NatureScot to find a way to ensure they are adequately protected.'*	The recommended consultees will be contacted to inform the best way to address the need for adequate protection of nightjar population in Fetteresso Forest if required (see **Section 10.6 Bellrock OnTDA Scoping Report**).
NatureScot	03 September 2026 Email correspondence	*'[In relation to the number of intertidal bird survey seasons appropriate to adequately describe the baseline] agree with the report's [Wintering Bird Survey at Cowie Landfall Area of Search 2025/2026 Technical Report **(Appendix D (Volume 1))**] conclusion that the area surveyed is potentially of regional importance in winter for a number of birds, including four species of wader and two species of sea bird.* *Yes, a single season of survey effort should be sufficient to support an assessment of potential effects on birds using the intertidal zone during cable landfall works.'*	This response from NatureScot aligns with our proposed approach to baseline data collection (see **Section 10.4.3** and **Section 10.6 Bellrock OnTDA Scoping Report**).

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10.4 Existing Environment

10.4.1 Study Area

716. To inform the scoping process, a desk study search for statutory and non-statutory sites was conducted within specified search radii around the Bellrock OnTDA Scoping Boundary representing the potential Zone of Influence as presented in **Table 10.3** and in **Figure 10.1** (**Appendix A (Volume 1)**).

717. These search radii, herein referred to as the 'study areas', are based on standard survey areas in NatureScot (2017) guidance and core foraging ranges of SPA species (NatureScot 2016), thus facilitating a robust assessment of sensitive species within potential disturbance buffers and statutory sites with potential connectivity to the Bellrock OnTDA Scoping Boundary.

Table 10.3: Desk Study Areas

Receptor	Search Radius (Zone of Influence) (from the Bellrock OnTDA Scoping Boundary)
Statutory designated sites of international importance (SPAs, Special Areas of Conservation, and Ramsar Sites) where geese are protected features	20 km
Statutory designated sites of international importance (SPAs, Special Areas of Conservation, and Ramsar Sites) for all other bird features	10 km
National and local statutory and non-statutory sites of ornithological importance and known breeding/roosting records of target bird species (SSSI, National Parks, National Nature Reserve, Local Nature Reserve, LNCS, RSPB Reserves)	2 km

718. The datasets used to inform the scoping process have varying spatial coverage, as illustrated in **Figure 10.2** (**Appendix A (Volume 1)**) and described in detail in **Table 10.4** and the relevant subsections of **Section 10.4.3.**

10.4.2 Data and Information Sources

719. For the purposes of this Scoping Report, the Bellrock OnTDA baseline has been informed by available data from the sources presented in **Table 10.4**.

Table 10.4: Onshore Ornithology Data Sources

Dataset	Temporal Coverage	Description
Northeast Scotland Biological Records Centre (NESBReC)	2021-2026	Records of notable bird species reported in the last five years (2021-2026) within the Bellrock OnTDA Scoping Boundary with an additional 2 km buffer (**Figure 10.2 (Appendix A (Volume 1))**).
British Trust of Ornithology (BTO) (BTO, 2025)	2021-2026	Wetland Bird Survey (WeBS) of St Cyrus to Stonehaven Site in the last five years (2021-2026) (Location Code 88904) (**Figure 10.2 (Appendix A (Volume 1))**).
Bowdun Offshore Wind Farm, Onshore EIA Report Volume 2, Technical Appendix 7.3: Ornithology Survey Report (Thistle Wind Partners, 2025)	2023-2024	Results of Benholm Bay Intertidal Surveys from September 2023 to March 2024 at Haughs Bay, and geese foraging surveys conducted from September 2023 to March 2024 in the buffer of 20 km around Montrose Basin SPA.
Aspen Offshore Wind Farm Onshore EIA Scoping Report; and Offshore EIA Report Volume 3, Appendix 12.1: Offshore and Intertidal Ornithology Baseline Technical Report (Cerulean Wind, 2025)	2024-2026	Results of Intertidal (November 2024 – March 2025) and Wintering (February and March 2026) Birds Surveys along Aberdeenshire coastline at Downies, Newtonhill, Muchalls and up to 1.5 km south of Muchalls.
Wintering Bird Survey at Cowie Landfall Area of Search 2025/2026 Technical Report **(Appendix D (Volume 1))**	2025 - 2026	Intertidal bird survey undertaken throughout the non-breeding season, from October 2025 to March 2026 at the landfall (**Figure 10.2 (Appendix A (Volume 1))**).
Scottish and Southern Electricity Networks Hurlie 400 kV Substation EIA Volume 4 | Appendix 11.1 Ornithology Survey Report (Scottish and Southern Electricity Networks, 2024)	June 2026	Results of breeding bird surveys, Schedule 1 raptor surveys, and Schedule 1 bird surveys conducted in 2024 to inform the EIA Report for the Hurlie Substation.
NatureScot SiteLink (NatureScot, 2025)	June 2026	The locations and qualifying features of terrestrial SPA, SSSI, Special Areas of Conservation and Ramsar Sites with the potential for connectivity, as well as the potential for an effect pathway, with the Bellrock OnTDA Scoping Boundary (**Figure 10.1 (Appendix A (Volume 1))**).
Northeast Scotland Raptor Study Group	June 2026	Data on nesting raptors (unpublished data, communicated via email).

Dataset	Temporal Coverage	Description
FLS	Data not yet obtained - will be obtained to inform the EIA Report	Information on Schedule 1 nesting species at Fetteresso Forest.

10.4.3 Baseline Conditions

720. This section provides a summary of general baseline characteristics of bird populations present within and in the vicinity of the Bellrock OnTDA Scoping Boundary during their respective breeding and non-breeding periods (based on the periods as defined by NatureScot (2014)).

721. In addition to the Intertidal Wintering Bird Survey, the Applicant is undertaking Breeding Bird Surveys. The results of these surveys are not yet available to inform the existing environmental baseline but will be available to inform the EIA Report.

10.4.3.1 Designated Sites for Nature Conservation

10.4.3.1.1 Statutory Sites

722. Three European Sites of ornithological importance have been identified within the study areas presented in **Table 10.3**. Two of them (Ythan Estuary, Sands of Forvie and Meikle Loch SPA and Loch of Skene SPA) are also designated as Ramsar sites. The statutory sites with their qualifying ornithological features and nearest distances to the Bellrock OnTDA Scoping Boundary are summarised in **Table 10.5**. The location of the sites in relation to the Bellrock OnTDA Scoping Boundary is presented in **Figure 10.1** (**Appendix A (Volume 1)**).

Table 10.5: Summary of Statutory Designated Sites of Ornithological Importance within the Onshore Ornithology Study Areas

Site	Distance from the Bellrock OnTDA Scoping Boundary	Qualifying Ornithological Features
Fowlsheugh SPA	3.28 km	SPA breeding populations: common guillemot (*Uria aalge*), black-legged kittiwake (*Rissa tridactyla*), razorbill (*Alca torda*), northern fulmar (*Fulmarus glacialis*), herring gull (*Larus argentatus*), and breeding seabird assemblage.
Fowlsheugh SSSI (a component of Fowlsheugh SPA)	3.28 km	Designated for the same qualifying features as the Fowlsheugh SPA, with the addition of breeding puffin (*Fratercula arctica*), and a breeding seabird colony consisting of common guillemot, razorbill and kittiwake.
Loch of Skene SPA, SSSI, and Ramsar Site	17.38 km	Migratory species: greylag goose (*Anser anser*), goldeneye (*Bucephala clangula*), and goosander (*Mergus merganser*).

Site	Distance from the Bellrock OnTDA Scoping Boundary	Qualifying Ornithological Features
Ythan Estuary, Sands of Forvie and Meikle Loch SPA	17.81 km	SPA breeding populations: Sandwich tern (*Sterna sandvicensis*), common tern (*Sterna hirundo*), little tern (*Sterna albifrons*), non-breeding waterfowl, migratory pink-footed goose (*Anser brachyrhynchus*), eider (*Somateria mollissima*), redshank (*Tringa totanus*), and lapwing (*Vanellus vanellus*).
Ythan Estuary, Sands of Forvie and Meikle Loch Ramsar Site	17.81 km	Common tern, little tern, pink-footed goose, eider, redshank and lapwing.

723. Garron Point SSSI partially overlaps with the Bellrock OnTDA Scoping Boundary. While it is not designated for ornithological interests, the habitats present are suitable for notable breeding and wintering bird species, and as such, potential ecological links cannot be ruled out.

724. The above statutory designated sites for nature conservation will be fully considered within the EIA Report in respect of the potential for effects from the Bellrock Onshore Transmission Infrastructure.

10.4.3.1.2 Non-statutory Sites

725. Five LNCS are located within the study area for non-statutory sites presented in **Table 10.3**. Only one of the LNCS pertains to birds, but all contain habitats suitable for notable wintering and/or breeding birds. These are listed in **Table 10.6** and illustrated in **Figure 10.1** (**Appendix A (Volume 1)**).

Table 10.6: Non-statutory Designated Sites within Study Areas

Site	Distance from the Bellrock OnTDA Scoping Boundary	Site Description
Downie Point to Todhead Coast LNCS	Boundaries of the site located within the 2 km buffer from the Bellrock OnTDA Scoping Boundary	Overlapping with Fowlsheugh SPA, described as important for breeding seabirds.
Muchalls to Stonehaven Bay LNCS	Boundaries of the site located within the Bellrock OnTDA Scoping Boundary	Rocky cliffs and shore with a rich coastal flora. Species associated with base-rich soils are present. Key site for invertebrates of base rich habitats. Rare whorl snail (*Vertigo angustior*) at Garron Point. Outcrop of the Highland Boundary Fault.
Mergie LNCS	Boundaries of the site located within the Bellrock OnTDA Scoping Boundary	Neutral and acid grassland, broadleaved and coniferous woodland, wet heath, scrub, bracken, bog, pond, rivers and rush pasture alongside the Cowie Water. Locally important species such as lesser twayblade (*Neottia cordata*) and bog myrtle (*Myrica gale*).

Site	Distance from the Bellrock OnTDA Scoping Boundary	Site Description
Elfhill LNCS	Boundaries of the site located within the Bellrock OnTDA Scoping Boundary	This small site forms a fairly steep sided river valley, with semi-natural broadleaved woodland, gorse scrub and acid grassland. Good diversity of plant species and particularly important for the native bluebell (*Hyacinthoides non-scripta*).
Fetteresso LNCS	Boundaries of the site located within the Bellrock OnTDA Scoping Boundary	This site contains broadleaved woodland on the slopes of the railway line, down to the Carron Water. Neutral grassland and gorse scrub are also present. The site has a good woodland flora including the locally uncommon wood stitchwort (*Stellaria nemorum*).

726. The above non-statutory sites will be considered within the EIA Report in respect of potential for effects from the Bellrock Onshore Transmission Infrastructure.

10.4.3.1 Intertidal Wintering Bird Survey 2025/2026

727. Intertidal wintering bird surveys were undertaken at the Cowie preferred landfall Area of Search as shown in **Figure 10.2** (**Appendix A (Volume 1)**) to inform the Bellrock Project, with twice-monthly survey visits undertaken from October 2025 to March 2026.

728. The aims of the wintering bird surveys were to:

- Determine the bird assemblage present within the Intertidal Survey Area and the range of species present during high tide and low tide conditions; and
- Record all species but focus on waterbirds using the Intertidal Survey Area.

729. The Intertidal Survey Area included all habitats between MHWS and MLWS at the Cowie landfall location including the area within 1 km either side i.e. including onshore and offshore habitats for waterbirds within 1 km. Areas that were inaccessible on foot were surveyed using binoculars from the most appropriate vantage points, providing the best available overview of those areas.

730. The surveyed area includes a diverse coastal mosaic: open sea, intertidal rocky shore with rock pools, rock and vegetated coastal cliffs, shingle and sand beaches, farmland, golf course, woodland/scrub, buildings/gardens and road verges. Marine habitat extends approximately 1 km offshore, with rocky and soft seabed habitats reaching depths of up to about 20 m (**Figure 10.2 (Appendix A (Volume 1))**).

731. A total of 38 target bird species were recorded across coastal, marine and farmland habitats, with most species present in low to moderate numbers. Key ornithological features include regionally important numbers of oystercatcher (*Haematopus ostralegus*), redshank, turnstone (*Arenaria interpres*), purple sandpiper, herring gull and curlew (*Numenius arquata*). The survey also recorded single individuals of red-throated diver (*Gavia stellata*), peregrine (*Falco peregrinus*) and whooper swan (*Cygnus cygnus*), which are listed under Schedule 1 of the Wildlife and Countryside Act 1981

(as amended) and Annex I of the Birds Directive. No geese were recorded in the Survey Area, although skeins (flocks) of pink-footed geese were observed in passage flying south during October 2025 surveys. The full survey results are provided in **Appendix D: Wintering Bird Survey at Cowie Landfall Area of Search 2025/2026 Technical Report (Volume 1)**.

10.4.3.2 Breeding Birds Surveys

732. Breeding Bird Surveys were undertaken between April and June 2026 and the results were not available to inform the scoping process for the Bellrock OnTDA. The results will, however, be available to inform the Bellrock OnTDA EIA.

733. Four walkover surveys were undertaken between March and July 2026, approximately three weeks apart, according to the methods of a modified Common Bird Census survey (BTO, 2026), and following the principles of the Survey and Assessment Steering Group (2025) and Gilbert et al. (1998).

734. In addition to the breeding bird transect surveys, raptor surveys were undertaken to map birds of prey and their breeding activity within 1 km of the Breeding Birds Survey Area, in the areas of open upland habitats or conifer plantations.

735. Further surveys were undertaken to identify and map breeding nightjar territories. The aim of the surveys was to locate potential nests and check for signs of nightjar activity with focus on heathland and young conifer plantation which presented the most suitable habitat.

736. The outcomes of these surveys will be presented in the EIA Report.

10.4.3.3 Northeast Scotland Biological Records Centre Dataset

737. The dataset provided by NESBReC includes records of notable species occurring within the Breeding Birds Survey Area, including a 2 km buffer (**Figure 10.2 (Appendix A (Volume 1))**). The species identified as notable fall into one of the categories outlined below (although some species may meet the criteria for more than one category):

- Birds Directive Annex I;
- UK Biodiversity Action Plan;
- Scottish Biodiversity List (SBL):
  - SBL S2 - Scottish Biodiversity List: International Obligations;
  - SBL S3 - Scottish Biodiversity List: Nationally Rare at UK level, found in only 1-15 10 km squares;
  - SBL S4 - Scottish Biodiversity List: Present in five or fewer 10 km squares or sites in Scotland; and
  - SBL S5 - Scottish Biodiversity List: Decline of 25% or more in Scotland in last 25 years.
- Other Notable Species – including other species protected in Scotland under the Wildlife and Countryside Act 1981 (as amended) Schedule 1, 5 and 8 which are not already covered by any of the above designations.

738. Based on the most recent five-year dataset (2021–2025), the most frequently recorded target species was herring gull (*Larus argentatus*). This was followed by house sparrow (*Passer domesticus*), eider, black-headed gull (*Chroicocephalus ridibundus*), starling (*Sturnus vulgaris*), curlew, redshank, swift (*Apus apus*), kestrel (*Falco tinnunculus*), and yellowhammer (*Emberiza citrinella*). There are several records of geese species with the most abundant brent goose (*Branta bernicla*), Canada goose (*Branta canadensis*), pink-footed goose and single records of dark-bellied brent goose (*Branta bernicla bernicla*), and light-bellied brent goose (*Branta bernicla hrota*).

10.4.3.4 British Trust for Ornithology Wetland Bird Survey

739. The BTO Wetland Bird Survey (WeBS) is the UK's principal scheme for monitoring non-breeding waterbirds. It involves systematic monthly counts at wetland sites, conducted primarily by volunteers. Based on the Current 5-Year Mean Peak counts, the most numerous waterbirds recorded at the Stonehaven to St Cyrus (**Figure 10.2 (Appendix A (Volume 1))**) sites are oystercatcher, cormorant (*Phalacrocorax carbo*), black-headed gull, eider, and redshank. These five species consistently demonstrate the highest average peak counts across recent survey years, indicating they are the dominant waterbird species at this coastal site between Stonehaven and St Cyrus. Single individuals of brent goose were recorded in the last five years, while pink-footed goose was observed only once in the 2021/2022 winter period.

740. These results are consistent with those obtained from the intertidal wintering bird surveys and with records from the NESBReC, indicating a similar assemblage of commonly recorded species, including herring gull, oystercatcher, redshank, eider, and black-headed gull.

10.4.3.5 Hurlie Substation Ornithology Survey

741. The following surveys were undertaken to inform the Hurlie Substation planning application, and have been reviewed to inform the Bellrock Onshore Transmission Infrastructure baseline:

- Breeding Bird Surveys: Breeding bird surveys were carried out at the location of the Hurlie Substation plus a 250 m buffer around it on two occasions, on 24 April 2024 and 14 May 2024;
- Schedule 1 raptor roosting bird surveys: Surveys for Schedule 1 species red kite (*Milvus milvus*) were carried out from 23 January 2023 to 18 March 2023 in relation to potential roosting birds within disturbance distance of the development boundary i.e. to 1 km of the Hurlie Substation; and
- Schedule 1 bird surveys: Surveys for target species were carried out on 3 April 2024 and 27 April 2024 within and up to 1 km from Hurlie Substation development boundary.

742. The surveys in April and May 2024 revealed presence of two Schedule 1 species within the study area: goshawk (*Accipiter gentilis*) and crossbill (species uncertain) (*Loxia* sp.).

10.4.3.6 Other Offshore Wind Project Datasets

743. Among the wind farm developments planning onshore works in relatively close proximity to the Bellrock OnTDA, and, therefore, potentially providing relevant survey data for this Scoping Report, are the Aspen Offshore Wind Farm and Bowdun Offshore Wind Farm.

744. The intertidal surveys undertaken for both projects recorded oystercatcher, lapwing, black-headed gull, herring gull, and lesser black-backed gull (*Larus fuscus*) as the most frequently observed species.

745. In addition, foraging goose surveys conducted for the Bowdun Offshore Wind Farm recorded no pink-footed geese, while only a single greylag goose was observed during surveys undertaken in mid-April 2024.

10.4.3.7 Future Baseline Conditions

746. The Bellrock OnTDA EIA will consider the future baseline conditions (as far as reasonably practicable) of relevance to the assessment for onshore ornithology.

747. In the longer term, climate change is likely to be the dominant factor influencing future ecosystem and species baselines. It will affect onshore ornithology through changes in species distribution and abundance, the timing of seasonal events, habitat use, and community composition. Many species are already shifting northwards or occupying higher altitudes in response to changing climatic conditions (Burton et al. 2023; Pearce-Higgins 2021).

10.5 Potential Impacts

10.5.1 Potential Construction Phase Impacts

748. Site preparation works and construction works associated with the Bellrock Onshore Transmission Infrastructure have the potential to give rise to a range of impacts relevant to onshore ornithology receptors:

- Temporary or permanent loss of, or modification to, habitats used by onshore ornithological receptors;
- Accidental damage or destruction of nests and/or eggs; and
- Temporary or permanent disturbance/displacement of terrestrial ornithological receptors.

10.5.2 Potential Operation and Maintenance Phase Impacts

749. O&M activities associated with the Bellrock Onshore Transmission Infrastructure have the potential to give rise to a range of impacts relevant to onshore ornithology:

- Temporary loss of, or modification to, habitats used by onshore ornithological receptors during maintenance activities;
- Temporary or permanent disturbance/displacement of onshore ornithological receptors (including at the landfall) during maintenance activities; and
- Collision Risk with the substation elements.

10.5.3 Potential Decommissioning Phase Impacts

750. At the end of operational life, the Bellrock Onshore Transmission Infrastructure will be decommissioned. The final decommissioning approach, including the extent to which infrastructure is removed or left in-situ, will be determined through the preparation of a Decommissioning, Restoration and Aftercare Strategy, and will consider relevant legislation, guidance, and industry best practice.

751. Where the Bellrock Onshore Transmission Infrastructure is removed, decommissioning activities are expected to result in localised land disturbance, broadly similar in nature to construction activities, although typically of reduced overall magnitude, as activities are likely to be more targeted.

752. Where the Bellrock Onshore Transmission Infrastructure is left in-situ (either partially or wholly), impacts associated with the continued presence of the Bellrock Onshore Transmission Infrastructure are considered in the O&M phase and are not duplicated here.

753. Decommissioning activities may result in the following potential impact pathways:

- Temporary loss of, or modification to, habitats used by onshore ornithological receptors;
- Accidental damage or destruction of nests and/or eggs; and
- Temporary or permanent disturbance/displacement of onshore ornithological receptors.

10.5.4 Embedded Mitigation

754. Embedded mitigation has been identified, as presented in **Table 10.7** and **Appendix B: Mitigation and Monitoring Register (Volume 1)**, in accordance with the mitigation hierarchy, with the aim of avoiding, preventing, reducing, and where possible, offsetting potential adverse environmental effects. Consistent with the Institute of Environmental Management and Assessment (IEMA, now Institute of Sustainability and Environmental Professionals (ISEP)) guidance (2024), primary (inherent design measures) and tertiary (standard good practice) mitigation are embedded within the project design and are, therefore, considered in the assessment of effects. Secondary mitigation measures will be identified where required through the EIA process, informed by the outcomes of the initial impact assessment.

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Table 10.7: Embedded Mitigation Measures Relevant to Onshore Ornithology

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	✓	✓	Following relevant industry guidance and best practice, whilst ensuring compliance with applicable national and international legislation.	Implementation of relevant industry guidance will ensure that established standards and best practice measures for preventing and/or containing pollution, including airborne particles, dust, and ground or water contamination are applied during the construction, O&M and decommissioning of the Bellrock OnTDA.	Tertiary
✓	X	✓	Development of and adherence to a Construction Environmental Management Plan (CEMP).	Implementation of a CEMP will ensure that measures to avoid, reduce and manage environmental effects are applied consistently throughout the construction and O&M. This will minimise the potential for disturbance and other adverse effects on intertidal and offshore birds and support the application of good environmental practice. The CEMP will include precautionary measures to protect birdlife, avoid disturbance to Wildlife and Countryside Act 1981 Schedule 1 bird nests, and prevent damage or destruction of active bird nests, ensuring compliance with relevant legislation. Habitat clearance in sensitive areas will be overseen by an Ecological Clerk of Works.	Tertiary

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	X	X	Construction lighting will be controlled, as set out in the CEMP, to minimise light spill onto sensitive habitats.	Implementation of the CEMP will ensure that lighting is minimised, so far as reasonably practicable, whilst meeting safety requirements. This will reduce the potential for attraction and disturbance of birds associated with artificial lighting. Procedures will also be established for the reporting and timely rectification of lighting and marking failures, with interim hazard warnings implemented where required. Construction and operational lighting will be controlled, as set out in the CEMP, to minimise light spill onto habitats of value to birds, including woodland, hedgerows and trees, particularly where notable bird species may occur.	Tertiary
✓	X	X	An Ecological Clerk of Works will supervise ecologically sensitive activities during construction.	The scope of the Ecological Clerk of Works role and responsibilities will be set out in the outline CEMP. This ensures compliance with ornithological mitigation recommended by the EIA and detailed in the CEMP.	Tertiary
X	X	✓	Production of a Decommissioning, Restoration and Aftercare Strategy.	Implementation of a Decommissioning, Restoration and Aftercare Strategy will ensure that decommissioning activities are planned and undertaken in a manner that minimises environmental disturbance and protects marine and coastal habitats, thereby reducing the potential for adverse effects on birds during the decommissioning phase.	Tertiary

10.6 Scoping of Potential Impacts

10.6.1 Construction Phase

10.6.1.1 Temporary or Permanent Loss of Habitat

755. The construction activities including site preparation, means of access, drainage and cable installation, as specified in **Section 3.5**, associated with the Bellrock Onshore Transmission Infrastructure may result in the temporary loss of suitable habitat for nesting, roosting and foraging birds. Temporary habitat loss may occur where habitats are disturbed or become inaccessible during the construction phase but are reinstated following completion of the works.

756. In contrast, the construction of permanent infrastructure, including the Bellrock OnSS, may result in the permanent loss of habitat within the operational footprint of the substation. These habitats would remain unavailable to birds throughout the O&M phase.

757. Habitat loss may occur either through the direct physical removal of habitat or through disturbance associated with construction activities, which may render otherwise suitable habitats unsuitable or inaccessible to birds. Consequently, the potential for both temporary and permanent habitat loss is **scoped in** for further assessment.

10.6.1.2 Accidental Damage or Destruction of Nests and/or Eggs

758. The construction activities such as habitat clearance and site preparation, demolition, excavation and trenching, use of trenchless techniques (e.g. Horizontal Directional Drilling) and installation of the Bellrock Onshore Transmission Infrastructure may give rise to direct harm (killing/injury/destruction) to breeding birds and their nests, therefore, the impact is **scoped in**.

10.6.1.3 Temporary or Permanent Disturbance/Displacement

759. Noise and visual disturbance to birds during the construction phase of the Bellrock Onshore Transmission Infrastructure may occur. There is potential for increased levels of disturbance caused by the presence and movements of construction vehicles, equipment and/or personnel to occur. This disturbance can result in impacts on any nesting, roosting and foraging birds that may be present both within and adjacent to the Bellrock OnTDA. Disturbance may result in increased energy expenditure to find alternative sites and consequently in reduced survival rates of the birds, therefore, the impact is scoped in.

760. Construction lighting will be managed in accordance with the CEMP to minimise light spill onto habitats of value to birds, including woodland, hedgerows and trees, particularly in areas where notable bird species may occur, therefore, light pollution as a source of disturbance is **scoped out**.

10.6.2 Operation and Maintenance Phase

10.6.2.1 Temporary Loss of Habitat

761. During the O&M phase, temporary habitat loss may occur as a result of periodic maintenance activities requiring short-term access to, or disturbance within, areas of suitable habitats.

762. These habitats may be used by nesting, roosting and foraging birds, therefore, the impact is **scoped in**.

10.6.2.2 Temporary or Permanent Disturbance/Displacement

763. During operation, there is a low risk of disturbance arising from operational noise and lighting associated with the permanent above-ground infrastructure. Operational lighting is expected to be controlled through the design and operational management (see **Table 10.7**).

764. Maintenance activities will be required during the O&M phase of the Bellrock Onshore Transmission Infrastructure. However, such activities are anticipated to be infrequent, localised and of limited duration. In the unlikely event that remedial works are required, these will be undertaken in line with the mitigation measures agreed for the construction phase of the Bellrock Onshore Transmission Infrastructure. Consequently, any effects on birds are expected to be limited to temporary indirect disturbance of adjacent habitats at a highly localised scale, therefore, the impact is **scoped out.**

10.6.2.3 Collision Risk

765. The Bellrock OnSS is not anticipated to create a substantial barrier to bird movement, as the structures should not exceed the height of the surrounding forest canopy and will occupy a relatively limited proportion of the surrounding woodland. In addition, the onshore export cables will be installed underground, with no overhead lines proposed, removing any potential collision risk associated with the onshore export cable corridor. Consequently, the risk of collision with the Bellrock Onshore Transmission Infrastructure is considered negligible. Therefore, collision risk is **scoped out**.

10.6.3 Decommissioning Phase

766. At the end of its operational life, the Bellrock Onshore Transmission Infrastructure will be decommissioned. The final decommissioning approach will be determined through the preparation of a Decommissioning, Restoration and Aftercare Strategy, and will consider relevant legislation, guidance, and industry best practice.

767. Decommissioning activities are anticipated to result in impact pathways that are similar to, or not greater than, those associated with the construction phase. Therefore, the impacts **scoped in** to the assessment for the construction phase are also considered applicable to the decommissioning phase.

768. The exception is permanent habitat loss, as decommissioning would involve the removal of permanent infrastructure and may allow affected habitats to be reinstated and returned to ecological use. Therefore, permanent habitat loss is not considered a relevant decommissioning impact.

10.6.4 Bellrock OnTDA Whole Project Assessment

769. The Bellrock OnTDA Whole Project Assessment will follow the general methodology set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessmen**t and will consider whether interactions between the Bellrock Onshore Transmission Infrastructure and the Bellrock Offshore Transmission Infrastructure and/or the Bellrock Wind Farm Infrastructure have the

potential to alter the magnitude of impacts and significance of effects on onshore ornithology receptors identified in the Bellrock OnTDA-alone assessment. Refer to **Plate 4.3 (Chapter 4: Approach to Scoping and Environmental Impact Assessment)** for the approach and methodology that will be followed for the Bellrock OnTDA Whole Project Assessment.

770. No pathway-based interactions are anticipated between the Bellrock OfTDA and the Bellrock OnTDA for onshore, intertidal, and offshore ornithology. Consequently, the potential for cumulative effects across the Project as a whole for ornithology receptors is considered unlikely, and therefore, this impact is **scoped out** from further assessment.

10.6.5 Potential Cumulative Effects

771. The Bellrock OnTDA Cumulative Effects Assessment (CEA) will be undertaken in accordance with the methodology set out in **Section 4.7** of **Chapter 4: Approach to Scoping and Environmental Impact Assessment**. An overview of the Bellrock OnTDA assessment process, including the relationship between the Bellrock OnTDA Whole Project Assessment and the CEA, is provided in **Plate 4.3.**

772. Overall, the CEA is a two-staged process, with the first stage assessing the impacts as a result of the Bellrock OnTDA Whole Project Assessment (**Section 10.6.4**) together with the Hurlie substation. The second stage will then assess the impacts as a result of the Bellrock OnTDA Whole Project Assessment together with the Hurlie substation plus impacts arising from other reasonably foreseeable plans and projects where there is conceptual, spatial, and/or temporal overlap. This will determine the potential for cumulative impacts and subsequent cumulative effects on ornithology receptors.

773. There is potential for cumulative impacts on ornithology receptors where the Bellrock Onshore Transmission Infrastructure and other plans and projects have conceptual overlap through a shared or similar source-pathway-receptor linkage, where there is spatial and temporal overlap. In general, many impact pathways are spatially constrained to the immediate footprint of the Bellrock Onshore Transmission Infrastructure and, therefore, have a limited ZoI. However, other impact pathways may extend over a wider area and, therefore, have greater potential to contribute to cumulative interaction. Cumulative effects are therefore scoped in to the EIA.

774. The CEA will consider other plans and projects with the potential to affect receptors through the same or similar impact pathways. Spatial screening of plans and projects will be defined proportionately, considering the ZoI associated with each impact pathway, alongside the potential for conceptual and temporal overlap, to ensure that only plans/projects with realistic potential for cumulative interaction are included.

775. Where there is potential for effects on ornithology receptors resulting from the Bellrock Onshore Transmission Infrastructure to make a material contribution to cumulative effects from surrounding developments, a qualitative desktop assessment will be completed in line with NatureScot (2018) guidance to assess potential effects on relevant receptors.

10.6.6 Potential Transboundary Effects

776. Transboundary effects on onshore ornithology receptors are not anticipated to arise from the construction, O&M, or decommissioning of the Bellrock Onshore Transmission Infrastructure. Impact pathways in this case are expected to be localised, confined to the footprint of the Bellrock Onshore Transmission Infrastructure.

777. There is no plausible mechanism for transboundary effects to occur. Transboundary effects are, therefore, **scoped out** of further assessment in the EIA.

10.6.7 Summary of Potential Onshore Ornithology Impacts Scoped In and Scoped Out

778. **Table 10.8** provides a summary of the impacts which are proposed to be **scoped in** to and/or **scoped out** of the EIA. This can be refined through the EIA process as additional information and data becomes available.

Table 10.8: Summary of Potential Onshore Ornithology Impacts Scoped In (✓) or Scoped Out (X)

Potential Impact	Receptor(s)	Scoped In (✓) or Scoped Out (X)		
		Construction	O&M	Decommissioning
Temporary or permanent loss of habitat	Breeding, wintering, migratory birds	✓	✓ (temporary only)	✓
Accidental damage or destruction of nests and/or eggs	Breeding birds	✓	X	✓
Temporary or permanent disturbance/displacement	Breeding, wintering, migratory birds	✓	X	✓
Collision risk	Breeding, wintering, migratory birds	X	X	X
Bellrock OnTDA Whole Project Assessment*	Breeding, wintering, migratory birds	X	X	X
Cumulative effects	Breeding, wintering, migratory birds	✓	✓	✓
Transboundary effects	Breeding, wintering, migratory birds	X	X	X

Notes:

* see **Section 10.6.4** for further details on the scoping of the Bellrock OnTDA Whole Project Assessment for Onshore Ornithology.

10.7 Proposed Approach to Impact Assessment

779. The assessment of potential impact on intertidal and onshore ornithology receptors will be undertaken in accordance with industry standard guidance (e.g. CIEEM, 2018) and based on the methodology described in **Chapter 4: Approach to Scoping and Environmental Impact Assessment**.

10.7.1 Baseline Characterisation

780. The EIA baseline will be informed by data collected through the Bellrock OnTDA Wintering Bird Survey and Breeding Bird Survey, together with records obtained from NESBReC and the BTO WeBS. Local records will also be sought from the RSPB and FLS. Relevant ornithological survey data from nearby offshore wind farm projects, including Aspen Offshore Wind Farm and Bowdun Offshore Wind Farm, will also be reviewed where available. In addition, a range of published and unpublished information sources will be used to inform the baseline, as described in **Section 10.4.3**.

10.7.2 Evaluation of Ornithological Features

781. In accordance with CIEEM (2018) guidance, ornithological features will be evaluated within an appropriate geographical context and assigned to one of the following levels of importance:

- International;
- National;
- Regional;
- Local; or
- Less than local.

10.7.3 Identification of Important Ornithological Features

782. Ornithological features assessed as being of regional importance or higher will be classified as Important Ornithological Features (IOFs). Features assessed as being of local importance or lower will not be considered IOFs and will, therefore, be **scoped out** of the detailed EIA assessment.

10.7.4 Assessment of Effects on Important Ornithological Features

783. Effects on IOFs will be assessed with reference to the species' conservation status, population size, range and distribution, and relevant reference populations. The assessment will follow the principles and methodologies set out in CIEEM (2018) and NatureScot (2018b). The assessment will assume that all embedded mitigation measures described in **Section 10.5.4** are implemented, as relevant, during the Construction, O&M and/or Decommissioning phases of the Bellock Onshore Transmission Infrastructure.

784. Should the EIA identify any significant adverse effects on IOFs, additional mitigation measures will be developed and presented within the onshore ornithology chapter. The effectiveness of these measures will be considered through an assessment of residual effects.

785. Potential impacts on IOFs will be assessed in accordance with CIEEM (2018) guidance and will be based on the best available evidence. Where sufficient evidence exists to support a conclusion, this will be clearly presented and justified. Where evidence is limited or uncertain, the precautionary principle will be applied.

786. Consistent with CIEEM guidance, impacts will initially be assessed in the absence of mitigation (other than embedded mitigation). Following the identification of impact magnitude and significance, any additional mitigation measures considered necessary will be proposed. The assessment will then be revisited to determine the magnitude and significance of residual effects.

10.7.5 Assessment of Effects

The significance of each predicted effect will be determined by considering:

- The importance of the receptor; and
- The magnitude of the impact.

787. The geographic scale of an effect will be assessed using the same hierarchy applied during receptor evaluation (i.e. international, national, regional, local or less than local). Where an ecological feature is recognised at more than one geographic scale, the highest applicable level of importance will be used within the assessment.

788. In accordance with CIEEM (2018), each identified impact on an ornithological feature will be characterised, where relevant, by the following attributes:

- Direction (positive or negative);
- Extent;
- Magnitude (size, amount, intensity or volume);
- Duration (short-, medium- or long-term; temporary or permanent);
- Timing and frequency (including whether it occurs during sensitive stages of the species' life cycle); and
- Reversibility (reversible or irreversible).

789. The significance of effects will be determined through consideration of both the importance of the receptor and the magnitude of the impact.

10.8 Scoping Questions to Consultees

790. The following questions are posed to consultees to help them frame and focus their response to the onshore ornithology scoping exercise, which would in turn inform the EIA:

- Do you agree that the available site-specific data will be sufficient to describe the baseline for onshore ornithology?
- Do you agree that the scope of the onshore surveys (wintering, breeding birds, birds of prey and nightjar) is acceptable?
- Do you agree with the buffers for study areas (2 km, 10 km, and 20 km as presented in **Table 10.3**?
- Do you agree with the potential impacts that have been scoped in for the construction, O&M, and decommissioning phases of the Bellrock Onshore Transmission Infrastructure in relation to onshore ornithology?
- Do you agree that the embedded mitigation measures are appropriate and suitably encapsulate the means to mitigate potential impacts from the Bellrock Onshore Transmission Infrastructure on bird populations?

10.9 References

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11 Onshore Archaeology and Cultural Heritage

11.1 Introduction

791. This Chapter of the **Bellrock Onshore Transmission Development Area (OnTDA) Scoping Report** considers the potential impacts on onshore archaeology and cultural heritage associated with the construction, operation and maintenance (O&M) and decommissioning of the of the Bellrock Onshore Transmission Infrastructure.

792. The Bellrock OnTDA Scoping Boundary (shown in **Figure 1.1 (Appendix A (Volume 1))**) defines the area within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process (as discussed in **Section 1.4** in **Chapter 1: Introduction**) to form the boundary of the Bellrock OnTDA Planning Permission in Principle (PPP) Application.

793. For the purposes of this **Bellrock OnTDA Scoping Report**, the Bellrock OnTDA Scoping Boundary encompasses the anticipated Onshore Transmission Infrastructure and activities within the Bellrock OnTDA landward of Mean Low Water Springs (MLWS). The Bellrock OnTDA Scoping Boundary overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) between Mean High Water Springs (MHWS) and MLWS.

794. The Bellrock Onshore Transmission Infrastructure includes:

- **Landfall**: located at Cowie, Aberdeenshire, where between two and six ducts are installed using trenchless techniques, allowing the offshore export cables to be brought ashore and connected to onshore export cables within the transition joint bay;
- **Onshore export cables**: up to six underground High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) onshore cable circuits, each up to 18 km in length, installed between landfall and the onshore substation;
- **Onshore substation (OnSS)**: electrical equipment (such as converters, transformers, switchgear, and protection and control systems) enabling renewable electricity from the Bellrock Wind Farm Development Area (WFDA) received via the onshore export cables to be exported to the National Electricity Transmission System, and ancillary infrastructure;
- **Hurlie substation connection works**: Infrastructure between the Bellrock OnSS to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the National Electricity Transmission System.

795. In addition, associated works are required to facilitate construction and O&M of the Onshore Transmission Infrastructure, including: access, signage, haul roads, spoil storage, material storage,

fencing, borrow pits (if any), earthworks, welfare, security, landscape mitigation, ecological mitigation, biodiversity enhancement, operational lighting and drainage.

796. As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Wind Farm Infrastructure (located within the Bellrock WFDA) was presented in the **Bellrock WFDA Environmental Impact Assessment (EIA) Report**, which was submitted in support of the Section 36 Consent and Marine Licence Application for the Bellrock Wind Farm Infrastructure in April 2026 (Bellrock Offshore Wind Farm Limited, 2026a). The **Bellrock WFDA EIA Report** considered the potential impacts and subsequent effects of the Bellrock Wind Farm Infrastructure on the environment. An EIA Scoping Report for the Bellrock Offshore Transmission Infrastructure was also submitted to Scottish Ministers on 17 August 2026 (Bellrock Offshore Wind Farm Limited, 2026b), with an EIA Report in support of the Marine Licence Application proposed to be submitted by the end of 2027.

797. This Chapter of the **Bellrock OnTDA Scoping Report** describes the approach to EIA including the methodology, an overview of the baseline conditions, the datasets that will be used to inform the EIA, the potential likely impacts to be considered, and how these will be assessed for the purpose of the EIA. This Chapter has been prepared by Haskoning.

798. This Chapter should be read in conjunction with the following chapters of the **Bellrock OnTDA Scoping Report**:

- **Chapter 5: Landscape and Visual Impact**;
- **Chapter 7: Hydrology and Flood Risk;**
- **Chapter 12: Traffic and Transport**; and
- **Chapter 13: Noise and Vibration**.

799. This Chapter is likely to have key inter-relationships with the above receptors, which will be considered appropriately where relevant in the Bellrock OnTDA EIA Report.

11.2 Legislation, Policy and Guidance

800. **Table 11.1** sets out the legislation, policy and guidance that have been considered in the preparation of this Chapter, where appropriate. The overarching policy and legislation relevant to the Bellrock Onshore Transmission Infrastructure is described in **Chapter 2: Legislative and Policy Context**.

Table 11.1: Summary of Relevant Legislation, Policy and Guidance for Onshore Archaeology and Cultural Heritage

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Legislation	
The Ancient Monuments and Archaeological Areas Act 1979	Provides statutory designation for archaeological sites and features of national importance, restricts unauthorised works, and provides a consent framework for approved interventions.
Protection of Military Remains Act 1986	Provides statutory protection for military aircraft crash sites, sunken military vessels and associated human remains, safeguarding them from unauthorised disturbance, excavation or salvage. The Act designates certain sites as protected places or controlled sites and requires developers to consider the potential presence of military remains as part of the historic environment resource.
The Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997	Provides statutory protection for designated historic buildings, structures and their settings, as well as for the character and appearance of conservation areas. The relative significance of listed building categories is defined in policy and guidance, which will inform the assessment.
The Town and Country Planning (Scotland) Act 1997	Establishes the legislative framework for EIA in Scotland and requires consideration of the direct, indirect, secondary, cumulative, short-, medium- and long-term effects of a the Bellrock Onshore Transmission Infrastructure on cultural heritage, including architectural and archaeological heritage.
The Historic Environment Scotland (HES) Act 2014	Established Cultural HES and defines its role as a statutory consultee in relation to designated heritage assets.
The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017	Schedule 4 states that the description of the likely significant effects should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.
Policy	
Historic Environment Policy for Scotland (HEPS) (HES, 2019)	Sets out the Scottish Ministers' policy for cultural heritage. The assessment will have regard to HEPS policies relating to the protection, conservation and enhancement of the cultural heritage and the sustainable management of change affecting heritage assets.
National Planning Framework 4 (NPF4) (Scottish Government, 2023)	NPF4 Policy 7 is considered important to archaeology and cultural heritage. ▪ **Policy 7: Historic assets and places** supports the protection and enhancement of historic assets and places. The policy provides the national planning framework for considering potential effects on the cultural heritage, including designated and non-designated heritage assets, their settings and wider historic landscapes.
Aberdeenshire Local Development Plan (Aberdeenshire Council, 2023)	Provides local planning policy relevant to the conservation and management of archaeological remains, listed buildings, conservation areas, gardens and designed landscapes, and

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
	other components of the cultural heritage that may be affected by the Onshore Transmission Infrastructure. The policies relevant to onshore archaeology and cultural heritage include: ▪ **Policy HE1:** Protecting Listed Buildings, Scheduled Monuments (SM(s)) and Archaeological Sites; and ▪ **Policy HE2:** Protecting Historic, Cultural and Conservation Areas.
Guidance	
Managing Change in the Historic Environment: Setting (HES, 2016)	Sets out an assessment methodology for assessing the effects arising through change to setting of heritage assets.
Standard and Guidance for Cultural Heritage Desk-based Assessment (Chartered Institute for Archaeologists, 2017)	Presents standards for the production of desk-based assessments (DBAs) of the cultural heritage for baseline data gathering.
Principles of Cultural Heritage Impact Assessment in the United Kingdom (Institute of Environmental Management and Assessment (IEMA, 2021), Institute of Historic Building Conservation and Chartered Institute for Archaeologists, 2021)	Sets out United Kingdom -wide good practice guidance for assessing cultural heritage effects within impact assessment processes, including the identification and evaluation of heritage assets, assessment of potential impacts, and development of appropriate mitigation measures to support robust and transparent decision making. The cultural heritage impact assessment methodology described in **Section 11.7** is based on these Principles.
Our Past, Our Future (HES, 2023)	Sets out Scotland's national strategy for cultural heritage for the period 2023 – 2028, establishing a shared mission to sustain and enhance the benefits of cultural heritage through action on net zero, community empowerment and a wellbeing economy.
Managing Change in the Historic Environment: Works on Scheduled Monuments (HES, 2024)	Sets out the legal and procedural requirements for works affecting SMs, including consent requirements, protection measures and approaches to avoiding or minimising impacts on nationally important archaeological assets.
Guidelines on Streamlining Environmental Impact Assessment for Onshore Wind Farms (Scottish Renewables, 2025)	Provides good-practice guidance on proportionate EIA scoping, assessment and reporting for onshore wind developments, including topic-specific advice for cultural heritage assessments and the consideration of significant effects on heritage assets and their settings.

11.3 Consultation

801. Consultation with Aberdeenshire Council and HES has been undertaken, including engagement through Aberdeenshire Council's Pre-application Advice Service. A summary of consultation activities undertaken to date is provided in **Table 11.2**.

Table 11.2: Consultation Relevant to Onshore Archaeology and Cultural Heritage

Consultee	Date/Document	Comment	How Comment has been Addressed
HES	19 August 2026, Pre-Application Advice letter	*'HES would expect that the impacts of the proposed development on these assets would be assessed by an experienced historic environment professional during the wider environmental impact assessment. The assessment should be carried out to the standards set out in the EIA Handbook, which sets out accepted best practice for historic environment assessment in EIA in Scotland. HES would also expect that the EIA should take into account Scottish Renewables' advice on Streamlining EIA'*	The assessment will be undertaken by suitably qualified historic environment professionals who are members of the Chartered Institute for Archaeologists and in accordance with the standards set out in the EIA Handbook (HES and Scottish Natural Heritage (SNH) 2018) and guidance for streamlining the EIA (see **Table 11.1**).
		'The design of the project should avoid physical impacts to scheduled monuments. Scheduled Monuments have legal protection under the Ancient Monuments and Archaeological Areas Act 1979. Most works within the protected area need our permission, known as Scheduled Monument Consent (SMC). This must be obtained from HES in addition to any other consents required for development.'	The Project will seek to avoid physical impacts to designated heritage assets. Where such impacts cannot be avoided, works affecting SMs will be undertaken in accordance with relevant guidance, and SM Consent will be secured where works would physically affect a SM (see **Section 11.7**).
		'The assessment of impacts should include assessment of impacts on the setting of nationally important designated historic environment assets, as well as direct and indirect physical impacts.'	The EIA Report will include an assessment of potential effects on the setting of designated heritage assets. The findings of the assessment will inform the evaluation of significance and any mitigation requirements identified (see **Section 11.7**).
		'In the first instance, a ZTV should be used to identify assets whose settings may be impacted by the proposed development'	A Zone of Theoretical Visibility (ZTV) (developed by the Landscape and Visual Impact Assessment (LVIA) specialists) will be used to identify heritage assets potentially affected through a change in their setting. The findings will be presented in the EIA Report to inform the baseline and subsequent impact assessment (see **Section 11.7**).
		'if significant impacts are identified, these should be illustrated using photomontages'	Visualisations (e.g. wirelines and photomontages, where appropriate) for effected assets will be prepared to support the assessment of significant setting effects and will be included as an Appendix to the EIA Report (see **Section 11.7**).

Consultee	Date/Document	Comment	How Comment has been Addressed
		'HES strongly recommend that the applicant should engage with HES directly and provide as much detailed information as possible at as early a stage of the design of the project as possible, to avoid later delays in the project.'	Preliminary consultation will be undertaken with HES and will include details of potential effects on designated heritage assets and their settings, together with visualisations where available. Feedback received from HES will be reviewed and taken into account in the development of the Project prior to submission of the planning application.
Aberdeenshire Council (Built Heritage)	19 August 2026, Pre-Application Advice letter	*'We would ask if [built] heritage assets within a 5km radius are considered.'*	**Section 11.4.1** details the study areas proposed for the EIA Report to inform the baseline (including the setting assessment) and impact assessment.
		'We would recommend that a ZTV is used in the first instance to establish which assets should be assessed for potential impacts on their setting. Should significant effects be identified, detailed assessment supported by visualisations may be required and we would need to understand the impact when you are at the historic assets'	A ZTV (developed by the LVIA specialists) will be used to identify heritage assets potentially affected through a change in their setting. The findings will be presented in the EIA Report to inform the baseline and subsequent impact assessment (see **Section 11.7**). Visualisations (e.g. wirelines and photomontages, where appropriate) for effected assets will be prepared to support the assessment of significant setting effects and will be included as an Appendix to the EIA Report (see **Section 11.7**).
Aberdeenshire Council (Archaeology)	19 August 2026, Pre-Application Advice letter	*'A Cultural Heritage assessment is required for the proposed development, to include a Desk-based assessment and, as appropriate, archaeological walkover survey.'*	A DBA and walkover survey will be undertaken by a suitably qualified professional to inform the baseline characterisation, and to identify any significant effects. The findings will be presented in the EIA Report to inform the baseline and subsequent impact assessment This (see **Section 11.7**).
		'Areas of compensatory planting will need to be subject to cultural heritage assessment.'	Areas proposed for compensatory planting will be subject to cultural heritage assessment prior to any planting works to identify any known or potential heritage constraints and to inform the design and location of planting proposals. See **Chapter 9: Onshore Ecology and Nature Conservation** for further details regarding compensatory planting.

Consultee	Date/Document	Comment	How Comment has been Addressed
		'Consideration should also be given to Public Benefit Opportunities.'	Opportunities for public benefit will be considered as part of the cultural heritage assessment, including measures that may enhance understanding, interpretation or appreciation of the historic environment. The approach and any identified opportunities will be outlined in the EIA Report and presented in detail in the Written Scheme of Investigation (WSI) (see **Section 11.7**).

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11.4 Existing Environment

11.4.1 Study Area

802. The initial data gathering exercise to inform the assessment has focused on the Bellrock OnTDA Scoping Boundary (above MLWS), as shown in **Figure 1.1** in **Appendix A (Volume 1)**. This therefore forms the onshore archaeology and cultural heritage study area considered in this Bellrock OnTDA Scoping Report.

803. The onshore archaeology and cultural heritage study area will be reviewed and updated for use in the Bellrock OnTDA EIA Report in response to refinement of the proposed Bellrock Onshore Transmission Infrastructure, the identification of additional impact pathways and in response to consultation feedback, where appropriate.

804. The following study areas are proposed to be used in the Bellrock OnTDA EIA Report:

- Known non-designated heritage assets within 500 m of the Bellrock OnTDA;
- Potential for buried archaeological remains and previously unrecorded above ground heritage assets within 500 m of the Bellrock OnTDA; and
- Designated heritage assets within 1 km of the Bellrock OnTDA and 5 km of the Bellrock preferred OnSS Area of Search, to inform a setting assessment of heritage assets identified as potentially being affected by the Onshore Transmission Infrastructure through a change in their setting. These will be identified through professional judgement supported by consideration of a ZTV developed by Land Use Consultants (LUC) as LVIA consultant.

11.4.2 Data and Information Sources

805. A DBA was undertaken to inform the cultural heritage baseline within the Bellrock OnTDA Scoping Boundary. Several data sources were consulted to inform the baseline characterisation of the cultural heritage, which are detailed below in **Table 11.3**.

Table 11.3: Summary of Key Data and Information Sources for the Onshore Archaeology and Cultural Heritage Assessment

Dataset	Temporal Coverage	Description
Cultural Heritage Scotland (HES) Spatial Data (HES, 2026)	Up to 2026	Data for Listed Buildings, Conservation Areas, SMs, Battlefields, Garden and Designated Landscapes, World Heritage Sites, Canmore Points.
Trove Scotland database (HES, 2026)	Up to 2026	Further information on designated and non-designated heritage assets.
Aberdeenshire Historic Environment Record (HER) (Aberdeenshire HER, 2026)	Up to 2026	Records of archaeological observations and investigations.
National Library of Scotland maps (NLS, 2026)	Up to 2026	Historic mapping.

11.4.3 Summary of Baseline Environment

11.4.3.1 Designated Heritage Assets

806. Within the onshore archaeology and cultural heritage study area, there are 43 designated heritage assets, including 30 Listed Buildings and 13 Scheduled Ancient Monuments. There is also one Conservation Area that borders the southern extent of the Bellrock OnTDA Scoping Boundary, located southwest of Fetteresso.

807. The majority of Listed Buildings represent domestic farmhouses and cottages. Many of the buildings are associated with estate ancillary structures, notably the Category B Ury House and Terrace Walls (LB9364), Viaduct Over Cowie Water, Ury House (LB49613), Offices, Cowie House (LB9385) and Cowie House (LB9384). Less commonly, there are agricultural and religious buildings, such as the Category B listed Dead House, Saint Mary's Chapel, Cowie (LB9383), Cheyne Farmhouse (LB9372) and Mergie Farmhouse (LB9312). Of high importance is the Category A listed Fetteresso Castle, Doocot (LB9371), which lies south of the Category B listed Fetteresso Castle (LB9373), which are both situated approximately 2.4 km southeast of the Bellrock preferred OnSS Area of Search.

808. The 13 Scheduled Ancient Monuments within the onshore archaeology and cultural heritage study area range in date from the prehistoric, medieval and modern periods. Prehistoric monuments are representative of settlement, funerary and agricultural landscapes, such as Findlayston, cairn, enclosures and field systems (SM459), while medieval monuments include Cowie Chapel (SM5584) and Castle of Cowie (SM9742). Five monuments relate to World War II military structures and associated remains.

809. The Kirkton of Fetteresso Conservation Area (CA656), located west of Stonehaven, borders the onshore archaeology and cultural heritage study area to the south.

810. The nearest designated heritage assets to the Bellrock preferred OnSS Area of Search are two SMs: Cairns, houses and field system 500 m east-southeast of Clochanshiels (SM4857) (which is partially located within the Bellrock OnSS Area of Search) and Cowie Line, pillboxes and anti-tank blocks northeast of Whitehill (SM6575).

811. There are no Inventory Garden and Designated Landscapes, Historic Battlefields or World Heritage Sites within the onshore archaeology and cultural heritage study area. More site-specific assessment will be undertaken when the onshore export cable corridor, landfall and OnSS location have been determined.

812. A summary of the designated heritage assets within the onshore archaeology and cultural heritage study area is illustrated in **Figure 11.1** in **Appendix A (Volume 1)**.

11.4.3.2 Non-Designated Heritage Assets

813. The Aberdeenshire HER holds 243 non-designated cultural heritage records within the onshore archaeology and cultural heritage study area, which are illustrated in **Figure 11.2** in **Appendix A (Volume 1)**. This data will be used to identify the presence of known heritage assets and the potential for archaeological remains that have not previously been recorded.

11.4.3.2.1 Prehistoric

814. There are 41 prehistoric features and findspots recorded in the HER. Evidence of prehistoric activity is primarily representative of settlement and funerary activity in the form of cropmarks, earthworks, standing stones, cairns, cists and hut circles. Several of these records detail cropmark evidence of likely settlement and funerary activity localised to Fetteresso Forest, including Fetteresso (MAB65305) and Farrochie (MAB65298). Further evidence of possible funerary activity is recorded at Glenton Hill (MAB42383) and Clochanshiels (MAB42343; MAB42344; MAB52345). An extant standing stone is recorded at Kempstone Hill (MAB42018).

815. There are ten records of isolated prehistoric findspots within the onshore archaeology and cultural heritage study area including Neolithic stone tools at Rickarton (MAB49389; MAB49390) and Mergie (MAB49321), Bronze Age urns (beakers) at Elf Hillock (MAB49327), Camp Hill (MAB49133) and Ury House 1 (MAB49135), and a late Bronze Age sword at Fishermyre (49695).

11.4.3.2.2 Roman Iron Age

816. There are three records dating to the Roman Iron Age within the onshore archaeology and cultural heritage study area, two of which are findspots of Roman coins at Hill of Megray (MAB49387; MAB49136). There is also the record of an alleged Roman road, Cryne Corse Road (MAB41615), which intersects the westernmost portion of the Bellrock OnTDA Scoping Boundary. However, the HER indicates that the road is more likely to be Medieval in date. Archaeological investigations conducted during the improvement of the existing forest road, which follows the alignment of the former Cryne Corse Road, together with monitoring of topsoil stripping along the former route (Suddaby, 2012), demonstrated no evidence of a formal road surface and recovered no archaeological features or finds.

11.4.3.2.3 Medieval

817. There are four Medieval records within the onshore archaeology and cultural heritage study area, comprising the historic cores of Cowie (MAB42037) with 14th century origins, and Kirkton of

Fetteresso (MAB42249), an historic village centred on St Ciaran's Church. Two Medieval findspots are also recorded, including a tripod ewer discovered at Glen Ury in 1857 (MAB49134), and a cast lead seal matrix recovered from Stonehaven (MAB49363), bearing a personal inscription and likely dating to the Medieval period.

11.4.3.2.4 Post-medieval

818. A large number of Post-medieval HER records were identified within the onshore archaeology and cultural heritage study area, the majority relating to the historic rural landscape. These comprise numerous extant and former farmsteads, crofts, cottages and associated agricultural buildings, many depicted on 1st and 2nd edition Ordnance Survey mapping, including examples at Upper and Nether Quithel (MAB41312; MAB41291), Mergie (MAB41244), Backhill (MAB42275), Bogheadly (MAB42372), Westerton of Bogheadley (MAB42374), New Mains of Ury (MAB42066), Logie Farm (MAB42313) and Kempstone Hill (MAB42070). Associated agricultural features include enclosures, field systems, ponds, dams, sluices, lades, wells, boundary features and clearance cairns, reflecting the area's long history of agricultural land use.

819. Additional Post-medieval records relate to industrial and infrastructure features, including mills (e.g. Limpet Mill (MAB42057), Mill of Mowtie (MAB42390) and Mill of Tewel (MAB62851)), a ropery at Cowie (MAB62830), smithies, quarries, bridges, tollhouses, lodges, workers' cottages, railway infrastructure and a hydraulic ram. Numerous trackways, hollow ways, fords and linear earthworks recorded by Forestry Commission surveys represent elements of the historic transport and agricultural landscape.

820. Several records relate to estate and designed landscape features associated with Ury House and Fetteresso Castle, including home farms, lodges, cottages, bridges and ancillary estate buildings. Other notable Post-medieval features include Cowie Battery (MAB42046), a number of Ordnance Survey triangulation pillars and boundary stones, a former school (MAB62528), church (MAB42394) and mort-houses (MAB42296).

821. A small number of findspots, including lead shots, a coin and a copper-alloy pin recovered through metal detecting, provide further evidence of later activity within the wider landscape.

11.4.3.2.5 Modern

822. There are 17 Modern records within the HER principally relating to World War II military activity, transportation and commemorative features. These include several elements of the Cowie Stop Line, comprising surviving anti-tank barriers, ditches, revetments and associated defensive earthworks along the Cowie Water (MAB62810, MAB45324, MAB45336, MAB45325, MAB45340, MAB45341).

823. There are three records which relate to locations of military aircraft crash sites. The HER notes that a Royal Naval Air Station (RNAS) Swordfish Torpedo bomber P4031 is recorded to have flown into the Hill of Trusta (MAB1441) during a night flight on 14 September 1942. The precise location of the crash has not been established, and no further information has been identified regarding the presence or extent of any surviving aircraft remains, associated debris, or human remains.

824. A second crash site is recorded near Upper Wyndings farm (MAB1761), where a RNAS Seafire reportedly crashed in a potato field on 11 November 1944, killing two farmworkers on the ground, one of which was an Italian prisoner of war. The exact location of the crash is unclear, although

one (later) source described the crash site as being south of the Auchenblae Road where the ground slopes. It was noted that parts of the aircraft were scattered over a distance of 450 yards (Scottish and Southern Electricity Networks, 2024).

825. A third aircraft crash site is recorded at Kempstone Hill (MAB62810), where a small military transport biplane crashed on 7 July 1941 due to bad weather. The aircraft crashed while ferrying personnel from RNAS Hatston, Kirkwall, to RNAS Donibristle. All six occupants on board the aircraft are reported to have been killed (four military personnel and two civilians) (Aviation Safety Network, 2012). No further information on the precise location of the crash site is available.

826. While not recorded within the HER, one further aircraft crash site located 'near Tannachie' was identified through information submitted during the Hurlie 400kV substation public consultation. No further details are available (Scottish and Southern Electricity Networks, 2024, Volume 4: Appendix 9.2).

827. Further military records include the location of a World War II prisoner of war camp at Bogheadly (MAB62840), recorded by the Defence of Britain Project. The site has been developed, and two small cottages occupy the area of the huts.

828. A recent findspot of a probable World War I grenade was also recorded near Cowie (MAB49376).

829. Maritime heritage records comprise a number of 19th and early 20th century shipwrecks and strandings along the Cowie coastline, including the Ann and Isabella (MAB1408), Isabella Forbes (MAB1758), Louise (MAB1754) and Welcome Home (MAB1415).

830. Additional modern-period records include Rickarton War Memorial (MAB42357), Fetteresso Cemetery (MAB42321), and other elements of historic infrastructure and transport networks.

11.4.3.3 Future Baseline

831. No significant changes to the current baseline are anticipated.

11.5 Potential Impacts

832. Potential impacts to archaeological remains and the cultural heritage may arise through both direct and indirect effects. Impacts can also occur from changes (both temporary and permanent) to the setting of heritage assets (the surroundings in which the heritage assets are located, experienced, and appreciated), which could affect their significance.

833. Direct impacts to known and previously unrecorded archaeological and palaeoenvironmental remains are likely to occur during intrusive works associated with construction activities, such as excavations for export cables, trenchless crossings, and establishment of permanent and temporary compounds.

834. Indirect impacts may occur during the construction stage whereby, for example, intrusive groundworks may lead to changes in hydrological processes which could cause desiccation and drying out of wetland deposits and associated preserved waterlogged archaeological or palaeoenvironmental remains.

835. Impacts to the significance of onshore heritage assets may also occur if a development changes the setting of the asset (the surroundings in which the heritage asset is located, experienced and appreciated) (HES, 2020). A summary of the anticipated potential impacts to onshore archaeology and the cultural heritage are outlined in **Table 11.5**.

11.5.1 Potential Impacts During Construction

836. Due to the current size of the Bellrock OnTDA Scoping Boundary, at this stage a general assessment of potential impacts associated with the Bellrock Onshore Transmission Infrastructure on specific sensitive receptors is presented below. This will be refined within the EIA Report to reflect the PPP Application boundary.

837. Construction activities which could affect heritage assets include:

- Any intrusive groundworks, such as trenchless cable installation, draining, and open cut trench excavation;
- Construction of temporary works areas or long term above ground infrastructure such as the Bellrock OnSS; and
- General construction activities such as plant movement or increased traffic movements.

838. Impact pathways relating to changes to setting arising from the OnSS which commence during the construction phase and continue throughout the operational life of the Bellrock Onshore Transmission Infrastructure will be assessed for in the construction phase to take account of the increased magnitude, but shorter duration of construction works. This impact will also be assessed during the O&M phase to take account of the change from active construction to operation, where effects can be expected to be lower (and in some cases entirely reversed) but longer lasting. This approach recognises that these impacts are initiated during construction and continue through O&M where above ground infrastructure (specifically the OnSS) is located.

11.5.2 Potential Impacts During Operation and Maintenance

839. Where the Bellrock Onshore Transmission Infrastructure is buried (i.e. onshore export cables), there will be limited potential for further impacts to archaeological and palaeoenvironmental remains during the O&M phase. This is because such loss would have occurred during the construction phase.

840. Activity which could have an ongoing impact to onshore archaeology and cultural heritage includes the presence of the Bellrock OnSS. Any long term above ground/infrastructure has the potential to result in a change to the setting of heritage assets, which could affect heritage significance.

841. Impacts could arise from the visual intrusion of the Bellrock OnSS, which would change views towards and away from heritage assets. Impacts could also occur from a perceptible change in noise and lighting associated with the Bellrock OnSS, which would change the way heritage assets are experienced. The impacts could be both adverse and beneficial, depending on the heritage asset, its location, the contribution of the setting to the value of the asset. There is a potential, therefore, for the operation of the Bellrock OnTDA to result in a significant effect (both adverse and beneficial).

11.5.3 Potential Impacts During Decommissioning

842. There will be limited potential for further physical changes to onshore heritage assets through direct and indirect impacts during the decommissioning phase as these impacts would have occurred during the construction phase.

843. Impacts to the setting of heritage assets which could affect their heritage significance during decommissioning are expected to be similar in nature to those anticipated during construction but of smaller magnitude.

11.5.4 Embedded Mitigation Measures

844. Embedded mitigation has been identified, as presented in **Table 11.4** and **Appendix B: Mitigation and Monitoring Register (Volume 1)**, in accordance with the mitigation hierarchy, with the aim of avoiding, preventing, reducing, and where possible, offsetting potential adverse environmental effects. Consistent with the Institute of Sustainability and Environmental Professionals (ISEP) guidance (2024), primary (inherent design measures) and tertiary (standard good practice) mitigation are embedded within the project design and are therefore considered in the assessment of effects. Secondary mitigation measures will be identified where required through the EIA process, informed by the outcomes of the initial impact assessment.

845. The current embedded mitigation measures may be refined as the project design evolves. In addition, further embedded mitigation measures may be developed as part of the iterative design process.

Table 11.4: Embedded Mitigation Measures Relevant to Onshore Archaeology and Cultural Heritage

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	✓	X	Site selection was informed by the Bellrock OnTDA Design Principles and included consideration of sensitive receptors.	The Bellrock OnTDA has been developed in accordance with a set of Design Principles that have informed the site selection process, refinement of the Project Design Envelope and development of embedded mitigation measures. The Design Principles will continue to guide the detailed design of the Bellrock Onshore Transmission Infrastructure during the EIA and following consent, including the siting and layout of infrastructure, landfall design, cable routing, environmental protection measures and restoration proposals.	Primary
✓	X	✓	Development of and adherence to a Construction Environment Management Plan.	The Construction Environment Management Plan will set out the overarching environmental management framework for construction of the Bellrock Onshore Transmission Infrastructure and will include, or cross-reference as appropriate, measures relating to pollution prevention, soil handling, waste management, public rights of way management, emergency response procedures, environmental monitoring and construction best practice.	Tertiary
✓	✓	✓	Development of and adherence to a Landscape Plan.	The Landscape Plan will set out landscape mitigation planting, habitat reinstatement, long-term management requirements and any tree protection or replacement measures. This is relevant to the assessment of changes to setting and associated heritage significance.	Tertiary
✓	X	✓	Development of and adherence to a Construction Traffic Management Plan (CTMP).	The CTMP will set out measures to manage construction traffic movements, access arrangements, abnormal load deliveries, routing agreements and road safety measures. This is relevant to the assessment of changes to setting and associated heritage significance.	Tertiary

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	X	✓	Development of and adherence to a WSI and Protocol for Archaeological Discoveries (PAD).	The WSI and PAD will set out archaeological mitigation measures, watching brief requirements and procedures for managing unexpected discoveries, including those related to aircraft crash sites.	Tertiary
X	X	✓	Production of a Decommissioning, Restoration and Aftercare Strategy.	A Decommissioning, Restoration and Aftercare Strategy will be prepared to set out environmental management measures associated with eventual decommissioning activities, including infrastructure removal, restoration and environmental monitoring requirements.	Tertiary

11.6 Scoping of Potential Impacts

846. The onshore archaeology and cultural heritage scoping assessment is based on the description of the Bellrock Onshore Transmission Infrastructure as outlined in **Chapter 3: Project Description**.

847. The impacts assessed as part of the onshore archaeology and cultural heritage assessment are on all heritage assets located within the study areas landward of MLWS outlined in **Section 11.4.1**.

11.6.1 Construction Phase

11.6.1.1 Direct Impacts to Heritage Assets

848. Direct impacts may occur if archaeological and palaeoenvironmental remains are present within the footprint of the Bellrock Onshore Transmission Infrastructure (i.e. from landfall activities (transition joint bays and construction compound), installation of onshore export cables, OnSS, trenchless crossings, temporary construction compounds, access roads and Hurlie substation connection works).

849. Therefore, this impact is **scoped in** for further assessment in the EIA.

11.6.1.2 Indirect Impacts to Heritage Assets

850. Indirect impacts to heritage assets may arise during construction as a result of changes to local ground conditions, hydrology, drainage patterns, erosion processes and vibration which may have an indirect effect on archaeological and palaeoenvironmental remains.

851. Therefore, this impact is **scoped in** for further assessment in the EIA.

11.6.1.3 Change to the Setting of Heritage Assets

852. Construction activities, including the installation of landfall works and associated transition joint bays, onshore export cables, temporary construction compounds, and OnSS construction have the potential to cause temporary change to the setting of heritage assets.

853. Therefore, this impact is **scoped in** for further assessment in the EIA.

11.6.2 Operation and Maintenance Phase

11.6.2.1 Direct Impacts to Heritage Assets

854. Direct impacts to heritage assets during the O&M phase are anticipated to be limited, as the majority of ground-disturbing activities would have occurred during construction and would have been mitigated for in advance of construction as part of a staged approach to archaeological evaluation and mitigation.

855. Therefore, this impact has been **scoped out** of further assessment in the EIA.

11.6.2.2 Indirect Impacts to Heritage Assets

856. Indirect impacts to archaeological and palaeoenvironmental remains during the O&M phase are anticipated to be limited. Any O&M activities resulting in changes to local ground conditions, hydrology, drainage patterns, erosion processes and vibration would be no greater than the changes mitigated for during construction as part of a staged approach to archaeological and palaeoenvironmental evaluation and mitigation.

857. Therefore, this impact has been **scoped out** of further assessment in the EIA.

11.6.2.3 Change to the Setting of Heritage Assets

858. Potential changes to the setting of designated and non-designated heritage assets arising from the permanent presence and operation of above-ground infrastructure (i.e. OnSS) are anticipated to arise.

859. Therefore, this impact has been **scoped in** for further assessment in the EIA.

11.6.3 Decommissioning Phase

11.6.3.1 Direct Impacts to Heritage Assets

860. Direct impacts to archaeological and palaeoenvironmental remains during decommissioning are anticipated to be limited, as the majority of intrusive works would have been completed during the construction phase and the area of impact from decommissioning works will be no greater than the area impacted by construction activities.

861. Therefore, this impact has been **scoped out** of further assessment in the EIA.

11.6.3.2 Indirect Impacts to Heritage Assets

862. Indirect impacts to archaeological and palaeoenvironmental remains during decommissioning are anticipated to be limited. Any decommissioning activities resulting in changes to local ground conditions, hydrology, drainage patterns, erosion processes and vibration would be no greater than the changes mitigated for during construction as part of a staged approach to archaeological and palaeoenvironmental evaluation and mitigation prior to construction.

863. Therefore, this impact has been **scoped out** of further assessment in the EIA.

11.6.3.3 Change to the Setting of Heritage Assets

864. Temporary change to the setting of designated and non-designated heritage assets may occur during decommissioning as a result of demolition works, construction plant, machinery, temporary lighting, compounds and increased vehicle movements. The removal of permanent infrastructure may also result in beneficial effects through the restoration of aspects of the historic setting.

865. Therefore, this impact is **scoped in** for further assessment in the EIA.

11.6.4 Bellrock OnTDA Whole Project Assessment

866. The Bellrock OnTDA Whole Project Assessment will follow the general methodology set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessment** and will consider whether interactions between the Bellrock Onshore Transmission Infrastructure and the Bellrock Offshore Transmission Infrastructure and/or the Bellrock Wind Farm Infrastructure have the potential to alter the magnitude of impacts and significance of effects on onshore archaeology and cultural heritage receptors identified in the Bellrock OnTDA-alone assessment. Refer to **Plate 4.3** (**Chapter 4: Approach to Scoping and Environmental Impact Assessment**) for the approach and methodology that will be followed for the Bellrock OnTDA Whole Project Assessment.

867. No pathway-based interactions are anticipated between the Bellrock OnTDA and the Bellrock OfTDA for onshore archaeology and cultural heritage receptors as there is limited potential for terrestrial archaeological and palaeoenvironmental remains to extend beyond the onshore area into the intertidal zone. No pathway-based interactions are anticipated between the Bellrock OnTDA and Bellrock WFDA due to the separation distance between them and the absence of any overlap between the Onshore Transmission Infrastructure and Wind Farm Infrastructure. Interactions between the Bellrock OnTDA, the Bellrock OfTDA and Bellrock WFDA for onshore archaeology and cultural heritage receptors has, therefore, been **scoped out**.

11.6.5 Potential Cumulative Effects

868. The Bellrock OnTDA Cumulative Effects Assessment (CEA) will be undertaken in accordance with the methodology set out in **Section 4.7** of **Chapter 4: Approach to Scoping and Environmental Impact Assessment**. An overview of the Bellrock OnTDA assessment process, including the relationship between the Bellrock OnTDA Whole Project Assessment and the CEA, is provided in **Plate 4.3**.

869. Overall, the CEA is a two-staged process, with the first stage assessing the impacts as a result of the Bellrock OnTDA Whole Project Assessment (**Section 11.6.4**) together with the Hurlie substation. The second stage will then assess the impacts as a result of the Bellrock OnTDA Whole Project Assessment together with the Hurlie substation plus impacts arising from other reasonably foreseeable plans and projects where there is conceptual, spatial, and/or temporal overlap. This will determine the potential for cumulative impacts and subsequent cumulative effects on cultural heritage receptors.

870. The Bellrock Onshore Transmission Infrastructure could interact cumulatively with other plans and projects, which also have the potential for impacts associated with the onshore archaeology and cultural heritage resource. These cumulative impacts are considered primarily as:

- Direct and indirect impacts to the archaeological and palaeoenvironmental resource of the immediate and wider area/region; and
- Change in the setting of designated and/or non-designated heritage assets which could affect their heritage significance.

871. Where these impacts occur because of the Bellrock Onshore Transmission Infrastructure, in combination with other developments in the area with similar associated impacts, there is the

potential for the impacts to be of greater significance than when assessed individually. It is, therefore, proposed that cumulative effects on onshore archaeology and cultural heritage receptors are **scoped in** for further assessment in the EIA.

11.6.6 Potential Transboundary Effects

872. Transboundary effects on onshore archaeology and cultural heritage receptors are not anticipated to arise from the construction, O&M, or decommissioning of the Bellrock Onshore Transmission Infrastructure. Impact pathways are typically localised with impacts confined to the footprint of infrastructure.

873. There is no plausible mechanism for transboundary effects to occur. Transboundary effects are therefore **scoped out** of further assessment in the EIA.

11.6.7 Summary of Potential Onshore Archaeology and Cultural Heritage Impacts Scoped In and Scoped Out

874. A summary of potential impacts scoped in and out from further assessment in the Bellrock OnTDA EIA Report is provided in **Table 11.5** below.

Table 11.5: Summary of Potential Onshore Archaeology and Cultural Heritage Impacts Scoped In (✓) or Scoped Out (X)

Potential Impact	Receptor(s)	Scoped In (✓) or Scoped Out (X)		
		Construction	O&M	Decommissioning
Direct impacts to heritage assets	Designated and non-designated heritage assets and as yet unknown sub-surface archaeological and palaeoenvironmental remains.	✓	X	X
Indirect impacts to heritage assets	Designated and non-designated heritage assets.	✓	X	X
Change to the setting of heritage assets	Designated and non-designated heritage assets.	✓	✓ (relevant to OnSS only)	✓
Bellrock OnTDA Whole Project Assessment*	Designated and non-designated heritage assets.	X	X	X
Cumulative effects	Designated and non-designated heritage assets.	✓	✓	✓
Transboundary effects	Designated and non-designated heritage assets.	X	X	X

Notes:

* see **Section 11.6.4** for further details on the scoping of the Bellrock OnTDA Whole Project Assessment for onshore archaeology and cultural heritage.

11.7 Proposed Approach to Impact Assessment

875. Ongoing consultation with HES and Aberdeenshire Council will be undertaken throughout the EIA process as part of the pre-application consultation process to inform the baseline characterisation, assessment methodology, identification of potential effects and appropriate mitigation measures, as set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessment**.

876. A DBA will be undertaken to establish the baseline for both known and potential heritage assets within the defined study areas based on the desk-based sources listed in **Table 11.3**. Relevant readily available regional and local contextual studies, desk and field studies, historic land-use assessment data, geological and geotechnical data, historic mapping, aerial photographs and LiDAR data will also be reviewed to inform the baseline.

877. In addition to the sources listed, a heritage walkover survey will be undertaken to identify current land use and any potential unrecorded non-designated heritage assets, as well as to confirm the current condition of certain designated and non-designated heritage assets.

878. A setting assessment will be undertaken for those heritage assets identified where there is potential for the Onshore Transmission Infrastructure to lead to a change in their setting and associated significance. The setting assessment will be informed by a ZTV (produced as part of the LVIA) and site visits. Visualisations will be produced for those assets which will experience a change in their setting which has the potential to impact their cultural significance.

879. Where potential effects on SMs are identified, the assessment will take account of relevant HES guidance relating to works affecting SMs. Where works requiring SM Consent are identified, consent would be sought separately from the planning application process and obtained prior to the commencement of any relevant works.

880. The methodology of the assessment will take account of the guidance listed in **Table 11.1** as well as a proportional approach to EIA as outlined in **Chapter 4: Approach to Scoping and Environmental Impact Assessment**.

881. The assessment will be undertaken by suitably qualified and experienced cultural heritage specialists meeting the professional competency requirements of the Chartered Institute for Archaeologists. A Statement of Competency outlining the qualifications and experience of the authors will be included within, or appended to, the EIA Report.

882. Mitigation will be developed through a project-wide framework of overarching mitigation measures that apply across multiple EIA topics. These measures will be presented within the project **Appendix B: Mitigation and Monitoring Register (Volume 1)** and will comprise primary mitigation (embedded mitigation/design measures) and tertiary mitigation. This will include the development of a WSI setting out the approach to archaeological evaluation and mitigation. The WSI will also include procedures for the identification, investigation and management of known and previously unidentified aircraft crash sites and any associated remains encountered during the works, including consultation with relevant stakeholders and implementation of appropriate avoidance, protection or mitigation measures where required.

883. In addition to the evaluation and mitigation techniques, the WSI will also set out an outline strategy for archaeological public outreach and engagement which will be refined and developed as the project progresses in consultation with relevant stakeholders.

11.8 Scoping Questions to Consultees

884. The following questions are posed to consultees to help them frame and focus their response to the onshore archaeology and cultural heritage scoping exercise, which will in turn inform the EIA:

- Do you agree with the characterisation of the existing environment?
- Do you agree with the proposed study areas presented within this **Bellrock OnTDA Scoping Report**?
- Have all the onshore archaeology and cultural heritage impacts resulting from the Bellrock OnTDA been identified in this **Bellrock OnTDA Scoping Report**?
- Do you agree with the onshore archaeology and cultural heritage impacts that have been scoped in/out from further consideration with the Bellrock OnTDA EIA Report?
- Have all relevant data sources been identified in this **Bellrock OnTDA Scoping Report**?
- Do you agree with the proposed approach to assessment in the Bellrock OnTDA EIA Report?
- Do you agree with the nature and scope of the proposed mitigation measures set out in **Table 11.5**?
- We intend to submit an outline version of the WSI with the PPP Application with a detailed WSI secured through a planning condition. Do you agree with this approach?

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Scottish Government (2014) Cultural Heritage Scotland Act 2014. Edinburgh: The Scottish Government.

Scottish Government (2017) Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. Edinburgh: The Scottish Government.

Scottish Government (2023) National Planning Framework 4. Edinburgh: The Scottish Government.

Scottish and Southern Electricity Networks (2024) Hurlie 400KV Substation Environmental Impact Assessment. SAB4889.

12 Traffic and Transport

12.1 Introduction

885. This Chapter of the **Bellrock Onshore Transmission Development Area (OnTDA) Scoping Report** considers the potential impacts on traffic and transport receptors associated with the construction, operation and maintenance (O&M), and decommissioning of the Bellrock Onshore Transmission Infrastructure.

886. The Bellrock OnTDA Scoping Boundary (shown in **Figure 1.1 (Appendix A (Volume 1))**) defines the area within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process (as discussed in **Section 1.4** in **Chapter 1: Introduction**) to form the boundary of the Bellrock OnTDA Planning Permission in Principle (PPP) Application.

887. For the purposes of this **Bellrock OnTDA Scoping Report**, the Bellrock OnTDA Scoping Boundary encompasses the anticipated Onshore Transmission Infrastructure and associated activities for the Bellrock OnTDA landward of Mean Low Water Springs (MLWS). The Bellrock OnTDA Scoping Boundary overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) between Mean High Water Springs (MHWS) and MLWS.

888. The Bellrock Onshore Transmission Infrastructure includes:

- **Landfall**: located at Cowie, Aberdeenshire, where between two and six ducts are installed using trenchless techniques, allowing the offshore export cables to be brought ashore and connected to onshore export cables within the transition joint bay;
- **Onshore export cables**: up to six underground High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) onshore cable circuits, each up to 18 km in length, installed between landfall and the onshore substation;
- **Onshore substation (OnSS)**: electrical equipment (such as converters, transformers, switchgear, and protection and control systems) enabling renewable electricity from the Bellrock Wind Farm Development Area (WFDA) received via the onshore export cables to be exported to the National Electricity Transmission System, and ancillary infrastructure; and
- **Hurlie substation connection works**: Infrastructure between the Bellrock OnSS to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the National Electricity Transmission System.

889. In addition, associated works are required to facilitate construction and O&M of the Onshore Transmission Infrastructure, including: access, signage, haul roads, spoil storage, material storage, fencing, borrow pits (if any), earthworks, welfare, security, landscape mitigation, ecological mitigation, biodiversity enhancement, operational lighting and drainage.

890. As noted in **Chapter 1: Introduction**, the potential impacts of the Bellrock Wind Farm Infrastructure (located within the Bellrock WFDA) were presented in the **Bellrock WFDA Environmental Impact Assessment (EIA) Report**, which was submitted in support of the Section 36 Consent and Marine Licence Application for the Bellrock Wind Farm Infrastructure in April 2026 (Bellrock Offshore Wind Farm Limited, 2026a). The **Bellrock WFDA EIA Report** considered the potential impacts and subsequent effects of the Bellrock Wind Farm Infrastructure on the environment. An EIA Scoping Report for the Bellrock Offshore Transmission Infrastructure was also submitted to Scottish Ministers on 17 August 2026 (Bellrock Offshore Wind Farm Limited, 2026b), with an EIA Report in support of the Marine Licence Application anticipated to be submitted by the end of 2027.

891. This Chapter of the **Bellrock OnTDA Scoping Report** provides an overview of the existing environment and sets out the proposed methodology and approach to assessing effects on traffic and transport receptors within the Bellrock OnTDA EIA Report. This Chapter has been prepared by Haskoning.

892. This Chapter should be read in conjunction with the following chapters of the **Bellrock OnTDA Scoping Report**:

- **Chapter 13: Noise and Vibration;**
- **Chapter 14: Air Quality;**
- **Chapter 15: Socioeconomics, Tourism and Recreation;** and
- **Chapter 18: Human Health.**

893. This Chapter is likely to have key inter-relationships with the above receptors, which will be considered appropriately where relevant in the Bellrock OnTDA EIA Report.

12.2 Legislation, Policy and Guidance

894. **Table 12.1** identifies the legislation, policy and guidance relevant to the traffic and transport assessment, where appropriate. The overarching legislation relevant to the Bellrock Onshore Transmission Infrastructure is described in **Chapter 2: Legislative and Policy Context**.

895. The principal guidelines for the assessment of the environmental impacts of road traffic associated with new developments are the 'Environmental Assessment of Traffic and Movement (EATM)' (IEMA, 2023) published by the Institute of Environmental Management and Assessment ((IEMA) now known as the Institute of Sustainability and Environmental Professionals (ISEP)).

896. The EATM guidance provides a framework for the assessment of traffic borne environmental impacts and would be supplemented by the technical transport guidance outlined in **Table 12.1.**

Table 12.1: Summary of Relevant Legislation, Policy and Guidance Relevant for the Traffic and Transport Assessment

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Legislation	
Roads (Scotland) Act 1984	Provides a comprehensive framework for the management and regulation of roads in Scotland. It outlines the responsibilities and powers of Scottish local authorities and the Secretary of State regarding the maintenance, improvement, and creation of public roads.
New Roads and Street Works Act 1991	Details the correct practice for works on public highways, prioritising safety, efficiency and minimal disruption.
Town and Country Planning (Scotland) Act 1997	Provides a comprehensive framework for regulating and managing development and land use. The key objectives of the Act are to ensure sustainable use of land, promote sustainable economic development, encourage regeneration, and maintain and enhance natural and cultural heritage assets.
Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 ('EIA Regulations')	Schedule 4 states that the description of the likely significant effects should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.
Policy	
Aberdeenshire Council Local Transport Strategy 2012 (Aberdeenshire Council, 2012)	Provides guidance on local transport goals, including improving active and sustainable travel, road safety, and to support freight and rail development as well as other external links.
Nestrans Regional Transport Strategy 2040 (Nestrans, 2021)	Provides the long-term strategy for Aberdeen and Aberdeenshire. The key objectives include improving journey efficiency, road safety, air quality, carbon emissions, accessibility and modal share.
National Planning Framework 4 (NPF4) (Scottish Government, 2023)	Provides overarching guidance upon the structure of transport assessments and travel plans. The following policies are considered relevant to the traffic and transport assessment: ▪ **Policy 13: Sustainable transport** seeks to support sustainable travel opportunities, and requires a transport assessment if the development generates a significant increase in the number of trips; and ▪ **Policy 18: Infrastructure** first seeks to prioritise infrastructure in supporting developments, including roads.
Aberdeenshire Local Development Plan 2023 (Aberdeenshire Council, 2023)	Provides guidance on Aberdeenshire's development goals, including the improvement of active and sustainable transport. The following is considered relevant to traffic and transport: ▪ **RD1: Providing Suitable Services** development should consider road access and that a Transport Assessment may be required.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Guidance	
Manual for Streets (DfT, 2007) Manual for Streets 2 (Chartered Institute of Highways and Transportation (CIHT, 2010)	Guidance to inform the visibility requirements for temporary or permanent junctions where measured speeds are below 37 miles per hour (mph).
Traffic Signs Manual Chapter 8 Traffic Safety Measures and Signs for Road Works and Temporary Situations Part 1: Design (DfT, 2009)	Provides guidance on temporary traffic management that would be used to inform the assessment of driver delay impacts related to temporary traffic management and road closures.
Design Manual for Roads and Bridges (DMRB) CD 123 - Geometric design of at-grade priority and signal - controlled junctions (National Highways, 2021)	Provides the standards for the design of new points of temporary or permanent access where recorded speeds are more than 37 mph.

12.3 Consultation

897. Consultation with Aberdeenshire Council, Transport Scotland and Network Rail has been undertaken, including engagement though Aberdeenshire Council's Pre-application Advice Service. A summary of consultation activities undertaken to date is provided in **Table 12.2.**

898. Further technical consultation will be undertaken with Aberdeenshire Council and Transport Scotland on the proposed methodology for the EIA traffic and transport assessment for the Bellrock Onshore Transmission Infrastructure in advance of the EIA.

Table 12.2: Consultation Relevant to Traffic and Transport

Consultee	Date/Document	Comment	How Comment has been Addressed
Aberdeenshire Council	23 July 2026 Pre-application meeting	The Council noted that their main concerns would likely relate to the suitability of the road network to accommodate Heavy Goods Vehicle (HGV) movements, e.g. pinch points/narrow lanes and damage/condition of the highway, etc.	**Section 12.7.2.4** outlines a suggested approach to the assessment of driver delay at pinch points/along narrow lanes. **Table 12.5** includes details of how highway damage condition will be managed through the development of a Construction Traffic Management Plan (CTMP).
		The Council noted that surveys should be scheduled for neutral traffic periods, however they were unable to provide comment on the scope of the survey locations/extent of the study area without detail of forecast traffic demand.	**Section 12.4.2** outlines the proposed approach to data collection. This section outlines that surveys would be scheduled for neutral periods, with locations agreed with the Council once access routes have been developed further.
		The Council notes that they would require detail on the location of the access routes and forecast traffic demand before they could agree the extent of the traffic and transport study area.	**Section 12.4.1** proposes an initial traffic and transport study area and outlines the proposed approach to refining this in agreement with the Council.
		The Council confirmed that the EIA should consider traffic associated with the Hurlie substation as part of the cumulative assessment rather than part of the baseline.	**Section 12.6.5** outlines the proposed approach to cumulative assessment.
Aberdeenshire Council (Structures)	19 August 2026 Pre-application Advice letter	*'The location of the proposal has been reviewed and a route for abnormal loads should be investigated at the earliest opportunity, potential routes may have bridges which do not have the capacity for the abnormal loads. A site-specific Route Access Report for all abnormal load movements would identify potential issues.'*	**Section 12.7.2.6** outlines the proposed approach to the assessment of abnormal load movements.
Aberdeenshire Council (Roads Development)	19 August 2026 Pre-application Advice letter	*'A Transport Assessment is required for this development, dialogue should be made with Roads Development in conjunction with this.'*	**Section 12.7** outlines the suggested approach to the Impact Assessment, including a commitment to agreeing the scope of any supporting Transport Assessment with Aberdeenshire Council and Transport Scotland, herein collectively referred to as 'the highway authorities'.

Consultee	Date/Document	Comment	How Comment has been Addressed
		'The planning application should ensure it considers the overall impact of the project life cycle and the associated impact on Aberdeenshire Council's public road network.'	**Section 12.6** outlines the impacts that would be assessed, including the approach to the Bellrock OnTDA Whole Project Assessment.
		'Condition Surveys, traffic surveys and route appraisals will be required for all routes associated with the delivery of the project from the boundaries of the trunk road network as appropriate. Video surveys will not be accepted.'	**Table 12.5** includes details of how highway damage condition will be managed through the development of a CTMP. The final scope of condition surveys would be agreed with the highway authorities as part of developing the final CTMP.
		'From a public road perspective, a review will be required of the following (this list is non exhaustive); existing road widths, passing provisions, construction makeup, drainage, visibility, junction radii, road markings, and statutory undertaker's plant. The resulting review may result in requirements for road widening, passing provision, junction radii increases, edge strengthening, drainage solutions, street furniture relocation, and statutory undertaker's plant rerouting or lowering as part of the proposals of the overall development, along with the remedial works to reinstate these elements.'	**Section 12.7.2.4** outlines a suggested approach to the assessment of driver delay at pinch points/along narrow lanes. **Table 12.5** describes the approach to review the access routes and identify the best options. Mitigation measures will be agreed where necessary and detailed in the CTMP.
		'A CTMP will be required, outlining proposed routes, accesses to all sites/site compounds, parking and vehicle types and frequency of movements on the public road network. A cumulative assessment should be undertaken to take account of other large scale infrastructure projects utilising the road network'	**Table 12.5** contains a commitment to the production of a CTMP. **Section 12.6** outlines the impacts that would be assessed, including the approach to cumulative assessment.
Transport Scotland	19 August 2026 Pre-application Advice letter	*'It is noted that the proposed route of the cable will involve crossings of the A90(T) and A92(T), the exact locations to be determined. It should be noted that this section of the A90(T) (Aberdeen Western Peripheral Road) is 'Special Road' which has its own prohibitions and restrictions. The nature of the proposed crossings is unknown at this time but will likely involve trenchless crossings (Horizontal Directional Drilling) or alternative trenchless techniques.'*	**Table 12.5** includes commitments to the use of trenchless techniques for crossing the A90 and A92.

Consultee	Date/Document	Comment	How Comment has been Addressed
		'Again, it is not clear at this stage how the applicant proposes to assess and quantify the potential effects of the proposed development on traffic and transport and/or whether these will include Abnormal Indivisible Loads (AILs).'	**Section 12.7** describes the proposed approach to impact assessment, including AILs.
		'Transport Scotland Requirements Transport Scotland would state that any proposed changes to the trunk road network must be discussed and approved (via a technical approval process) by the appropriate Area Manager. At this pre-application stage, it would be helpful to engage with the Area Manager for the A90(T), who is [contact details redacted], the Area Manager for the A92(T), [contact details redacted]. It should be noted that 1:500 scale plans of any new or modified access from the trunk road should be submitted, to allow the standard of all accesses to be assessed.'	**Table 12.5** describes the approach to review the access routes and identify the best options. Mitigation measures will be agreed where necessary and detailed in the CTMP. **Section 12.7.2.6** details the approach for the assessment and notification of AIL deliveries. **Section 12.7** outlines the suggested approach to the Impact Assessment, including a commitment to agreeing the scope of the Transport Assessment with the highway authorities.
		'At this stage, Transport Scotland would expect that the traffic generated by the construction of the connection would not have an adverse impact on the trunk roads. We would, however, state that any planning application submitted for this proposal will require to be supported by a Transport Statement which confirms this view. This should be undertaken in accordance with Transport Scotland's 'Transport Assessment Guidance' and should include a threshold assessment to determine if the number and composition of vehicle trips generated during the construction of the development will require any further assessment.'	**Section 12.7** outlines the suggested approach to the Impact Assessment, including a commitment to agreeing the scope of the Transport Assessment with the highway authorities.
		'Clarification should also be provided whether there are AIL deliveries required during construction. If so, a full Abnormal Load Route Assessment (ARLA) should be provided that identifies key pinch points on the trunk road network. Swept path analysis should be undertaken and details provided with regard to any required changes to street furniture or structures along the route.'	**Section 12.7.2.6** details the approach for the assessment of AIL deliveries.

Consultee	Date/Document	Comment	How Comment has been Addressed
		'Transport Scotland would expect to be consulted should the proposals come forward as a planning application.'	Following the submission of this **Bellrock OnTDA Scoping Report** the Applicant intends to engage further with the highway authorities upon the scope and scale of the traffic and transport assessment.
Network Rail	19 August 2026 Pre-application Advice letter	*'The proposed location, design and construction of the underground cable link where it would cross underneath the Edinburgh to Aberdeen Line must be carried out in full agreement with Network Rail. The developer should be aware that they will have to secure a wayleave agreement with Network Rail to route the proposed cables under the railway.'*	**Table 12.5** includes commitments to the use of trenchless technology for crossing the Edinburgh to Aberdeen railway line. The detailed design of the crossing would be agreed separately with Network Rail.
		'Traffic Assessment and Abnormal Load Transport Management Plan should be included to assess the effects of construction traffic on existing traffic flows and the public road network. Preferred construction traffic routes should be indicated. This will enable Network Rail to assess the possible impacts where/if the traffic crosses over/under our infrastructure and the suitability of these crossings.'	**Section 12.7** describes the proposed approach to impact assessment, including AILs. This assessment will provide details of the routes to be used by construction, including the numbers and size of vehicles.
		'All construction works must be undertaken in a safe manner which does not disturb the operation of the neighbouring railway. Developers must be aware of any embankments and supporting structures which are in close proximity to their development. Details of all changes in ground levels, laying of foundations and operation of mechanical plant in proximity to the rail line must be submitted to Network Rail's Asset Protection Engineer for approval prior to works commencing on site.'	The Applicant considers health and safety to be the highest priority throughout the entire OnTDA lifecycle. The Applicant will engage with Network Rail's Asset Protection Engineer on this matter prior to commencement of construction.
Aberdeenshire Council	6 October 2026 Email correspondence	***Transport*** *'A Transport Statement is not required if a Transport Assessment is provided.'*	A Transport Assessment will be provided with the EIA Report in support of the PPP Application (see **Section 12.7**).

12.4 Existing Environment

12.4.1 Study Area

899. The initial traffic and transport study area is shown in **Figure 12.1** (**Appendix A (Volume 1)**). The traffic and transport study area has been defined by the potential routes that may be used to access the Bellrock Onshore Transmission Infrastructure and encompasses local roads managed by Aberdeenshire Council as well as the Strategic Road Network managed by Transport Scotland (the 'highway authorities').

900. Further refinement of the traffic and transport study area will be undertaken in liaison with the highway authorities once the footprint of the Bellrock OnTDA has been refined and traffic demand is more defined. **Section 12.7.2** includes details of the approach that would be adopted to refine the traffic and transport study area.

12.4.2 Data and Information Sources

901. **Table 12.3** outlines existing primary data that has been used to inform the characterisation of the baseline environment in relation to the initial traffic and transport study area (outlined in **Section 12.4.1**). These data sources use the most recently available data at the time of drafting.

Table 12.3: Summary of Key Data and Information Sources for Traffic and Transport

Dataset	Temporal Coverage	Baseline Data Coverage[1]
DfT road traffic statistics (Department for Transport, 2019, 2025, 2026)	2019 - 2026	Annual average traffic counts for Links 3, 5 and 12.
Collision Data (Crashmap, 2020)	2020	Data detailing the type and location of all injury collisions will be obtained from the highway authorities for all roads within the refined traffic and transport study area for the latest five-year period available.
Hurlie 400kV Substation EIA Report ATCs (Scottish and Southern Electricity Networks, 2024)	2024	Two-way seven-day average traffic counts for Link 7.
Bowdun Offshore Wind Farm Onshore EIA Report ATCs (Thistle Wind Partners, 2025)	2025	Two-way seven-day average traffic counts for Links 6, 7 and 11.
Bus operator's websites: Stagecoach	2026	Details of bus routes for all roads within the traffic and transport study area.
Online mapping, e.g. Google Maps, Bing Maps, etc	2026	Online mapping for all roads, rail and core path links within the refined traffic and transport study area.
Sustrans (Walk Wheel Cycle Trust, 2026)	2026	Details of national cycle routes within the traffic and transport study area.

Dataset	Temporal Coverage	Baseline Data Coverage[1]
Train operator's websites e.g. ScotRail, London North Eastern Railway, Caledonian Sleeper	2026	Details of all train services within the traffic and transport study area.
Notes: [1] 'Links' are sections of road with similar characteristics and traffic flows which are considered to form part of the access routes for routing construction traffic to the Bellrock OnTDA. The links identified to date are shown in **Figure 12.1** (**Appendix A (Volume 1)**) and described in **Section 12.4.3.1** below.		

902. In addition to the data sources in **Table 12.3**, **Table 12.4** describes the types of data and surveys that will be collated to support the assessment (once the delivery routes have been identified). Survey methodologies and locations will be agreed in advance with the highway authorities.

Table 12.4: Site Specific Surveys Relevant to Traffic and Transport

Data Set	Spatial Coverage	Description of Surveys
Baseline Daily and Hourly Traffic Flow Data	Key relevant road links within the traffic and transport study area where existing baseline data (**Table 12.3**) is not available.	The surveys will capture details of daily and hourly traffic flows (including vehicle composition) for a period of at least seven days. The surveys will also record vehicle speeds.
Turning Count Data	Selected sensitive junctions within the traffic and transport study area.	The surveys will capture vehicle turning counts (including composition) for peak hours. Once delivery routes and likely hourly flows have been established, the locations would be agreed with the highway authorities.

903. Consideration would also be given at EIA stage to whether seasonal factors are relevant to the assessment of specific impacts. The scope and approach to any such consideration, including the need for seasonal surveys will be agreed with the highway authorities following scoping.

12.4.3 Baseline Conditions

12.4.3.1 Road Network

904. This section provides a description of the links forming the initial traffic and transport study area, depicted in **Figure 12.1** (**Appendix A (Volume 1)**). Access locations and associated access routes (links) will be refined further in liaison with the highway authorities following the refinement of the Bellrock OnTDA Scoping Boundary.

905. Links 3, 5 and 12 provide the main roads connecting the traffic and transport study area to the wider highway network, consisting of the A90 and A92. This forms part of the Strategic Road Network managed by Transport Scotland and provides the main links between Aberdeen and

Fraserburgh to the north, and Perth to the south, providing connections to Edinburgh and England via the M90.

906. Within the traffic and transport study area, the A90/A92 comprises of a dual carriageway. This section of the A90 carries in the region of 25,700 vehicles per day, of which approximately 2,470 are HGVs (DfT, 2025). The A92 carries in the region of 5,000 vehicles per day, of which approximately 185 are HGVs (DfT, 2025).

907. Link 1 consists of a short section of the B979 south of the A92 which links to an unnamed road through Cowie and under the main Dundee to Aberdeen railway line before linking up to the A92. This unnamed road allows for two-way traffic (expect for a short one-way section to the east where the road effectively forms the off-slip road from the A92) and would be a key route to the preferred landfall Area of Search.

908. Link 2 is a narrow unnamed road to the east of the B979/A90 roundabout. This link could facilitate access to the onshore export cable corridor between the A92 and A90.

909. Link 4 primarily comprises the B979 which provides a route from Stonehaven to Stony Hill to the north. The road carries an average of 3,865 vehicles per day, of which approximately 405 are HGVs (DfT, 2019) and allows for two-way traffic. The B979 could facilitate access to the onshore export cable corridor between the A90 and A957.

910. Link 6 connects the A957 Slug Road to Auchenblae Road via Farrochie Road to avoid a low railway bridge in Stonehaven. This road allows for two-way traffic and is located in a residential area. The road carries an average of 3,573 vehicles per day, of which 27 are HGVs (Thistle Wind Partners, 2025).

911. Link 7 is the A957 Slug Road, which allows for two-way traffic and provides a route to the A93 in the north and A92 (via Link 6) to the south. The road carries an average of 2,292 vehicles, of which 22 are HGVs, in the vicinity of the A90. Flows then decrease to 1,222 vehicles east of Rickarton, of which 20 are HGVs (Thistle Wind Partners, 2025). Access to the onshore export cable corridor to the east and west could be facilitated from this link.

912. Links 8 and 9 are unnamed roads that connect from the A90 at Stonehaven to the Fetteresso Forest. These links include passing places and were recently widened to allow for the movements of abnormal loads (comprising of transformers for the Fetteresso substation). It is understood from Aberdeenshire Council that this widening is temporary and will be removed. These links could allow access to access the Bellrock OnSS as well as the onshore export cable corridor between the A90 and Fetteresso Forest.

913. Link 10 is a narrow unnamed road that heads west from the junction with Link 8 and 9 and would form a possible route to access the onshore export cable corridor between the A90 and Fetteresso Forest.

914. Link 11 also extends to the west of Stonehaven. This road is generally wider than many of the other unnamed roads in the area at approximately 5.5 m wide. The road carries an average of 3,501 vehicles, of which 27 are HGVs, at the junction with the A90, which decreases to 435 vehicles, of which four are HGVS, to the north of Carmont (Thistle Wind Partners, 2025).

915. The Nestrans Regional Transport Strategy 2040, the long-term strategy for Aberdeenshire identifies several junctions that require upgrades and sections of the A90 and A92 that require dualling between Aberdeen and Perth. The importance of improving road safety is also included on the A92 between Stonehaven and Montrose (Nestrans, 2021).

12.4.3.2 Walking and Cycling

916. Within Stonehaven and the surrounding area, there is a network of walking routes and several Core Paths, several of which intersect the traffic and transport study area. Walking and cycling routes are also present in Fetteresso Forest for recreational use. In addition, National Cycle Route 1 runs north to south through Stonehaven. Due to the rural nature of the rest of the traffic and transport study area, few formal walking and cycling routes are present.

917. Further evaluation of the baseline walking and cycling routes would be undertaken once the final location of the Bellrock OnTDA (and associated access locations) are finalised.

12.4.3.3 Rail and Sea

918. The Dundee to Aberdeen Railway Line runs through the traffic and transport study area, connecting Stonehaven to the north and south.

919. Freight trains run to Aberdeen from Grangemouth and Mossend via the aforementioned line, providing rail freight connections between Aberdeen and destinations further down south. Aberdeen is also served by a commercial port that handles freight traffic.

12.5 Potential Impacts

920. The EATM provides the basis for consistent and comprehensive coverage of the traffic and movement impacts for a wide range of projects. These guidelines have been applied when determining potential impacts for the construction, operation and decommissioning stages.

921. Potential impacts could include:

- Pedestrian severance and delay, amenity and fear and intimidation;
- Road safety (including hazardous loads);
- Driver delay (capacity, highway constraints and road closures); and
- Abnormal loads.

12.5.1 Embedded Mitigation Measures

922. Embedded mitigation has been identified, as presented in **Table 12.5** and **Appendix B: (Volume 1)**, in accordance with the mitigation hierarchy, with the aim of avoiding, preventing, reducing, and, where possible, offsetting potential adverse environmental effects. Consistent with the IEMA, now known as ISEP guidance (2024), primary (inherent design measures) and tertiary (standard good practice) mitigation are embedded within the project design and are, therefore,

considered in the assessment of effects. Secondary mitigation measures will be identified where required through the EIA process, informed by the outcomes of the initial impact assessment.

923. The current embedded mitigation measures may be refined as the project design evolves. In addition, further embedded mitigation measures may be developed as part of the iterative design process during the EIA process.

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Table 12.5: Embedded Mitigation Measures Relevant to Traffic and Transport

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	X	X	Development of and adherence to a CTMP.	The CTMP will set out measures to manage construction traffic movements, access arrangements, abnormal load deliveries, routing agreements and road safety measures. This will include for highway condition surveys to be undertaken before and after the construction period, to identify whether construction activities have negatively impacted highway conditions, and the timing and general arrangements for undertaking repair. Repair of any damage caused by the Bellrock OnTDA construction traffic would reduce the potential for traffic-induced vibration effects.	Tertiary
✓	✓	X	Selection of access routes to make best use of the existing highway network.	Accesses and access routes to the Bellock OnTDA will be selected to make best use of the existing highway network and to avoid, where practicable, narrow lanes, weak/low bridges and sensitive receptors. To facilitate this strategy, temporary haul roads will be provided to allow construction traffic to travel along the onshore export cable corridor. Where features cannot be avoided, mitigation measures will be agreed with the relevant highway authority and detailed within the CTMP. This will minimise impact upon other road users from construction traffic.	Tertiary

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	X	X	Where obstacles such as watercourses cannot be crossed by a trench, trenchless techniques (e.g. Horizontal Directional Drilling) will be used for onshore export cable installation.	Trenchless techniques will be used to install the onshore export cables under key road and rail routes (e.g. the A92, A90 and the Edinburgh to Aberdeen railway), to ensure they remain open. Where trenchless technology is not proposed to be used, the timing of any lane/road closures and traffic management required to opencut across the road to install the onshore export cables will be agreed separately with the relevant highway authority through the development of the CTMP.	Tertiary
✓	✓	X	Site selection was informed by the Bellrock OnTDA Design Principles and included consideration of sensitive receptors.	The Bellrock OnTDA has been developed in accordance with a set of Design Principles that have informed the site selection process, refinement of the project design envelope and development of embedded mitigation measures. To minimise noise and vibration effects, the Design Principles include a commitment to maximise the distance from the Bellrock Onshore Transmission Infrastructure to sensitive receptors such as residential dwellings where possible.	Primary

12.6 Scoping of Potential Impacts

12.6.1 Construction Phase

924. The construction stage would result in a requirement for the import/export of materials and plant as well as construction employees. However, at this stage, no information is available for construction traffic demand or intermodal delivery strategies. In order to consider a realistic worst-case, it would be assumed that the majority of construction traffic would be by road, albeit, potentially originating from port/railheads at Aberdeen to the north (identified in **Section 12.4.3.3**).

925. The following sections set out the potential construction traffic impacts and the likely user groups that would be affected. These impacts are all **scoped in** to the EIA.

12.6.1.1 Pedestrian Severance and Delay, Amenity, and Fear and Intimidation

926. Increases in construction traffic impacts non-motorised users of the public highway, including users of the core path network, national cycle routes and local cycling networks. This affects pedestrians, cyclists and equestrians.

12.6.1.2 Road Safety (Including Hazardous Loads)

927. Existing sites with a record of collisions can be affected by an increase in construction traffic. Additionally, the introduction of new risks associated with the formation of new or alterations to existing accesses can impact road safety. This affects all road users.

12.6.1.3 Driver Delay (Capacity, Highway Constraints and Road Closures)

928. An increase in traffic can increase driver delay, by impacting:

- Capacity, by increasing delays at junctions;
- Highway constraints, by construction traffic using narrow roads resulting in increased delays; and
- Road closures, by temporary closures of road/lane closures leading to delays due to diversions.

929. These potential impacts affect all drivers and passengers in vehicles.

12.6.1.4 Abnormal Loads

930. An increase in large vehicle movements can lead to delays to traffic and also impact on the safety of the routes. This would affect all road users.

12.6.2 Operation and Maintenance Phase

931. It is expected that the Bellrock OnSS would not be permanently manned, and staff would periodically visit to carry out routine checks, maintenance and repairs. Most annual maintenance would be short but, if necessary, some activities have the potential to be longer.

932. Any inspections and maintenance of the onshore export cables would be infrequent and subject to very low vehicle demand.

933. Considering the activities above, no significant traffic and transport impacts are anticipated during the operational stage, and it is, therefore, proposed that this stage would be **scoped out** of the EIA.

12.6.3 Decommissioning Phase

934. At the end of operational life, the Bellrock Onshore Transmission Infrastructure will be decommissioned. The final decommissioning approach will be determined through the preparation of a Decommissioning, Restoration and Aftercare Strategy, and will consider relevant legislation, guidance, and industry best practice. However, decommissioning activities are anticipated to result in impact pathways that are similar to, or no greater than, those associated with construction activities. Therefore, the impacts **scoped in** and **scoped out** for the construction phase are also considered applicable to the decommissioning phase.

12.6.4 Bellrock OnTDA Whole Project Assessment

935. The Bellrock OnTDA Whole Project Assessment will follow the general methodology set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessment** and will consider whether interactions between the Bellrock Onshore Transmission Infrastructure and the Bellrock Offshore Transmission Infrastructure and/or the Bellrock Wind Farm Infrastructure have the potential to alter the magnitude of impacts and significance of effects on traffic and transport receptors identified in the Bellrock OnTDA-alone assessment. Refer to **Plate 4.3 (Chapter 4: Approach to Scoping and Environmental Impact Assessment**) for the approach and methodology that will be followed for the Bellrock OnTDA Whole Project Assessment.

936. As outlined in **Section 4.6** of **Chapter 4: Approach to Scoping and Environmental Impact Assessment**, the scope of the Bellrock Project does not include consideration of port activities related to the construction and operation of the Bellrock Wind Farm Infrastructure and the Bellrock Offshore Transmission Infrastructure (e.g. offshore substation assembly). These will be subject to separate consenting process(es) where required. Where such activities require separate planning permission or Marine Licence(s), they will be accompanied by any environmental assessment or appraisal required under the relevant legislation. Accordingly, traffic associated with these activities will be considered within the Cumulative Effects Assessment (CEA) (see **Section 12.6.5**).

937. With traffic associated with port activities included within the CEA, interactions between the Bellrock Onshore Transmission Infrastructure and the Offshore Transmission Infrastructure and/or Wind Farm Infrastructure do not have the potential to alter the potential effects identified in **Section 13.6.1** and **13.6.2**. Therefore, the Bellrock OnTDA Whole Project Assessment is **scoped out** from further consideration in the EIA.

12.6.5 Potential Cumulative Effects

938. The Bellrock OnTDA CEA will be undertaken in accordance with the methodology set out in **Section 4.7** of **Chapter 4: Approach to Scoping and Environmental Impact Assessment**. An

overview of the Bellrock OnTDA assessment process, including the relationship between the Bellrock OnTDA Whole Project Assessment and the CEA, is provided in **Plate 4.3**.

939. Overall, the CEA is a two-staged process, with the first stage assessing the impacts as a result of the Bellrock OnTDA Whole Project Assessment (**Section 12.6.4**) together with the Hurlie substation. The second stage will then assess the impacts as a result of the Bellrock OnTDA Whole Project Assessment together with the Hurlie substation plus impacts arising from other reasonably foreseeable plans and projects where there is conceptual, spatial, and/or temporal overlap. This will determine the potential for cumulative impacts and subsequent cumulative effects on traffic and transport receptors.

940. Any other project with the potential to result in impacts that may act cumulatively with the Bellrock Onshore Transmission Infrastructure would be identified in consultation with the highway authorities. This exercise would seek to identify any significant developments that could have a cumulative impact with the construction stage, e.g. major road improvement schemes, etc.

941. The assessment would consider the potential for significant cumulative impacts to arise because of the construction of the Bellrock Onshore Transmission Infrastructure in the context of other developments that are existing, consented or at the application stage. It is, therefore, proposed that cumulative effects are **scoped in** to the EIA for construction and decommissioning impacts but **scoped out** during O&M.

12.6.6 Potential Transboundary Effects

942. Transboundary effects on traffic and transport receptors are not anticipated to arise from the construction, O&M, or decommissioning of the Bellrock Onshore Transmission Infrastructure. Impact pathways are typically localised with impacts confined to the extent of the traffic and transport study area.

943. There is no plausible mechanism for transboundary effects to occur. Transboundary effects are, therefore, **scoped out** of further assessment in the EIA.

12.6.7 Summary of Potential Traffic and Transport Impacts Scoped In and Scoped Out

944. **Table 12.6** summarises the outcomes of the scoping assessment presented in **Section 12.6.1** to **Section 12.6.6**, identifying the relevant impacts for traffic and transport and confirming whether these have been scoped in or scoped out of further assessment in the EIA.

945. The scope of the traffic and transport assessment would remain under review as the design of the Bellrock Onshore Transmission Infrastructure evolves.

Table 12.6: Summary of Potential Traffic and Transport Impacts Scoped In (✓) or Scoped Out (X)

Potential Impact	Scoped In (✓) or Scoped Out (X)		
	Construction	O&M	Decommissioning
Pedestrian severance and delay	✓	X	✓
Amenity	✓	X	✓
Fear and intimidation	✓	X	✓
Road safety (including consideration of hazardous loads)	✓	X	✓
Driver delay (capacity, highway constraints and road closures)	✓	X	✓
Abnormal loads	✓	X	✓
Bellrock OnTDA Whole Project Assessment*	X	X	X
Cumulative effects	✓	X	✓
Transboundary effects	X	X	X
Notes: * see **Section 12.6.4** for further details on the scoping of the Bellrock OnTDA Whole Project Assessment for Traffic and Transport.			

12.7 Proposed Approach to Impact Assessment

946. The following section outlines the proposed approach to the EIA for traffic and transport. The EIA would also be supported by a separate technical report (Transport Assessment), that would providing the technical inputs informing the EIA. The final scope of Transport Assessment will be discussed and agreed with the highway authorities.

12.7.1 Impact Assessment Thresholds

947. EATM suggests application of the following rules to define the extent and scale of the assessment required:

- **Rule 1:** Include highway links where traffic flows would increase by more than 30% (or where the number of HGVs would increase by more than 30%); and
- **Rule 2:** Include highway links of high sensitivity where traffic flows have increased by 10% or more.

948. In justifying these rules EATM examines the science of traffic forecasting and states: *"Traffic forecasting is not an exact science, and the accuracy of projections is open to debate. It is generally accepted that accuracies greater than 10% are not achievable. It should also be noted that the day-to-day variation of traffic on a road is frequently at least + or -10%. At a basic level, it should therefore be assumed that projected changes in traffic of less than 10% create no discernible environmental impact."* (IEMA, 2023).

949. Therefore, changes in traffic flows below the EATM Rules (thresholds) are assumed to result in no discernible or negligible environmental effects and, therefore, would not be assessed further as part of the assessment.

950. EATM however notes that the Rule 1 and Rule 2 'criteria' may not be appropriate for some impacts, and it is generally accepted by regulators and practitioners that it should not be applied to assessments of road safety and driver delay. These impacts can be potentially significant for lower changes in traffic flow when high baseline traffic flows are evident. Full details of the methodology adopted for these impacts are set out later in this section.

951. Following initial screening, EATM, sets out considerations and, in some cases, thresholds in respect of changes in the volume and composition of traffic to facilitate a subjective judgement of traffic effect and significance.

952. While the assessment methodology is based on neutral traffic conditions in accordance with established industry guidance, it is acknowledged that certain receptors and highway links within the study area experience variations in traffic demand at different times of the year. The relevance of seasonal variation to the assessment of specific impacts would be reviewed at EIA stage, where necessary, to ensure a proportionate and robust assessment.

953. The sensitivity of a road can be defined by the type of user groups who may use it. EATM identifies that it is necessary to identify particular groups ('receptors') and associated locations, which may be sensitive to changes in traffic and transport conditions and provides a checklist of sensitive locations and groups. However, the list is not exhaustive and may be supplemented where considered appropriate by the assessor. Applying the EATM principles, **Table 12.7** provides broad definitions of the different sensitivity levels that would be adopted for the assessment.

Table 12.7: Example Definitions of the Different Sensitivity Levels

Sensitivity	Pedestrian Severance and Delay, Amenity and Fear and Intimidation	Road Safety	Driver Delay (Capacity)	Driver Delay (Highway Constraints)	Driver Delay (Road Closures)
High	High concentrations of sensitive receptors (e.g. hospitals, schools, residential areas with high footfall) and limited separation provided by the highway environment; or a low concentration of sensitive receptors and no separation from traffic provided by the highway environment.	Links with collision rates above national averages and/or collisions clusters with emerging patterns of collisions.	Junctions operating at or over capacity.	Roads less than 5.5 m wide with no passing places provided.	Informed by judgement upon levels of existing traffic (including scheduled bus services) and availability of alternative diversion routes.

Sensitivity	Pedestrian Severance and Delay, Amenity and Fear and Intimidation	Road Safety	Driver Delay (Capacity)	Driver Delay (Highway Constraints)	Driver Delay (Road Closures)
Medium	A low concentration of sensitive receptors (e.g. residential dwellings, pedestrian desire lines, etc.) and some separation from traffic provided by the highway environment.	Links with collision rates close to national averages and/or collision clusters.	Junctions or links operating close to capacity.	Roads less than 5.5 m wide but with passing places provided.	
Low	Few sensitive receptors.	Links with collision rates lower than national averages and/or no collision clusters.	Junctions or links with spare capacity.	Roads in excess of 5.5 m in width.	
Negligible	Links that fall below EATM Rule 1 and 2 screening thresholds and major 'A' roads or motorways with no pedestrian, cycle or equestrian environment; or a highway environment that can accommodate substantial changes in volumes of traffic.				

12.7.2 Impact Assessment Process

954. The construction phase would result in a requirement for the import/export of materials, electrical equipment and plant. However, at this stage, no information is available for construction traffic demand. To derive this demand a 'first principles' approach would be adopted to calculate the likely traffic demand.

955. The assumptions that would underpin the calculation of traffic demand would be developed with input from the Applicant's engineering team and augmented with experience gained through the construction of previous projects of a similar nature and scale. **Table 12.8** details the assessment parameters and the methodology to be used for construction traffic derivation.

Table 12.8: Construction Traffic Demand and Distribution

Parameter	Methodology
HGV demand	Informed by forecast of likely material quantities aligned to a construction programme.
Employee demand	Informed by a review of likely resourcing requirements.
HGV distribution	Informed by a review of potential local supply chain, ports, quarries etc.
Construction employee distribution	Informed by socioeconomics data for the availability of local labour and rented accommodation for non-local labour.

956. The Bellrock Onshore Transmission Infrastructure's traffic demand would be assigned to the highway links within the traffic and transport study area and the increase in traffic flow to baseline conditions determined. This would facilitate refinement of the traffic and transport study area and an assessment of the magnitude of effect by applying the approach and thresholds described below and summarised in **Table 12.9** to inform a detailed evaluation of potential effects.

12.7.2.1 Pedestrian Severance and Delay, Amenity and Fear and Intimidation

957. It is proposed to follow the methodology as prescribed within the EATM (summarised in **Table 12.9**) utilising baseline traffic flows (as described in **Section 12.4.2**) to determine the magnitude of effect when applying the Bellrock Onshore Transmission Infrastructure's forecast traffic demand.

12.7.2.2 Road Safety

958. It is proposed to collect the latest full five years of collision data for all links within the study area. The collision data would be reviewed to establish areas with collision rates higher than national averages and/or concentration of collisions with similar patterns (termed collision clusters).

959. EATM notes that some developments may involve the transportation of dangerous or hazardous loads by road and that any traffic and movement assessment should clearly outline the estimated number and composition of such loads. Where the number of movements is considered to be significant, the assessment should include a risk or catastrophe analysis to illustrate the potential for an accident to occur and the likely effect of such an event.

960. It is not envisaged that there would be a significant number of movements of hazardous loads and that such loads would likely comprise of fuel deliveries for plant during the construction stage. EATM notes that the extent of the risk analysis should reflect the nature of the product being distributed, noting that for instance, much more detail would be required for a scheme that involved e.g. the transportation of nuclear products than for one that involved the delivery of petroleum.

961. To present a proportionate assessment, it is proposed that rather than undertaking a discrete assessment of hazardous loads, the road safety assessment would include detailed analysis of the types of vehicles historically involved in collisions to understand if there are areas where vehicles transporting hazardous loads may be at greater risk, i.e. where there is a pattern of collisions involving HGVs.

12.7.2.3 Driver Delay (Capacity)

962. It is proposed that details of AM and PM construction and operational flows would be provided to the highway authorities. These flows would aid further discussions with the highway authorities to identify the likely impacts to network peak hours and the potential junctions requiring further assessment within the study area.

963. It is proposed that all junctions with a predicted rise of 30 two-way peak hour movements per arm would be highlighted as a starting point for further discussions with the highway authorities regarding the need for detailed capacity assessments within the EIA.

12.7.2.4 Driver Delay (Highway Constraints)

964. A review of local highway routes would be undertaken and discussed with Aberdeenshire Council to establish highway geometry constraints (pinch points). To inform a judgement regarding the

magnitude of effect, the assessment would consider the existing highway constraints (e.g. road width and availability of passing places) as well as the levels of baseline and proposed traffic. Potential mitigation measures could include passing places, junction widening, escorting vehicles and banksmen/traffic marshals.

12.7.2.5 Driver Delay (Road Closures)

965. Highway constraints could include delays caused by road works where the onshore export cables cross the public highway. These crossings may require open cut methodology which would involve using traffic signals (single lane closure) or diversion routes (road closures). A review of the volume and type of road users would be examined to determine a sensitivity value. To inform a judgement regarding the magnitude of impact, the assessment would consider the required length and duration of a detour that may be needed to divert, or additional delay to vehicles waiting at traffic signals.

12.7.2.6 Abnormal Loads

966. Abnormal load is a generic term that covers a broad range of vehicles, ranging from limited load projections permitted for standard vehicles to Special Order Vehicles designed specifically for the purpose of moving loads well in excess of standard vehicle parameters.

967. The transformers for the Bellrock OnSS would require Special Order AILs. In addition, there may also be a requirement for non-Special Order abnormal loads associated with large items of plant, cable drums, etc. An assessment of abnormal loads has been undertaken for the Hurlie and Bowdun planning applications (Ref. APP/2024/1951 and APP/2025/1952 respectively). The validity of this assessment and the proposed mitigation for the Bellrock Onshore Transmission Infrastructure will be discussed with Aberdeenshire Council and Transport Scotland to understand if a separate assessment is required, and if so, agree the scope of the AIL study.

968. To ensure that potential impacts associated with the transportation of all AILs are managed and coordinated, a commitment would be made in an CTMP to be submitted alongside the EIA Report that, prior to the movement of any abnormal loads, the contractor would be required to submit notifications to the relevant authorities (police, highway authorities and bridge/structure owners) through the Electronic Service Delivery for Abnormal Loads. The Electronic Service Delivery for Abnormal Loads process would detail which proposed routes would be used and ensure the timings would be co-ordinated to ensure potential impacts would not be significant.

12.7.3 Impact Assessment Summary

969. **Table 12.9** provides a summary of the magnitude of effect thresholds (described above) for all impacts. The magnitude of impact (**Table 12.9)** would then be combined with the receptor sensitivity (**Table 12.7**) to determine the overall effect significance of the Bellrock Onshore Transmission Infrastructure's traffic in accordance with the assessment matrix (**Section 4.9** of **Chapter 4: Approach to Scoping and Environmental Impact Assessment**).

Table 12.9: Magnitude of Impact Thresholds

Impact	Magnitude of Impact			
	Negligible	**Low**	**Medium**	**High**
Pedestrian Severance and Delay	Change in total daily traffic flow of less than 30%.	Change in total daily traffic flow of 30 to 60%.	Change in total daily traffic flow of 60 to 90%.	Change in total daily traffic flows of over 90%.
Amenity	Change in daily traffic flow (or HGV component less than 100%).		Greater than 100% increase in daily traffic (or HGV component) and a review based upon the quantum of vehicles, vehicle speed and pedestrian footfall.	
Fear and Intimidation	No change in step changes between levels of fear and intimidation.	One step change in level of fear and intimidation, with ▪ <400 vehicle increase in average 18 hr two-way* all vehicle flows; and/or ▪ <500 HGV increases in total 18 hr HGV flow.	One step change in level of fear and intimidation, with ▪ >400 vehicle increase in average 18 hr two-way all vehicle flows; and/or ▪ >500 HGV increases in total 18 hr HGV flows.	Two or more step changes in levels of fear and intimidation.
Road Safety	Informed by a review of existing collision records from within the traffic and transport study area and the forecast increase in traffic.			
Driver Delay (Capacity)	Junctions where peak hour flows <30 two-way movements per arm.	Informed by modelling of the potential increase in peak hour traffic through sensitive junctions.		
Driver Delay (Road Closures)	No full road closure required, or delays of less than two minutes.	Delays of two to ten minutes.	Delays over ten minutes and a review based upon the quantum of vehicles and scheduled buses.	
Driver Delay (Highway Constraints)	Informed by a review of the potential increase in peak hour traffic through links and pinch-points on the local highway network.			
Abnormal Loads	Informed by an assessment of the suitability of the access routes to accommodate abnormal loads.			
Notes: * A two-way vehicle flow is one that involves a vehicle both arriving to and departing from a construction site.				

12.8 Scoping Questions to Consultees

970. The following questions are posed to consultees to help them frame and focus their response to the traffic and transport scoping exercise which would in turn inform the EIA:

- Do you agree with the proposed traffic and transport study area and that it is sufficient to capture the relevant impacts?
- Do you agree with the initial characterisation of the baseline environment?
- Have all the relevant data sources been identified in this **Bellrock OnTDA Scoping Report**?
- In the event that long-term road closures affect the ability to collect baseline traffic data through Automated Traffic Counts on the relevant links, is there an alternative data source that the Council would recommend using to inform the baseline, with engagement also being undertaken with the relevant Highway Authority at that time to agree an appropriate approach to data collection and assessment?
- Have all the potential impacts on traffic and transport resulting from the Bellrock Onshore Transmission Infrastructure been identified in this **Bellrock OnTDA Scoping Report**?
- Do you agree with the impacts that have been scoped in (or scoped out) for further assessment?
- Do you agree with the proposed approach to assessment?

12.9 References

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13 Noise and Vibration

13.1 Introduction

971. This Chapter of the **Bellrock Onshore Transmission Development Area (OnTDA) Scoping Report** considers the potential impacts on noise and vibration receptors associated with the construction, operation and maintenance (O&M), and decommissioning of the Bellrock Onshore Transmission Infrastructure.

972. The Bellrock OnTDA Scoping Boundary (shown in **Figure 1.1 (Appendix A (Volume 1))**) defines the area within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection (as discussed in **Section 1.4** in **Chapter 1: Introduction** to form the boundary of the Bellrock OnTDA Planning Permission in Principle (PPP) Application.

973. For the purposes of this **Bellrock OnTDA Scoping Report**, the Bellrock OnTDA Scoping Boundary encompasses the anticipated Onshore Transmission Infrastructure and associated activities for the Bellrock OnTDA landward of Mean Low Water Springs (MLWS). The Bellrock OnTDA Scoping Boundary overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) between Mean High Water Springs (MHWS) and MLWS.

974. The Bellrock Onshore Transmission Infrastructure includes:

- **Landfall**: located at Cowie, Aberdeenshire, where between two and six ducts are installed using trenchless techniques, allowing the offshore export cables to be brought ashore and connected to onshore export cables within the transition joint bay;
- **Onshore export cables**: up to six underground High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) onshore cable circuits, each up to 18 km in length, installed between landfall and the onshore substation;
- **Onshore substation (OnSS)**: electrical equipment (such as converters, transformers, switchgear, and protection and control systems) enabling renewable electricity from the Bellrock Wind Farm Development Area (WFDA) received via the onshore export cables to be exported to the National Electricity Transmission System, and ancillary infrastructure; and
- **Hurlie substation connection works**: Infrastructure between the Bellrock OnSS to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the National Electricity Transmission System.

975. In addition, associated works are required to facilitate construction and O&M of the Onshore Transmission Infrastructure, including: access, signage, haul roads, spoil storage, material storage, fencing, borrow pits (if any), earthworks, welfare, security, landscape mitigation, ecological mitigation, biodiversity enhancement, operational lighting and drainage.

976. As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Wind Farm Infrastructure (located within the Bellrock WFDA) was presented in the **Bellrock WFDA Environmental Impact Assessment (EIA) Report**, which was submitted in support of the Section 36 Consent and Marine Licence Application for the Bellrock Wind Farm Infrastructure in April 2026 (Bellrock Offshore Wind Farm Limited, 2026a). The **Bellrock WFDA EIA Report** considered the potential impacts and subsequent effects of the Bellrock Wind Farm Infrastructure on the environment. An EIA Scoping Report for the Bellrock Offshore Transmission Infrastructure was also submitted to Scottish Ministers on 17 August 2026 (Bellrock Offshore Wind Farm Limited, 2026b), with an EIA Report in support of the Marine Licence Application proposed to be submitted by the end of 2027.

977. This Chapter of the **Bellrock OnTDA Scoping Report** provides an overview of the existing environment and sets out the proposed methodology and approach to assessing effects on noise and vibration receptors within the Bellrock OnTDA EIA Report. This Chapter has been prepared by Haskoning.

978. This Chapter should be read in conjunction with the following chapters of the **Bellrock OnTDA Scoping Report**:

- **Chapter 11: Onshore Archaeology and Cultural Heritage;**
- **Chapter 12: Traffic and Transport;**
- **Chapter 14: Air Quality;**
- **Chapter 15: Socioeconomics, Tourism and Recreation;** and
- **Chapter 18: Human Health.**

979. This Chapter is likely to have key inter-relationships with the above receptors, which will be considered appropriately where relevant in the Bellrock OnTDA EIA Report.

13.2 Legislation, Policy and Guidance

980. **Table 13.1** sets out the legislation, policy and guidance relevant to the noise and vibration assessment, where appropriate. The overarching legislation relevant to the Bellrock Onshore Transmission Infrastructure is described in **Chapter 2: Legislative and Policy Context**.

Table 13.1: Summary of Relevant Legislation, Policy and Guidance for the Noise and Vibration Assessment

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Legislation	
The Control of Pollution Act 1974	Sections 60 and 61 provide local authorities with powers to agree and enforce noise emission limits applied to construction sites.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Environmental Protection Act 1990	This Act defines 'statutory nuisance' and 'Best Practicable Means' which are relevant to determining potential noise impacts and control measures.
Town and Country Planning (Scotland) Act 1997	The legislation provides a comprehensive framework for regulating and managing development and land use. The key objectives of the Act are to ensure sustainable use of land, promote sustainable economic development, encourage regeneration, and maintain and enhance natural and cultural heritage assets.
The Environmental Noise (Scotland) Regulations 2006	Provides a framework for the assessment and management of road, rail and aviation noise, and noise within large urban areas, through strategic noise mapping and action planning, which may inform the baseline noise environment.
Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 ('EIA Regulations')	Schedule 4 of the EIA Regulations states that the description of the likely significant effects should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of a development.
Policy	
Planning Advice Note (PAN) 1/2011: Planning and Noise Technical Advice Note (TAN): Assessment of Noise (2011) (Scottish Government, 2011)	Published in March 2011, PAN 1/2011: Planning and noise provides advice on the role of the planning system in helping to prevent and limit adverse effects of noise. Information and advice on noise assessment methods are provided in the accompanying TAN: Assessment of Noise. Included within the PAN document and the accompanying TAN are details of the legislation, technical standards, and codes of practice for specific noise issues. Neither PAN 1/2011 nor the associated TAN provides specific guidance on the assessment of noise from fixed equipment, but the TAN includes an example assessment scenario for "*New noisy development (incl. commercial and recreation) affecting a noise sensitive building*", which is based on British Standard (BS) 4142:1997: Method for rating industrial noise affecting mixed residential and industrial areas. In 2014, BS4142:1997 was replaced with BS4142:2014: Methods for rating and assessing industrial and commercial sound.
National Planning Framework 4 (NPF4) (Scottish Government, 2023)	The following NPF4 policies are considered relevant to noise and vibration: ▪ **Policy 11: Energy** highlights the need for renewable energy projects to address impacts on communities and individual dwellings due to noise; and ▪ **Policy 23: Health and Safety** states development proposals likely to raise unacceptable noise issues will not be supported. A noise impact assessment may be required where significant effects are likely, or the agent of change principle applies to noise-sensitive development.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Aberdeenshire Local Development Plan 2023 (Aberdeenshire Council, 2023)	The following policy is considered relevant to noise and vibration: ▪ **Policy P4: Hazardous and Potentially Polluting Developments and Contaminated Land** notes that appropriate mitigation measures is required for significant nuisances, including noise.
Guidance	
Calculation of Road Traffic Noise (CRTN) (Department of Transport and Welsh Office, 1988)	Guidance which informs the assessment of road traffic noise impacts.
BS 7385-2:1993 Evaluation and measurement for vibration in buildings - Guide to damage levels from ground borne vibration (British Standards Institution, 1993)	British Standard which informs the assessment of vibration impacts.
Guidelines for Community Noise (World Health Organisation, 1999)	Guidance which informs the assessment of noise impacts.
BS 6472-1:2008 Guide to Evaluation of Human Exposure to Vibration in Buildings (British Standards Institution, 2008)	British Standard which informs the assessment of vibration impacts.
Night Noise Guidelines for Europe (World Health Organisation, 2009)	Guidance which informs the assessment of noise impacts.
International Standards Organization (ISO) 4866: 2010 Mechanical vibration and shock - Vibration of fixed structures - Guidelines for the measurement of vibrations and evaluation of their effects on structures (International Standards Organization, 2010)	ISO standard which informs the assessment of vibration impacts.
Guidelines for Environmental Noise Impact Assessment (Institute of Environmental Management & Assessment, 2014)	Guidance which informs the assessment of noise impacts.
BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites - Part 1: Noise (British Standards Institution, 2014a)	British Standard which informs the assessment and mitigation of construction noise impacts.
BS 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites - Part 2: Vibration (British Standards Institution, 2014b)	British Standard which informs the assessment and mitigation of construction vibration impacts.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings (British Standards Institution, 2014c)	British Standard which informs the assessment of noise impacts.
BS 4142:2014+A1:2019 Method for Rating and Assessing Industrial and Commercial Sound (British Standards Institution, 2019)	British Standard which informs the assessment of operational noise impacts.
BS 4142:2014+A1:2019 Technical Note (Association of Noise Consultants, 2020)	Guidance which informs the assessment of operational noise impacts.
Design Manual for Roads and Bridges (DMRB) LA111 Noise and Vibration (Highways England, 2021)	Guidance which informs the assessment of road traffic noise and vibration impacts.
A good practice guide to the preparation, submission and management of Section 61 consents (ANC, 2021)	Guidance which informs the assessment of construction noise impacts.

13.3 Consultation

981. Consultation with Aberdeenshire Council has been undertaken, including engagement through Aberdeenshire Council's Pre-application Advice service. A summary of consultation activities undertaken to date is provided in **Table 13.2.**

Table 13.2: Consultation Relevant to Noise and Vibration

Consultee	Date/Document	Comment	How Comment has been Addressed
Aberdeenshire Council	19 August 2026 Pre-Application Advice letter	*"Mitigation will be expected in terms of landscape and visual impact, and noise."*	If required, mitigation will be developed during the EIA process, and detailed in full in the EIA Report (see **Section 13.7**). Embedded mitigation identified at this stage is set out in **Table 13.4**.
		"It is likely that a noise impact assessment will be required for this development alongside a construction environmental management plan (CEMP). The acoustic consultants should contact environmental health to agree on a methodology and noise criteria before undertaking the assessment."	A noise impact assessment will be undertaken. The Applicant will consult with Aberdeenshire Council's Environmental Health Officer to inform the EIA. The Applicant will produce a CEMP for the Bellrock OnTDA, asset out in **Table 13.4**.

Consultee	Date/Document	Comment	How Comment has been Addressed
		'Question from the Applicant: Are there any comments on the scope/methodology of the proposed noise surveys or the proposed noise survey monitoring locations? *Monitoring locations should avoid any influence from any possible wind turbines in these areas, if applicable.'*	The proposed noise monitoring locations will be checked prior to baseline data collection to ensure that they are not subject to wind turbine influence, and will be agreed in advance with Aberdeenshire Council. The approach to collecting baseline data is outlined in **Section 13.7**).
		'*Question from the Applicant: Scottish government policy document TAN 1/2011 provides a method for assessing impacts from noise emitting development. However, this was based on BS4142:1997 which was updated in 2014. In line with standard practice, we propose to assess impacts in accordance with the updated BS4142, rather than using the method in TAN 1/2011. Please can you confirm this is acceptable.* *Acceptable.'*	The proposed EIA methodology has been devised on this basis (see **Section 13.7**).
		'*Question from the Applicant: How do the council anticipate noise levels to be regulated during construction and operation?* *Through planning conditions.'*	Any mitigation measures relating to noise levels, if required, will be developed and presented within the EIA Report with this consideration in mind. (see **Section 13.7**).

13.4 Existing Environment

13.4.1 Study Area

982. The study areas for noise and vibration (collectively, the 'noise and vibration study areas') extend from the Bellrock OnTDA Scoping Boundary to the closest Noise and Vibration Sensitive Receptors (NVSRs) in the following distances:

- **Construction noise study area** – in accordance with the guidance in the DMRB LA111 Noise and Vibration Rev 2 (2020), construction noise impacts from the Onshore Transmission Infrastructure would only be assessed at NVSRs which are no further than 300 metres (m) from the Bellrock OnTDA Scoping Boundary;

- **Construction vibration study area** – in accordance with the DMRB LA111, construction vibration impacts from the Onshore Transmission Infrastructure would only be assessed at NVSRs which are no further than 100 m from the Bellrock OnTDA Scoping Boundary;
- **Operational noise study area** – the only operational noise anticipated during operation is from the OnSS. There is no applicable guidance on an appropriate study area for the assessment of operational noise impacts from onshore substations, rather this depends on sound emission levels from the equipment within the OnSS, which are not known at this stage. An operational noise study area, to capture all NVSRs that could experience significant effects, would be determined through consultation with Aberdeenshire Council prior to undertaking the noise impact assessment; and
- **Traffic noise study area** – in accordance with the DMRB, the traffic noise study area will incorporate the closest NVSRs within 50 m from roads on which the Bellrock Onshore Transmission Infrastructure traffic is anticipated to result in noise level changes of at least 1 A-weighted decibel (dB(A)). These road links will be identified to inform the EIA once the required traffic data are available.

13.4.2 Data and Information Sources

983. Baseline data for the noise and vibration assessment have been reviewed from the sources listed in **Table 13.3** to inform the analysis of existing baseline conditions. These data will be subject to further detailed review and analysis to support the EIA. In addition to these sources, consultation with relevant stakeholders has been undertaken to inform the scoping process and will continue where necessary throughout project development (see **Section 13.3**).

Table 13.3: Key Data Sources to Inform the Noise and Vibration Assessment

Dataset	Temporal Coverage	Description
Scottish Public Sector Phase 1 LiDAR Data (Open Licence) (Scottish Government, 2024)	2012	Topographical data.
Strategic Noise Mapping Data	2021	Baseline noise level maps for roads, railways and industrial sites within the noise and vibration study areas.
Aberdeenshire Council Local Development Plan (Aberdeenshire Council, 2023)	2023	Local policies relevant to noise and vibration and any areas designated for development which could introduce new NVSRs.
Aerial Photography (Google, 2026)	2026	Location of noise sources and NVSRs in the noise and vibration study areas.
Local Authority Planning Portals	2026	Baseline noise level data gathered as part of noise assessments to support other planning applications affecting NVSRs in the study area. Of particular relevance are the applications for the Hurlie substation and Bowdun Offshore Wind Farm, due to their proximity to the Bellrock OnSS scoping area.

Dataset	Temporal Coverage	Description
Ordnance Survey Mapping (Ordnance Survey, 2026)	2026	Ordnance Survey data, including locations of NVSRs.

13.4.3 Baseline Conditions

984. This section provides a summary of baseline conditions in respect of noise and vibration in the construction noise study area, which encompasses (and is larger than) the construction vibration study area. The other study areas are not defined at this stage; hence, baseline conditions cannot be identified, rather this will be undertaken as part of the assessment provided in the Bellrock OnTDA EIA Report. At this stage in the EIA process, it is not possible to identify all the NVSRs that would be included in the EIA, although this would be done in consultation with Aberdeenshire Council and presented as part of the assessment provided in the EIA, and will reflect the PPP Application boundary. Baseline noise conditions are specific to individual locations and, therefore, are not identified on a development-wide basis.

985. As part of this scoping exercise, the following have been identified in the construction noise study area:

- Potential sources of elevated baseline noise levels;
- The closest (and, therefore, most likely to be adversely affected) NVSRs to the Bellrock OnSS and landfall; and
- Areas recognised for their recreational and amenity value and the soundscape is considered a key aspect of this designation, thereby considered to be NVSRs requiring protection from potential noise impacts.

986. As mentioned in **Table 13.3,** the Scottish Government has undertaken strategic noise mapping (Scottish Government, 2021), as part of its obligations under the Environmental Noise Directive (2002/49/EC) (European Parliament, 2002), implemented by the Environmental Noise (Scotland) Regulations 2006 (as amended). The strategic noise mapping has been used to identify Candidate Noise Management Areas (areas where noise exposure may require targeted intervention) and Candidate Quiet Areas (where good environmental noise quality should be protected).

987. These Candidate Noise Management Areas and Candidate Quiet Areas are divided between those in agglomerations, which are identified in Agglomerations Noise Action Plan for Scotland (Scottish Government, 2026) and those along the transportation network (i.e. near busy roads and/or railways), which are in the Transport Noise Action Plan 2024 to 2028 (Transport Scotland, 2025). None of the Candidate Noise Management Areas and Candidate Quiet Areas are in the construction noise study area.

988. The construction noise study area is entirely within the administrative area of Aberdeenshire Council. It is predominantly rural, comprising largely of forestry and agricultural land, where ambient noise levels are expected to be low. There are scattered residential dwellings in most of

the construction noise study area. The eastern end of the Bellrock OnTDA Scoping Boundary is close to the town of Stonehaven, where there are clusters of residential dwellings in the construction noise study area and ambient noise levels may be slightly higher, particularly in proximity to the A90 and A92.

989. Based on a review of publicly available mapping and satellite imagery data for the construction noise study area, there is the potential for baseline noise levels to be elevated at NVSRs in proximity to the following identified sound sources:

- Vehicles on major roads, in particular the A90, A92 and A957;
- Trains on the Dundee to Aberdeen railway line; and
- The Fetteresso substation.

990. Other sources of noise potentially contributing to the baseline at identified NVSRs will be identified as part of the EIA process.

13.5 Potential Impacts

13.5.1 Potential Construction Phase Impacts

13.5.1.1 Direct Effects of Construction Works

991. Construction of the Bellrock Onshore Transmission Infrastructure would emit noise and vibration with the potential to impact NVSRs. Noise effects comprise disturbance to occupants/users of NVSRs, vibration effects include disturbance and potential structural damage. Impacts are anticipated due to construction activities such as:

- Earthworks;
- Creation of temporary construction compounds;
- Trenchless techniques used at landfall or obstacle crossing points;
- Cable trenching;
- Onshore export cable installation and joint bay installation;
- Transition joint bay construction;
- Landscaping;
- Construction of above ground infrastructure at the Bellrock OnSS;
- Road improvements and formation of access;
- Other general onshore construction activities such as establishment of temporary construction compounds and on-site plant operations; and
- Reinstatement works.

992. Construction noise and vibration impacts would be temporary and would vary both spatially and temporally in nature. The effect significance would depend on the baseline sound levels at the NVSRs, their proximity to the construction activities and the duration and intensity of the works.

13.5.1.2 Indirect Effects

993. Construction of the Bellrock Onshore Transmission Infrastructure would result in increased traffic flows on nearby roads, causing indirect effects due to increases in road traffic noise levels at NVSRs. Changes in road traffic noise levels are classified as indirect effects as they are caused by a separate impact of the construction of the Bellrock Onshore Transmission Infrastructure (i.e. additional road traffic) rather than noise emitted by specific Bellrock Onshore Transmission Infrastructure construction works.

13.5.2 Potential Operation and Maintenance Phase Impacts

994. Potential impacts during the O&M phase of the Bellrock Onshore Transmission Infrastructure arise from both the long-term operation of the Bellrock OnSS and periodic, planned and unplanned, maintenance activities of the Bellrock Onshore Transmission Infrastructure.

995. The Bellrock OnSS will include equipment which emits continuous, steady noise, with the potential to cause permanent, direct disturbance impacts on occupants of nearby NVSRs. The magnitude of impact would depend on baseline noise levels at the NVSRs, their proximity to the Bellrock OnSS and the equipment sound emission levels. It would also depend on the acoustic characteristics of the Bellrock OnSS levels at NVSRs relative to baseline, particularly whether they are likely to attract corrections for tonality, intermittency or impulsivity.

13.5.3 Potential Decommissioning Phase Impacts

996. Potential impacts during the decommissioning phase of the Bellrock Onshore Transmission Infrastructure will depend on the final decommissioning strategy, including the extent to which infrastructure is removed or left in-situ.

997. Where infrastructure is removed, decommissioning activities are expected to result in localised noise and vibration impacts, broadly similar in nature to construction activities, although typically of reduced overall magnitude, as activities are likely to be more targeted (e.g. cutting and removal of infrastructure rather than site preparation works and construction works).

998. Where infrastructure is left in-situ (either partially or wholly), impacts associated with the continued presence of infrastructure are considered in the O&M phase and are not duplicated here.

13.5.4 Embedded Mitigation

999. Embedded mitigation has been identified, as presented in **Table 13.4** and **Appendix B: Mitigation and Monitoring Register (Volume 1)**, in accordance with the mitigation hierarchy, with the aim of avoiding, preventing, reducing, and where possible, offsetting potential adverse environmental effects. Consistent with the Institute of Environmental Management and Assessment (IEMA) guidance (2024) (now known as Institute of Sustainability and Environmental Professionals (ISEP)), primary (inherent design measures) and tertiary (standard good practice) mitigation are embedded within the project design and are, therefore, considered in the assessment of effects.

Secondary mitigation measures will be identified where required through the EIA process, informed by the outcomes of the initial impact assessment.

1000. The current embedded mitigation measures may be refined as the project design evolves. In addition, further embedded mitigation measures may be developed as part of the iterative design process during the EIA process.

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Table 13.4: Embedded Mitigation Measures Relevant to Noise and Vibration

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	✓	X	Site selection was informed by the Bellrock OnTDA Design Principles and included consideration of sensitive receptors.	The Bellrock OnTDA has been developed in accordance with a set of Design Principles that have informed the site selection process, refinement of the design envelope and development of embedded mitigation measures. To minimise noise and vibration effects, the Design Principles include a commitment to maintain a minimum distance of the Bellrock Onshore Transmission Infrastructure from sensitive receptors such as residential dwellings, where possible.	Primary
✓	X	X	Development of and adherence to a CEMP.	The CEMP will set out the overarching environmental management framework for the construction of the Bellrock Onshore Transmission Infrastructure and will include, or cross-reference as appropriate, measures relating to pollution prevention, soil handling, waste management, public rights of way management, emergency response procedures, environmental monitoring and construction best practice. **It will also include any construction noise and vibration mitigation measures identified in the Bellrock OnTDA EIA Report.**	Tertiary
✓	X	X	Development of and adherence to a Construction Traffic Management Plan (CTMP).	The CTMP will set out measures to manage construction traffic movements, access arrangements, abnormal load deliveries, routing agreements and road safety measures. This will include a proposition for highway condition surveys to be undertaken before and after the construction period, to identify whether construction activities have negatively impacted highway conditions. Repair of any damage caused by construction traffic would reduce the potential for traffic-induced vibration effects.	Tertiary

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	X	X	Core project working hours (excluding those at the landfall) are proposed to avoid night-time working and will generally be between 07:00 and 19:00 Monday to Friday and 07:00 and 12:00 on Saturdays. Deviations from these hours may occur for critical activities, non-noise-generating works, 24-hour operations where required, or in response to safety or emergency situations.	Compliance with these working hours will reduce the potential for disturbance effects from construction noise and vibration.	Primary
✓	✓	X	The OnSS will be designed and maintained in accordance with recognised industry good practice and relevant standards.	This standard design process will ensure that the vibration from the OnSS will not be perceptible at NVSRs.	Primary

13.6 Scoping of Potential Impacts

13.6.1 Construction Phase

13.6.1.1 Construction Noise and Vibration

1001. Construction of the Bellrock Onshore Transmission Infrastructure includes proposed activities with the potential to emit high noise levels and thereby cause direct disturbance effects at NVSRs inside the construction noise study area. Similarly, proposed construction activities have the potential to emit high vibration levels and thereby cause direct disturbance and structural damage effects at NVSRs inside the construction vibration study area. Hence, these impacts are **scoped in** to the EIA.

1002. In accordance with EIA best practice and guidance (BS 5228) (British Standards Institution, 2014), disturbance from construction noise or vibration effects is only considered potentially significant if the impact on a receptor lasts at least 10 calendar days in a 15 calendar day period, or 40 calendar days in a six-month period. Disturbance effects due to noise or vibration from construction works resulting in impacts of a shorter duration are, therefore, **scoped out** of the EIA.

13.6.1.2 Construction Traffic Noise

1003. Temporary road traffic flow changes on existing roads have the potential to change noise levels at NVSRs in the Traffic Noise Study Area and result in indirect disturbance effects on the occupants/users. This impact has, therefore, been **scoped in** to the EIA.

13.6.1.3 Construction Traffic Vibration

1004. The primary mechanism for heavy vehicles to give rise to vibration is the movement of the vehicles over irregularities in the road surface. The DMRB states that *"a maintained road surface would be free of irregularities as part of project design and under general maintenance, so operational vibration would not have the potential to lead to significant adverse effects"* (Highways England, 2020). For those roads which are currently in good condition, there would be no pathway for the increase in traffic flows on public roads associated with the construction of the Bellrock Onshore Transmission Infrastructure to increase vibration levels at sensitive receptors.

1005. If the construction traffic associated with the Bellrock Onshore Transmission Infrastructure uses roads with existing surface irregularities, Heavy Goods Vehicles (HGVs) passing over these irregularities could generate vibration which is perceptible in nearby buildings. However, the additional HGVs introduced by the Bellrock Onshore Transmission Infrastructure construction would generate vibration which is at a similar level to that caused by HGVs currently using the road. Whilst the additional HGVs would increase the frequency of pass-bys, and, therefore, the frequency of potential exposure to perceptible vibration, vibration levels are not calculated cumulatively. The impact assessment criteria for both annoyance and building damage are based on exceedance of a fixed limit (specified in Peak Particle Velocity) by one event (in this case, one HGV pass-by). The number of HGVs passing a property would, therefore, not affect the Peak Particle Velocity experienced at a receptor in the way that it does for noise.

1006. Research undertaken by the Transport and Road Research Laboratory (TRRL) Report 246 (TRRL, 1990) concludes that *"Overall, fewer people are bothered by vibration from traffic than by traffic noise. However, the proportion of residents seriously bothered by vibration (8%) is similar to the percentage seriously bothered by noise (9%)"* and hence, annoyance impacts due to vibration associated with construction traffic would be no worse than those due to noise. In accordance with best practice in the UK acoustics industry, the assessment, therefore, focusses on the potential for annoyance due to change in noise levels caused by construction traffic, and vibration effects due to construction traffic are **scoped out** of the EIA.

13.6.2 Operation and Maintenance Phase

13.6.2.1 Operational Noise

1007. The operation of the Bellrock OnSS will emit noise and thereby has the potential to cause direct disturbance effects at NVSRs inside the operational noise study area. Hence, this impact is **scoped in** to the EIA.

1008. All other aspects of the Bellrock Onshore Transmission Infrastructure, including the landfall, are not anticipated to emit operational noise with the potential to be audible at NVSRs. Hence, these impacts are **scoped out** of the EIA.

13.6.2.2 Operational Vibration

1009. The proposed Bellrock OnSS may include equipment with the potential to be sources of vibration. However, in accordance with good industry practice, all onshore equipment with the potential to emit high levels of vibration would be designed to minimise vibration transmitted into the ground (for example using flexible connectors and resilient mounts and mounting on a base of substantial mass). It is also the case that, once the vibration attenuation due to isolation and propagation with distance is accounted for, any ground-borne vibration which could be perceptible at receptors would cause damage to the equipment emitting it.

1010. Such vibration issues would be controlled through site design and maintenance. As the vibration level would be negligible at source, it would be orders of magnitude less than what would be expected to give rise to significant effects at an NVSR. All other aspects of the Bellrock Onshore Transmission Infrastructure are not anticipated to emit operational vibration with the potential to be audible at NVSRs. Hence, these impacts are **scoped out** of the EIA.

13.6.2.3 Maintenance Noise and Vibration

1011. The Bellrock Onshore Transmission Infrastructure will require periodic, planned and unplanned, maintenance and repair activities during the O&M phase. Such activities will be infrequent and localised, and are not anticipated to emit high noise levels with the potential to cause significant effects at an NVSR. Therefore, maintenance noise and vibration impacts have been **scoped out** of the EIA.

13.6.2.4 Operation and Maintenance Traffic Noise and Vibration

1012. **Chapter 12: Traffic and Transport** describes the anticipated O&M phase traffic movements for the Bellrock Onshore Transmission Infrastructure. As the anticipated O&M phase movements are

very low, these traffic impacts are scoped out of the EIA traffic and transport assessment. O&M phase traffic noise and vibration impacts are, therefore, also **scoped out** of the EIA.

13.6.3 Decommissioning Phase

1013. At the end of operational life, the Bellrock Onshore Transmission Infrastructure will be decommissioned. The final decommissioning approach will be determined through the preparation of a Decommissioning, Restoration and Aftercare Strategy, and will consider relevant legislation, guidance, and industry best practice. However, decommissioning activities are anticipated to result in impact pathways that are similar to, or no greater than, those associated with construction activities. Therefore, the impacts **scoped in** to the assessment for the construction phase are also considered applicable to the decommissioning phase.

13.6.4 Bellrock OnTDA Whole Project Assessment

1014. The Bellrock OnTDA Whole Project Assessment will follow the general methodology set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessment** and will consider whether interactions between the Bellrock Onshore Transmission Infrastructure and the Bellrock Offshore Transmission Infrastructure and/or the Bellrock Wind Farm Infrastructure have the potential to alter the magnitude of impacts and significance of effects on noise and vibration receptors identified in the Bellrock OnTDA-alone assessment. Refer to **Plate 4.3 (Chapter 4: Approach to Scoping and Environmental Impact Assessment**) for the approach and methodology that will be followed for the Bellrock OnTDA Whole Project Assessment.

13.6.4.1 Construction of Offshore Transmission Infrastructure and Wind Farm Infrastructure

1015. Construction of the Bellrock Offshore Transmission Infrastructure would require activities which would emit noise and vibration. Piling of foundations, which would occur in the Bellrock WFDA and to construct the Bellrock Offshore Reactive Compensation Station(s) (OfRCS(s)), will potentially emit high levels of noise and vibration. The closest distance from the Bellrock WFDA to shore is around 120 km, and the Bellrock OfRCSs will be at least 39 km from the shore (MHWS). Considering the energy attenuation due to propagation over this distance, piling noise and vibration emissions do not have the potential to cause significant effects at the onshore NVSRs. Noise and vibration impacts from offshore piling and any other construction activities outside the construction noise study area are, therefore, do not have the potential to alter any of the potential effects identified in **Section 13.6.1.**

1016. Construction activities in the nearshore environment would primarily comprise dredging of the landfall drill exit point. This activity would be temporary, of relatively short duration, and noise emissions would be relatively low (compared to other activities associated with construction of the Bellrock Onshore Transmission Infrastructure) and similar to the noise from other activities which currently occur in the nearshore environment (e.g. occasional boat movements). In addition, the landfall drill will be at least 850 m long and the Bellrock OfTDA (i.e. the area in which the exit point could be located) is at least 100 m away from the closest identified NVSR. Given the short duration, relatively low noise emissions and likely distance from NVSRs, construction activities in the nearshore environment do not have the potential to alter any of the potential effects identified in **Section 13.6.1**.

1017. Nearshore construction activities are unlikely to generate high levels of vibration and will be at least 50 m from the closest onshore NVSR (the minimum distance from NVSRs to the shore line). Hence, any vibration emissions from nearshore works do not have the potential to alter any of the potential effects identified in **Section 13.6.1**.

1018. In summary, interactions between the Bellrock Onshore Transmission Infrastructure and the Offshore Transmission Infrastructure or Wind Farm Infrastructure do not have potential to alter the potential effects identified in **Section 13.6.1**. Therefore, the Bellrock OnTDA Whole Project Assessment for the construction phase is **scoped out** from further consideration in the EIA.

13.6.4.2 Operation of Offshore Transmission Infrastructure and Wind Farm Infrastructure

1019. Operation of the Wind Farm Infrastructure and OfRCSs will emit noise and vibration; however, as with the construction phase, due to the large distance to shore, noise and vibration emissions are expected to be imperceptible at the onshore NVSRs. Therefore, interactions between the Bellrock Onshore Transmission Infrastructure and the Offshore Transmission Infrastructure or Wind Farm Infrastructure do not have potential to alter the potential effects identified in **Section 13.6.2**. Therefore, the Bellrock OnTDA Whole Project Assessment for the operation and maintenance phase is **scoped out** from further consideration in the EIA.

13.6.5 Potential Cumulative Effects

1020. The Bellrock OnTDA Cumulative Effects Assessment (CEA) will be undertaken in accordance with the methodology set out in **Section 4.7** of **Chapter 4: Approach to Scoping and Environmental Impact Assessment**. An overview of the Bellrock OnTDA assessment process, including the relationship between the Bellrock OnTDA Whole Project Assessment and the CEA, is provided in **Plate 4.3**.

1021. Overall, the CEA is a two-staged process, with the first stage assessing the impacts as a result of the Bellrock OnTDA Whole Project Assessment (**Section 13.6.4**) together with the Hurlie substation. The second stage will then assess the impacts as a result of the Bellrock OnTDA Whole Project Assessment together with the Hurlie substation plus impacts arising from other reasonably foreseeable plans and projects where there is conceptual, spatial, and/or temporal overlap. This will determine the potential for cumulative impacts and subsequent cumulative effects on noise and vibration receptors.

1022. Onshore cumulative effects would be considered as part of the EIA process. Any other project with the potential to result in noise and vibration impacts that may act cumulatively with the Bellrock OnTDA would be identified during consultation and following a review of available information. These projects would then be included in the CEA. Therefore, cumulative effects related to onshore noise and vibration are **scoped in** to the EIA.

13.6.6 Potential Transboundary Effects

1023. The Bellrock OnTDA Scoping Boundary is greater than 250 km from any international boundary. Propagation over this distance would reduce noise or vibration emissions from the construction, O&M, or decommissioning of the Bellrock Onshore Transmission Infrastructure to an extremely

low level such that there would be no potential for any adverse effect to occur. Transboundary noise and vibration effects are, therefore, **scoped out** of further assessment in the EIA.

13.6.7 Summary of Potential Noise and Vibration Impacts Scoped In and Scoped Out

1024. **Table 13.5** summarises the outcomes of the scoping assessment presented in **Section 13.6.1** to **13.6.6**, identifying the relevant impacts for noise and vibration and confirming whether these have been scoped in or scoped out of further assessment in the EIA.

Table 13.5: Summary of Potential Onshore Noise and Vibration Impacts Scoped In (✓) or Scoped Out (X)

Potential Impact	Scoped In (✓) or Scoped Out (X)		
	Construction	O&M	Decommissioning
Noise from OnSS equipment affecting human NVSRs	✓	✓	✓
Noise (other than OnSS equipment) affecting human NVSRs	✓	X	✓
Vibration affecting human NVSRs	✓	X	✓
Road traffic noise affecting human NVSRs	✓	X	✓
Road traffic vibration affecting human NVSRs	X	X	X
Bellrock OnTDA Whole Project Assessment*	X	X	X
Cumulative effects	✓	✓	✓
Transboundary effects	X	X	X
Notes: * see **Section 13.6.4** for further details on the scoping of the Bellrock OnTDA Whole Project Assessment for Noise and Vibration.			

13.7 Proposed Approach to Impact Assessment

13.7.1 Existing Environment

13.7.1.1 Baseline Conditions

1025. Prior to undertaking the EIA, an updated review of the data sources in **Table 13.3** for the relevant study areas will be undertaken. This review will identify:

- NVSRs with the greatest potential to be affected by noise or vibration from the Bellrock Onshore Transmission Infrastructure;
- Potential sources of elevated baseline noise levels;
- Noise levels at NVSRs from strategic mapping data; and
- Areas recognised for their recreational and amenity value due to their tranquillity, thereby requiring protection from potential noise impacts.

13.7.1.2 Site-specific Surveys

1026. In addition to the data in **Table 13.3**, baseline noise level surveys will be undertaken to support the assessment. No baseline noise monitoring has been undertaken to date. Once the operational noise study area has been refined (to reflect the PPP Application boundary), a baseline noise survey will be undertaken to inform the assessment. Survey methodologies will be agreed in advance with Aberdeenshire Council. The influence of wind turbines on recordings (if any) will be taken into account at the proposed monitoring locations before proceeding with data collection (see **Table 13.2**).

1027. Surveys informing construction noise assessments will be undertaken at receptors where there is considered to be a risk of a significant effect (for example due to prolonged night-time working at the landfall and/or proximity to noisy works) and baseline noise levels could be above the Category A values in Table E.1 of BS5228-1 'Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise'. These will typically comprise either a 24-hour unattended weekday measurement or shorter attended surveys. Surveys for operational noise assessments (around the Bellrock OnSS) will generally be unattended and include a weekend and three weekdays as minimum.

1028. Baseline noise surveys are currently proposed at the locations shown in **Figures 13.1** and **13.2** (**Appendix A (Volume 1)**), which are deemed representative of the potentially most affected noise sensitive receptors to the landfall and onshore substation respectively. These locations are subject to potential refinement following further progression of the design of the Bellrock Onshore Transmission Infrastructure.

1029. Baseline attended and unattended noise surveys, to determine existing noise levels, will be conducted in accordance with current guidance, including:

- BS 7445:1991 Description and measurement of environmental noise Part 2: Guide to the acquisition of data pertinent to land use;

- BS 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Part 1; and
- BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound.

1030. Traceable calibrated sound level meters would be used for all measurements during the surveys. Measurements would capture the following noise level parameters in 15-minute intervals: L_{Aeq}, L_{Amax}, L_{A90} and L_{A10}. The sound level meters would be calibrated before and after the survey using a portable sound pressure level calibrator.

1031. A weather station will also be deployed at a representative location to identify site-specific meteorological conditions during the surveys to inform operational noise assessments. Records of the meteorological conditions during the survey will be made and measurements would not be considered valid during periods of rain or when average wind speeds exceed 5 m/s.

1032. Noise data will be collected during a representative time period, i.e. outside of school holiday periods.

1033. A review of baseline data in published EIA Reports and planning documents in the public domain for other developments will be undertaken, where such data are available and relevant.

1034. The criteria adopted to assess construction vibration impacts are independent of vibration levels; therefore, a baseline vibration survey is not proposed to inform the construction vibration impact assessment.

13.7.2 Receptor Sensitivity

1035. A list of potential NSVR types which would be considered in the noise and vibration assessment is provided in **Table 13.6**. The receptors are classified according to their sensitivity, using professional judgement based on the potential for noise and vibration level changes to cause significant disruption.

Table 13.6: Definition of the Different Noise and Vibration Sensitive Receptor Types and Sensitivity Levels

Receptor Sensitivity	Definition	Definitions and Classification Type (i.e. Receptor)
Very high	Receptors where noise or vibration level changes may significantly affect their usage.	Certain hospital wards (e.g. operating theatres or high dependency units), auditoria, laboratories with highly vibration sensitive equipment or buildings which are structurally unsound or identified as requiring special protection by cultural specialists (e.g. some historical/listed buildings or scheduled monuments).
High	Receptors where noise and/or vibration level changes may cause disturbance, protection is required but some tolerance is expected.	Residential accommodation, private gardens, hospital wards, care homes, schools, universities, research facilities and national parks (during the day).
Medium	Receptors where noise and/or vibration level changes may cause some distraction or disturbance.	Offices, shops (including cafes), outdoor amenity areas (including recreation, public amenity space/play areas), long distance footpaths (including Core Paths), bird watching areas, holiday parks/caravans, visitor attractions, doctor's surgeries, sports facilities and places of worship.
Low	Receptors where noise and/or vibration level changes are not expected to be detrimental.	Warehouses, light industry, car parks, and agricultural land.

13.7.3 Impact Magnitude

1036. Onshore construction noise and vibration impacts would be assessed using guidance in BS 5228:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise (British Standards Institution, 2014a) and Part 2: Vibration (British Standards Institution, 2014b). This guidance defines the accepted prediction methods and source data for various construction plant and activities.

1037. Three-dimensional noise modelling (using SoundPLAN noise modelling software) will be undertaken to predict construction noise levels at identified NVSRs. Predictions will be undertaken in accordance with the methodology in BS 5228-1, utilising the data available on the proposed works. As details of the construction contractor and construction methodology are not yet available, these data will be based on the realistic worst-case design envelope. The final package of mitigation measures to be implemented will be determined based on the final construction design by the construction contractor. This will be identified in the CEMP to be submitted for approval to Aberdeenshire Council prior to commencement of construction.

1038. Construction traffic noise impacts would be calculated using the basic noise level methodology detailed in the CRTN (Department for Transport, 1988). The assessment would compare the calculated Basic Noise Levels with and without the construction traffic. Any changes in day or night-time Basic Noise Levels due to the Development would be assessed using short-term impact magnitude criteria taken from the DMRB.

1039. Operational noise impacts would be assessed using BS 4142:2014+A1:2019 (British Standards Institution, 2019). This is the accepted UK standard for rating and assessing the impact of sound of an industrial and/or commercial nature. The methods use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a residential dwelling upon which sound is incident.

1040. Three-dimensional noise modelling (using SoundPLAN noise modelling software) will be undertaken to predict operational noise levels at identified NVSRs. Predictions will be undertaken in accordance with the methodology in ISO 9613-2 Acoustics — Attenuation of sound during propagation outdoors — Part 2: General method of calculation (International Organization for Standardization, 2024). Should the design of the OnSS not be finalised and the final equipment not have been selected at the time of the PPP Application, the assessment will be based on the realistic worst-case project design envelope. In this case, the modelling will be based on a generic data for a typical OnSS and equipment sound emissions data. It is anticipated that mitigation of operational noise effects will be secured by a condition of the PPP which includes noise level limits at identified NVSRs. The detailed design process will incorporate noise modelling to ensure that the predicted OnSS operational noise levels do not exceed this limit.

13.7.4 Effect Significance

1041. Effect significance will be determined following the standard approach outlined in **Chapter 4: Approach to Scoping and Environmental Impact Assessment**, which includes an example matrix to determine effect significance. Professional judgement will be applied to determine overall effect significance in relation to each impact. In accordance with standard EIA practice, effects assessed as major or moderate will be considered significant, whilst those assessed as minor, negligible, or no effect will be considered not significant. The assessment will clearly distinguish between potential effects (prior to secondary mitigation) and residual effects (following the implementation of any secondary mitigation measures), where relevant.

13.8 Scoping Questions to Consultees

1042. The following questions are posed to consultees to help them frame and focus their response to the noise and vibration scoping exercise, which would in turn inform the EIA:

- Have all the relevant data sources been identified in the **Bellrock OnTDA Scoping Report**?
- Do you agree that the information described will be suitable for characterisation of the existing environment?
- Do you agree with the proposed baseline survey methodology, including the proposed noise monitoring locations?
- Have all noise and vibration impacts resulting from the Bellrock Onshore Transmission Infrastructure been identified in the **Bellrock OnTDA Scoping Report**?
- Do you agree with the noise and vibration impacts proposed to be scoped in and scoped out of the **Bellrock OnTDA EIA Report**?
- Do you agree with the proposed approach to assessment in the **Bellrock OnTDA EIA Report**?

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14 Air Quality

14.1 Introduction

1043. This Chapter of the **Bellrock Onshore Transmission Development Area (OnTDA) Scoping Report** considers the scope of potential impacts on the environment arising from air quality and dust emissions during the construction, operation and maintenance (O&M), and decommissioning of the Bellrock Onshore Transmission Infrastructure.

1044. The Bellrock OnTDA Scoping Boundary (shown in **Figure 1.1 (Appendix A (Volume 1))**) defines the area within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process (as discussed in **Section 1.4** in **Chapter 1: Introduction**) to form the boundary of the Bellrock OnTDA Planning Permission in Principle (PPP) Application.

1045. For the purposes of this **Bellrock OnTDA Scoping Report**, the Bellrock OnTDA Scoping Boundary encompasses the anticipated Onshore Transmission Infrastructure and associated activities for the Bellrock OnTDA landward of Mean Low Water Springs (MLWS). The Bellrock OnTDA Scoping Boundary overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) between Mean High Water Springs (MHWS) and MLWS.

1046. The Bellrock Onshore Transmission Infrastructure includes:

- **Landfall:** located at Cowie, Aberdeenshire, where between two and six ducts are installed using trenchless techniques, allowing the offshore export cables to be brought ashore and connected to onshore export cables within the transition joint bay;
- **Onshore export cables:** up to six underground High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) onshore cable circuits, each up to 18 km in length, installed between landfall and the onshore substation;
- **Onshore substation (OnSS):** electrical equipment (such as converters, transformers, switchgear, lightning protection, and protection and control systems) enabling renewable electricity from the Bellrock Wind Farm Development Area (WFDA) received via the onshore export cables to be exported to the National Electricity Transmission System, and ancillary infrastructure; and
- **Hurlie substation connection works:** Infrastructure between the Bellrock OnSS to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the National Electricity Transmission System.

1047. In addition, associated works are required to facilitate construction and O&M of the Onshore Transmission Infrastructure, including: access, signage, haul roads, spoil storage, material storage, fencing, borrow pits (if any), earthworks, welfare, security, landscape mitigation, ecological mitigation, biodiversity enhancement, operational lighting and drainage.

1048. As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Wind Farm Infrastructure (located within the Bellrock WFDA) was presented in the **Bellrock WFDA Environmental Impact Assessment (EIA) Report**, which was submitted in support of the Section 36 Consent and Marine Licence Application for the Bellrock Wind Farm Infrastructure in April 2026 (Bellrock Offshore Wind Farm Limited, 2026a). The **Bellrock WFDA EIA Report** considered the potential impacts and subsequent effects of the Bellrock Wind Farm Infrastructure on the environment. An EIA Scoping Report for the Bellrock Offshore Transmission Infrastructure was also submitted to Scottish Ministers on 17 August 2026 (Bellrock Offshore Wind Farm Limited, 2026b), with an EIA Report in support of the Marine Licence Application proposed to be submitted by the end of 2027.

1049. This Chapter of the **Bellrock OnTDA Scoping Report** provides an overview of the existing environment and sets out the proposed methodology and approach to assessing effects on the environment arising from air quality and dust generated by the Bellrock Onshore Transmission Infrastructure during the construction O&M and decommissioning phases. This Chapter has been prepared by Haskoning.

1050. This Chapter should be read in conjunction with the following chapters of the **Bellrock OnTDA Scoping Report**:

- **Chapter 9: Onshore Ecology and Nature Conservation;**
- **Chapter 12: Traffic and Transport;** and
- **Chapter 18: Human Health.**

1051. This Chapter is likely to have key inter-relationships with the above receptors, which will be considered appropriately, where relevant, in the Bellrock OnTDA EIA Report.

14.2 Legislation, Policy and Guidance

1052. **Table 14.1** sets out the legislation, policy and guidance documents that have been considered in the preparation of this Chapter, where appropriate. The overarching policy and legislation relevant to the Bellrock Onshore Transmission Infrastructure is provided in **Chapter 2: Legislative and Policy Context**.

Table 14.1: Summary of Relevant Legislation, Policy and Guidance for Air Quality

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Legislation	
Environment Act 1995	Applies to Scotland primarily by establishing and defining the statutory role and functions of the Scottish Environment Protection Agency (SEPA); however, environmental regulation and control in Scotland is largely exercised through devolved Scottish legislation rather than direct reliance on the 1995 Act itself. Under part IV of the Environment Act 1995, local planning authorities are obligated to conduct periodic assessments of air quality within their respective jurisdictions. This process is known as Local Air Quality Management (LAQM) and plays a crucial role in achieving the Government's air quality objectives.
Town and Country Planning (Scotland) Act (1997)	Principal legislative framework for Scotland's planning system, requiring material considerations to be taken into account in the preparation of development plans and the determination of development proposals.
Air Quality (Scotland) Regulations 2000 (as amended)	The Air Quality (Scotland) Regulations 2000 (as amended) prescribe air quality objectives for pollutants of concern within the LAQM framework, including nitrogen dioxide, particulate matter, sulphur dioxide, carbon monoxide, lead and benzene. These objectives define target concentrations and timescales for achievement and form the basis upon which local authorities undertake reviews and assessments of local air quality.
Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007) (Defra et al., 2007)	The Air Quality Strategy sets out the United Kingdom (UK) Government's overall approach to improving air quality and protecting human health and the environment from the effects of air pollution. First published in 1997 and subsequently revised, the Strategy establishes air quality standards and objectives for key pollutants and outlines the roles of national government, devolved administrations and local authorities in achieving those objectives.
Air Quality Standards (Scotland) Regulations 2010 (as amended)	The Air Quality Standards (Scotland) Regulations (as amended) 2010 transpose key requirements of European air quality legislation into Scottish law and establishes legally binding limit values, target values and long-term objectives for a range of pollutants, including nitrogen dioxide (NO_2), particulate matter (PM_{10} and $PM_{2.5}$), sulphur dioxide, ozone and benzene. The Regulations are intended to protect human health and the environment by ensuring air quality standards are met and maintained.
The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017	Schedule 4 states that the description of the likely significant effects should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Policy	
Cleaner Air for Scotland 2: Towards a Better Place for Everyone (Scottish Government, 2021)	Cleaner Air for Scotland 2 is Scotland's national air quality strategy and sets out the Scottish Government's vision for achieving cleaner air and reducing the impacts of air pollution on human health, ecosystems and climate. The strategy promotes coordinated action across sectors including transport, planning, industry and agriculture to achieve sustained improvements in air quality.
National Planning Framework 4 (NPF4) (2023) (Scottish Government, 2021)	NPF4 forms part of the statutory development plan for Scotland and provides the national planning policy framework for development proposals. In relation to air quality, NPF4 seeks to protect human health, improve environmental quality and support development that contributes towards climate change mitigation and sustainable placemaking. Relevant policies include: ▪ **Policy 1: Tackling the Climate and Nature Crises** highlights the need to reduce emissions and adapt to climate change; ▪ **Policy 2: Climate Mitigation and Adaptation** aims to promote developments which minimises emissions from developments; ▪ **Policy 3: Biodiversity** see to ensure protection of species and habitats; ▪ **Policy 4: Natural Places** seeks to protect important natural assets from adverse effects of developments, which may include dust; ▪ **Policy 11: Energy** highlights the need for renewable energy projects to address impacts on communities and individual dwellings from emissions and dust; and ▪ **Policy 23: Health and Safety** considers development proposals which may impact health and wellbeing, such as dust.
LAQM Policy Guidance (Scotland) (2024) (Defra, 2022)	The LAQM Policy Guidance issued under Part IV of the Environment Act 1995 provides guidance to Scottish local authorities on carrying out their air quality management duties. It sets out requirements relating to review and assessment of air quality, monitoring, the declaration of Air Quality Management Areas, preparation of Air Quality Action Plans and consideration of air quality within the planning process.
Aberdeenshire Council Local Development Plan 2023 (Aberdeenshire Council, 2023)	The following policy is conserved relevant to air quality: ▪ **Policy PR1 Protecting Important Resources** states that "*New developments should not have a significant adverse impact on air quality. An Air Quality Assessment may be required to demonstrate that the development has no significant adverse impact on air quality, and that appropriate mitigation to minimise any adverse effects can be provided and implemented*."
Guidance	
Environmental Protection United Kingdom (EPUK) and Institute of Air Quality Management (IAQM) Land-Use Planning and Development Control: Planning for Air Quality (2017) (EPUK & IAQM, 2017)	This guidance provides a framework for considering air quality within the planning process and outlines good practice approaches for assessing the effects of development on local air quality. It includes guidance on significance criteria, mitigation measures and the interpretation of air quality assessment results.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
IAQM Guidance on the assessment of odour for planning (IAQM, 2018)	This guidance provides a framework for assessing the potential effects of odour from development and determining the significance of effects on sensitive receptors. The guidance will be used to inform the assessment methodology.
IAQM A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites (2020) (IAQM, 2020)	This guidance provides a structured approach for assessing the effects of emissions to air on designated nature conservation sites, including Special Areas of Conservation, Special Protection Areas, Ramsar sites and Sites of Special Scientific Interest. It identifies screening criteria, assessment methodologies and potential mitigation approaches.
IAQM Guidance on the Assessment of Dust from Demolition and Construction (2024) (IAQM, 2024)	This guidance sets out a risk-based methodology for assessing the potential effects of dust and particulate matter generated during construction activities. The guidance identifies suitable study areas, sensitive receptor types, risk categories and mitigation measures that can be applied to reduce potential impacts.
National Highways Design Manual for Roads and Bridges: LA105 Air Quality (vertical barriers), including the Scotland National Application Annex.	Provides the methodology for assessing air quality effects associated with road traffic generated by the Bellrock Onshore Transmission Development Infrastructure, including impacts on human and ecological receptors.
Department for Environment, Food and Rural Affairs (Defra) LAQM.TG(22)) (2025) (Defra, 2025)	LAQM.TG(22) provides technical guidance to local authorities on the assessment and management of local air quality under the LAQM regime. The guidance sets out recommended approaches for air quality monitoring, data analysis, screening methodologies and the assessment of compliance with air quality objectives.
SEPA Odour Guidance (2025) (SEPA, 2025)	Provides a framework for assessing potential odour effects on sensitive receptors and identifying appropriate mitigation measures.

14.3 Consultation

1053. Consultation with Aberdeenshire Council has been undertaken, including engagement through Aberdeenshire Council's Pre-application Advice service. A summary of consultation activities undertaken to date is provided in **Table 14.2.**

Table 14.2: Consultation Relevant to Air Quality

Consultee	Date/ Document	Comment	How Comment has been Addressed
Aberdeenshire Council (Environmental Health)	19 August 2026, Pre-application Advice letter	*'We are not proposing any project specific monitoring and instead drawing on publicly available datasets, including existing local authority monitoring and Defra background maps/ does the*	The air quality assessment will utilise publicly available monitoring datasets and Defra background mapping to characterise the baseline conditions (see **Section 14.4.2**).

Consultee	Date/ Document	Comment	How Comment has been Addressed
		council agree with this approach? *Yes* *If monitoring is required, the nearest suitable dataset are located in Westhill/Aberdeen (c. 14km to the north of the OnTDA Scoping Boundary). We will ensure that baseline traffic data along road links within 200m of the closest and most representative local authority air quality monitors is collected such that road traffic emissions air dispersion model verification can be carried out, should modelling be required. Is the Council in agreement that use of the Westhill/Aberdeen monitoring data is suitable to characterise the baseline?* *Yes'*	
		'Does the Council support the proposed approach to scope operational air quality out of the assessment? *Yes.'*	Operational air quality effects have been scoped out, and the assessment will focus on potential construction and decommissioning phase impacts (see **Section 14.6**).
NatureScot		*'an assessment of the effect of dust on the [Garron Point] SSSI's protected features may need to be carried out'*	Potential construction dust effects on sensitive ecological features has been scoped into the air quality assessment (see **Section 14.6**). The risk of dust impacts will be assessed in accordance with IAQM guidance and appropriate mitigation measures will be identified, where required.

14.4 Existing Environment

14.4.1 Study Area

1054. Construction of the Bellrock Onshore Transmission Infrastructure may give rise to dust and particulate matter (PM) from construction related activities, emissions from Non-Road Mobile Machinery (NRMM) and emissions from construction road traffic on the local road network. These criteria in turn inform the air quality study area.

1055. It is assumed that impacts upon air quality would occur wholly within the Bellrock OnTDA. For the purpose of scoping, the air quality study area consists of the Bellrock OnTDA Scoping Boundary as shown in **Figure 14.1** in **Appendix A (Volume 1)**.

1056. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process to form the boundary of the Bellrock OnTDA. The air quality study area will then be updated to reflect this refinement using the criteria detailed below:

- Dust and PM emissions during the construction phase:
  - Human receptors within 250 m of the Bellrock OnTDA and within 50 m of trackout (i.e. the transport of dust and dirt from the construction site onto the public road network) routes, extending 250 m from the Bellrock OnTDA site exit(s); and
  - Ecological receptors within 200 m of the Bellrock OnTDA and within 50 m of trackout routes used by construction vehicles on the public highway, extending up to 250 m from the Bellrock OnTDA Scoping Boundary site exit(s).
- NRMM emissions during the construction phase:
  - Human and ecological receptors within 200 m of the Bellrock OnTDA where NRMM would be located.
- Road traffic emissions during the construction phase:
  - Human receptors within 200 m of all roads that trigger the IAQM and EPUK traffic screening criteria (IAQM and EPUK, 2017); and
  - Ecological receptors within 200 m of all roads that trigger the Design Manual for Roads and Bridges screening criteria (National Highways, 2024).

14.4.2 Data and Information Sources

1057. The desk-based sources used to characterise the existing environment and inform the air quality assessment will consist of publicly available datasets and reports. **Table 14.3** identifies potential desk-based sources, which will be updated throughout the EIA process. No field surveys are proposed to inform the characterisation of the existing environment.

Table 14.3: Summary of Key Data and Information Sources for the Air Quality Assessment

Dataset	Temporal Coverage	Description
Aberdeenshire Council 2025 Annual Progress Report (Aberdeenshire Council, 2025)	2020-2024	Local air quality monitoring and baseline information.
Aberdeen City Council 2025 Annual Progress Report (Aberdeen City Council, 2025)	2020-2024	Local air quality monitoring and baseline information.
Air Pollution Information System	2022-2024	UK-wide modelled pollutant concentrations and deposition data, including critical loads and levels for sensitive ecological receptors.
NatureScot SiteLink (NatureScot, 2026)	2026	Designated nature conservation sites in Scotland.
Defra Background Pollutant Mapping (Defra, 2020)	2025, 2029, 2034	Defra 1 km x 1 km background pollutant mapping.
Ordnance Survey Address Base (Ordnance Survey, 2024)	2026	Geospatial information for addresses in the local area to determine sensitive human receptors.

14.4.3 Baseline Conditions

1058. Air quality effects arising from the construction of projects of this nature are typically associated with the impacts of dust generation and road traffic emissions during the construction phase. The spatial extent of the road network which will be utilised by the Bellrock OnTDA is not yet fully defined but is likely to include road links within Aberdeenshire Council's administrative area.

1059. The nearest Air Quality Management Area to the air quality study area is approximately 16.8 km north of the air quality study area at its nearest point, within the centre of Aberdeen (see **Figure 14.1** (**Appendix A (Volume 1)**)). Due to distance and anticipated differences in local environments, this Air Quality Management Area has not been considered further.

1060. Historically, annual mean nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$) concentrations have been monitored by Aberdeenshire Council and Aberdeen City Council within their administrative areas using both automatic and non-automatic monitoring. The monitoring locations are shown in **Figure 14.1** in **Appendix A (Volume 1)**. The nearest monitoring location to the air quality study area is DT72, situated 14.1 km north at Altens Industrial Estate, in an urban background location, to the south of Aberdeen. Concentrations at DT72 ranged from 5-6 µg/m^3 across the most recent five year period (2020-2024). Based on Aberdeen City Council's 2025 Annual Progress Report, the annual mean NO_2 objective was exceeded at only one monitoring location (DT93 located in the centre of Aberdeen) across the whole city in 2024. Consequently, the objective was not met at this location, however, overall trends indicate continued improvements in air quality across the city (Aberdeen City Council, 2025). In addition, as presented in Aberdeenshire Council's Annual Progress Report. The maximum annual mean NO_2 concentration recorded across their administrative area in 2024 was 17 µg/m^3 (PH /BH located on Bath Street in Peterhead)

(Aberdeenshire Council, 2025). The 1-hour mean NO_2 objective was recorded to have been met in both administrative areas.

1061. The annual mean and 24-hour mean PM_{10} objectives, as well as the annual mean $PM_{2.5}$ objective, were recorded as being met in Aberdeenshire Council's administrative area.

14.5 Potential Impacts

14.5.1 Potential Construction Phase Impacts

1062. Potential impacts during the construction phase of the Bellrock Onshore Transmission Infrastructure may arise from activities associated with construction works which are outlined in **Chapter 3: Project Description**.

1063. These activities may result in the following impact pathways:

- Generation of dust and particulate matter during onshore construction works, for example from earthworks, stockpiling of stripped soils, and the establishment and use of temporary construction compounds to support onshore construction activities;
- Exhaust emissions (such as NO_2 and particulate matter) from construction phase plant (i.e. NRMM);
- Exhaust emissions from road vehicle movements during construction; and
- Odour emissions from disturbance of material at active landfill sites.

14.5.2 Potential Operation and Maintenance Phase Impacts

1064. Potential impacts during the O&M phase of the Bellrock Onshore Transmission Infrastructure arise from both the long-term presence and operation of infrastructure and periodic, planned and unplanned, maintenance activities.

1065. These activities may result in the following impact pathways:

- Generation of dust and particulate matter during planned maintenance works;
- Exhaust emissions (such as NO_2 and particulate matter) from O&M phase plant (i.e. NRMM) for planned maintenance works;
- Exhaust emissions from road vehicle movements during planned maintenance works; and
- Emissions from operational infrastructure.

14.5.3 Potential Decommissioning Phase Impacts

1066. Potential impacts during the decommissioning phase of the Bellrock Onshore Transmission Infrastructure will depend on the final decommissioning strategy, including the extent to which infrastructure is removed or left in-situ.

1067. Where infrastructure is removed, decommissioning activities are expected to result in localised air quality effects broadly similar in nature to construction activities (e.g. construction traffic emissions and dust from earthworks), although typically of reduced overall magnitude, as activities are likely to be more targeted.

1068. Where infrastructure is left in-situ (either partially or wholly), impacts associated with the continued presence of infrastructure are considered in the O&M phase and are not duplicated here.

14.5.4 Embedded Mitigation Measures

1069. Embedded mitigation has been identified, as presented in **Table 14.4** and **Appendix B: Mitigation and Monitoring Register (Volume 1)**, in accordance with the mitigation hierarchy, with the aim of avoiding, preventing, reducing, and where possible, offsetting potential adverse environmental effects. Consistent with the Institute of Environmental Management and Assessment (IEMA) guidance (2024) (now known as Institute of Sustainability and Environmental Professionals (ISEP)), primary (inherent design measures) and tertiary (standard good practice) mitigation are embedded within the Project Design Envelope and are, therefore, considered in the assessment of effects. Secondary mitigation measures will be identified where required through the EIA process, informed by the outcomes of the initial impact assessment.

1070. The current embedded mitigation measures may be refined as the Project Design Envelope evolves. In addition, further embedded mitigation measures may be developed as part of the iterative design process during the EIA process.

1071. A number of mitigation measures are anticipated to be implemented during the construction phase which are expected to minimise emissions to air and reduce the potential for impacts at sensitive human and ecological receptors.

Table 14.4: Embedded Mitigation Measures Relevant to Air Quality

Relevant Development Phase			Embedded Mitigation Measure	Relevance to assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	X	✓	Development of and adherence to a Soil Management Plan.	Measures to ensure the minimising of construction dust during soil handling will be captured in the Soil Management Plan.	Tertiary
✓	X	✓	Development of and adherence to a Construction Environment Management Plan (CEMP).	Assessment and subsequent identification of mitigation measures for construction dust impacts will be undertaken in accordance with the IAQM guidance on the assessment of dust from demolition and construction (IAQM, 2024). This will include the application of appropriate risk-based dust control measures. These measures will be secured through the implementation of a CEMP and are recognised as effective in controlling dust emissions from construction activities.	Tertiary
✓	X	✓	Adherence to measures to manage emissions from NRMM in line with best practice.	Implementation of measures to manage emission from NRMM will be targeted at reducing the overall emissions from this source during construction. This will be managed through measures such as the use of emissions-compliant, well-maintained equipment, appropriate fuel standards and emission control technologies where practicable. Measures will also likely include minimising engine idling and ensuring efficient operation to reduce fuel consumption and pollutant emissions.	Tertiary
✓	X	✓	Development of and adherence to a Construction Traffic Management Plan (CTMP).	The CTMP will also include any measures implemented to minimise air quality effects from road traffic emission during construction.	Tertiary

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14.6 Scoping of Potential Impacts

14.6.1 Construction Phase

1072. Impacts during construction may occur at human and ecological receptors as a result of the generation of dust and particulate matter during onshore construction works, for example from earthworks, stockpiling of stripped soils, and the establishment and use of temporary construction compounds to support onshore construction activities.

1073. Impacts may also occur as a result of exhaust emissions (such as NO_2 and particulate matter) from construction phase plant (i.e. NRMM) and road vehicle movements during construction. These emissions will add to existing pollutant concentrations at human receptors, and pollutant concentrations and deposition levels of pollutants at designated ecological sites. As such, dust and air quality impacts during construction have been **scoped in** to the EIA.

1074. Based on a review of publicly available data associated with registered active landfill sites, there are areas of active landfill within the air quality study area. As such, there is potential for odour emissions to arise during the construction phase should these active landfill sites be disturbed. Where required, potential odour emissions will be assessed in accordance with the IAQM guidance on the assessment of odour for planning (IAQM, 2018) and the SEPA Odour guidance (SEPA, 2025) as relevant.

14.6.2 Operation and Maintenance Phase

1075. It is anticipated that air quality effects during the operational phase would not be significant. During operation, the Bellrock Onshore Transmission Infrastructure would generate negligible emissions to air. Maintenance activities would generate a small number of additional road vehicles on an infrequent basis, which is not expected to give rise to any significant air quality effects. There are not anticipated to be any sources that would generate emissions during the operation of the Bellrock Onshore Transmission Infrastructure, given both the onshore export cables and OnSS are fixed infrastructure with no combustion sources and would only require infrequent maintenance activities.

1076. O&M phase air quality impacts are proposed to be **scoped out** of the EIA.

14.6.3 Decommissioning Phase

1077. At the end of its operational life, the Bellrock Offshore Transmission Infrastructure will be decommissioned. The final decommissioning approach, including the extent to which infrastructure is removed or left in-situ, will be determined through the preparation of a Decommissioning, Restoration and Aftercare Strategy, and will consider relevant legislation, guidance, and industry best practice.

1078. Where infrastructure is removed, decommissioning activities are expected to result in localised air quality effects broadly similar in nature to construction activities (e.g. construction traffic emissions and dust from earthworks), although typically of reduced overall magnitude, as activities are likely to be more targeted.

1079. Where infrastructure is left in-situ (either partially or wholly), impacts associated with the continued presence of infrastructure are considered in the O&M phase and are not duplicated here.

1080. The same potential impacts identified for construction will, therefore, be **scoped in** to the EIA for the decommissioning phase. Impacts from decommissioning are anticipated to be no worse than those identified during the construction phase. Decommissioning activities would be assessed using industry good practice and would comply with the relevant statutory requirements and regulatory framework at the time of decommissioning.

14.6.4 Bellrock OnTDA Whole Project Assessment

1081. The Bellrock OnTDA Whole Project Assessment will follow the general methodology set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessment** and will consider whether interactions between the Bellrock Onshore Transmission Infrastructure and the Bellrock Offshore Transmission Infrastructure and/or the Bellrock Wind Farm Infrastructure have the potential to alter the magnitude of impacts and significance of effects on air quality receptors identified in the Bellrock OnTDA-alone assessment. Refer to **Plate 4.3 (Chapter 4: Approach to Scoping and Environmental Impact Assessment**) for the approach and methodology that will be followed for the Bellrock OnTDA Whole Project Assessment.

1082. No pathway-based interactions are anticipated between the Bellrock OnTDA and the Bellrock OfTDA, as there is no spatial overlap except within the intertidal zone.

1083. In relation to offshore air quality, evidence from 79 UK offshore wind EIAs demonstrates that offshore air quality effects arising from construction, O&M and decommissioning activities - including vessel and helicopter emissions, temporary offshore plant and generators, and minor operational wind turbine generator or offshore platform-related emissions - have not been predicted to give rise to significant effects. No standalone offshore air quality assessments have concluded likely significant effects.

1084. Evidence of regulatory acceptance across multiple previous projects demonstrates that this topic can be scoped out, on the basis of limited offshore human and ecological receptors, high atmospheric dispersion, the temporary and mobile nature of emission sources, and compliance with The International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978, MARPOL Annex VI and other applicable emission standards. In line with this established evidence base and regulatory precedent, offshore air quality is proposed to be scoped out of further assessment. This approach is supported by the Offshore Wind Evidence Knowledge Hub (OWEKH) Evidence Review Note: Offshore Air Quality (2026) (OWEKH, 2026), which consolidates sector-wide evidence underpinning this position.

1085. This position is also set out in the EIA Scoping Report for the Bellrock Offshore Transmission Infrastructure which was submitted to Scottish Ministers on 17 August 2026 (Bellrock Offshore Wind Farm Limited, 2026b), in which effects arising from the Bellrock OfTDA are proposed to be scoped out of the Bellrock OfTDA EIA.

1086. Therefore, air quality impacts associated with other Development Areas have been **scoped out** of further consideration in the EIA.

14.6.5 Potential Cumulative Effects

1087. The Bellrock OnTDA Cumulative Effects Assessment (CEA) will be undertaken in accordance with the methodology set out in **Section 4.7** of **Chapter 4: Approach to Scoping and Environmental Impact Assessment**. An overview of the Bellrock OnTDA assessment process, including the relationship between the Bellrock OnTDA Whole Project Assessment and the CEA, is provided in **Plate 4.3**.

1088. Overall, the CEA is a two-staged process, with the first stage assessing the impacts as a result of the Bellrock OnTDA Whole Project Assessment (**Section 14.6.4**) together with the Hurlie substation. The second stage will then assess the impacts as a result of the Bellrock OnTDA Whole Project Assessment together with the Hurlie substation plus impacts arising from other reasonably foreseeable plans and projects where there is conceptual, spatial, and/or temporal overlap. This will determine the potential for cumulative impacts and subsequent cumulative effects on air quality receptors.

1089. There is potential for cumulative effects to arise in which other committed development, projects or plans could aggregate with the Bellrock Onshore Transmission Infrastructure to affect onshore air quality receptors. These cumulative impacts may affect both human and ecological receptors during the construction phase and are, therefore, **scoped in** to the EIA.

1090. Any other project with the potential to result in cumulative effects in combination with the Bellrock Onshore Transmission Infrastructure will be identified through consultation and a review of available information, and will be included in the CEA, as appropriate.

1091. As no potential effects have been identified during the operational phase, the Bellrock Onshore Transmission Infrastructure is not anticipated to contribute to cumulative effects with other onshore emission sources during operation. It is, therefore, proposed that operational cumulative onshore air quality effects should be **scoped out** of the EIA.

14.6.6 Potential Transboundary Effects

1092. The Bellrock OnTDA is not expected to result in likely significant transboundary air quality effects. Air quality impacts associated with construction activities and operational traffic would be limited to the vicinity of the Bellrock OnTDA and would diminish rapidly with distance from the source. Given the location of the Bellrock OnTDA and the likely localised nature of air quality impacts, significant transboundary effects are not anticipated. As such, transboundary effects are **scoped out** of the EIA.

14.6.7 Summary of Potential Air Quality Impacts Scoped In and Scoped Out

1093. **Table 14.5** summarises the outcomes of the scoping assessment presented in **Section 14.6.1** to **14.6.6**, identifying the relevant impacts for air quality and confirming whether these have been scoped in or scoped out of further assessment in the EIA.

Table 14.5: Summary of Potential Air Quality Impacts Scoped In (✓) or Scoped Out (X)

Potential Impact	Scoped In (✓) or Scoped Out (X)		
	Construction	O&M	Decommissioning
Construction dust emissions	✓	X	✓
Road vehicle emissions	✓	X	✓
Construction non-road mobile machinery	✓	X	✓
Odour emissions	✓	X	✓
Bellrock OnTDA Whole Project Assessment*	X	X	X
Cumulative effects	✓	X	✓
Transboundary effects	X	X	X
Notes: * see **Section 14.6.4** for further details on the scoping of the Bellrock OnTDA Whole Project Assessment for Air Quality.			

14.7 Proposed Approach to Impact Assessment

1094. Existing air quality conditions in the air quality study area will be characterised using the data sources as identified in **Section 14.4.2**. Potential sensitive receptors will be identified using Ordnance Survey (OS) mapping data and Address Base data for human receptors and NatureScot SiteLink for designated ecological sites.

1095. The air quality assessment will be undertaken in accordance with the following guidance documents to cover the construction and decommissioning phases:

- Defra (2025) Local Air Quality Management Technical Guidance LAQM.TG (22);
- National Highways (2024) LA105 – Scotland National Application Annex for Air Quality (vertical barriers). Design Manual for Roads and Bridges;
- IAQM (2024) Guidance on the Assessment of Dust from Demolition and Construction;
- IAQM and EPUK (2017) Land-Use Planning and Development Control: Planning for Air Quality;
- IAQM (2020) A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites; and
- Natural England (2018) Natural England's Approach to Advising Competent Authorities on the Assessment of Road Traffic Emissions under the Habitats Regulations (whilst this guidance document relates to the consenting regime in England, the underlying principles will be followed for the air quality assessment for the Bellrock OnTDA).

14.7.1 Construction Dust Emissions

1096. An assessment of dust generated during construction will be undertaken in accordance with IAQM guidance (IAQM, 2024). The assessment is risk-based, and the risk of dust impacts will be determined for both human and ecological receptors in proximity to the construction works. Mitigation measures will be recommended which are commensurate with the identified risk, to ensure that significant effects will not occur.

14.7.2 Construction Odour Emissions

1097. An assessment of potential odour emissions will be undertaken in accordance with the IAQM guidance on the assessment of odour for planning (IAQM, 2018) and the SEPA Odour guidance (SEPA, 2025) as relevant.

14.7.3 Construction Plant and Vehicle Exhaust Emissions

1098. During construction, NRMM and plant can increase air emissions which may impact upon human and ecological receptors. Technical guidance provided by Defra (Defra, 2022) states that emissions from NRMM on construction sites are typically unlikely to lead to significant air quality impacts. However, intensive construction activities, for example trenchless crossing technique works, may temporarily increase pollutant concentrations in the vicinity of sensitive receptors. The location of human and ecological receptors in relation to construction works will be qualitatively reviewed and assessed to determine whether any further assessment of emissions from NRMM is required.

1099. The increase in construction traffic flows generated by the Bellrock Onshore Transmission Infrastructure will be screened using criteria in IAQM and EPUK (IAQM and EPUK, 2017) and Natural England (Natural England, 2018) guidance. Where traffic flows exceed the screening criteria and there are relevant human or ecological receptors located within 200 m of the road, a detailed dispersion modelling assessment will be undertaken to consider impacts at these locations. Concentrations of NO_2, PM_{10} and $PM_{2.5}$ will be predicted at human receptors, and concentrations of nitrogen oxides (NO_x), ammonia (NH_3) and associated nutrient nitrogen and/or acid deposition will be calculated at ecological receptors. Critical Loads and Critical Levels for designated ecological sites will be obtained from the UK Centre for Ecology & Hydrology air pollution information system. These site and habitat-specific values will be used as assessment criteria for evaluating the potential effects of changes in atmospheric pollutant concentrations and nitrogen and acid deposition on designated ecological receptors.

1100. The significance of effects at human receptors will be determined in accordance with IAQM and EPUK guidance (IAQM and EPUK, 2017). Potential effects on ecological receptors will be considered within the Onshore Ecology and Nature Conservation chapter of the Bellrock OnTDA EIA Report.

1101. The approach to assessment will be discussed and the relevant input parameters and receptor locations will be agreed with Aberdeenshire Council officers prior to undertaking the assessment.

14.8 Scoping Questions to Consultees

1102. The following questions are posed to consultees to help them frame and focus their response to the onshore air quality scoping exercise, which will in turn inform the EIA:

- Are there any additional data sources or guidance documents that should be considered?
- Have all the onshore air quality impacts resulting from the Bellrock OnTDA been identified in this **Bellrock OnTDA Scoping Report**?
- Do you agree with the proposed scope of construction-phase onshore air quality and dust impacts to be assessed within the EIA, including on designated ecological sites?
- Do you agree with the scope of cumulative effects in relation to onshore air quality?
- Do you agree with the proposed assessment methodology for onshore air quality?

14.9 References

Aberdeen City Council (2025) 2025 Air Quality Progress Report (APR), June 2025.

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Bellrock Offshore Wind Farm Limited (2026a). Bellrock Wind Farm Development Area Environmental Impact Assessment Report. April 2026.

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Defra, Scottish Executive, Welsh Assembly Government and Department of the Environment Northern Ireland (2007). The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. London: The Stationery Office.

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Scottish Government (2023). National Planning Framework 4. Edinburgh: Scottish Government.

Scottish Government (2024). Local Air Quality Management: Policy Guidance. Edinburgh: Scottish Government.

UK Centre for Ecology and Hydrology (CEH) (2024). Air Pollution Information System.

UK Parliament (1995). Environment Act 1995 (c.25). London: The Stationery Office.

15 Socioeconomics, Tourism and Recreation

15.1 Introduction

1103. This Chapter of the **Bellrock Onshore Transmission Development Area (OnTDA) Scoping Report** considers the scope of potential impacts on socioeconomics, tourism and recreation receptors associated with the construction, operation and maintenance (O&M), and decommissioning of the Bellrock Onshore Transmission Infrastructure.

1104. The Bellrock OnTDA Scoping Boundary (shown in **Figure 1.1 (Appendix A (Volume 1))**) defines the area within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process (as discussed in **Section 1.4** in **Chapter 1: Introduction**) to form the boundary of the Bellrock OnTDA Planning Permission in Principle (PPP) Application.

1105. For the purposes of this **Bellrock OnTDA Scoping Report**, the Bellrock OnTDA Scoping Boundary encompasses the anticipated Onshore Transmission Infrastructure and associated activities for the Bellrock OnTDA landward of Mean Low Water Springs (MLWS). The Bellrock OnTDA Scoping Boundary overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) between Mean High Water Springs (MHWS) and MLWS.

1106. The Bellrock Onshore Transmission Infrastructure includes:

- **Landfall**: located at Cowie, Aberdeenshire, where between two and six ducts are installed using trenchless techniques, allowing the offshore export cables to be brought ashore and connected to onshore export cables within the transition joint bay;
- **Onshore export cables**: up to six underground High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) onshore cable circuits, each up to 18 km in length, installed between landfall and the onshore substation;
- **Onshore substation (OnSS)**: electrical equipment (such as converters, transformers, switchgear, and protection and control systems) enabling renewable electricity from the Bellrock Wind Farm Development Area (WFDA) received via the onshore export cables to be exported to the National Electricity Transmission System, and ancillary infrastructure; and
- **Hurlie substation connection works**: Infrastructure between the Bellrock OnSS to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the National Electricity Transmission System.

1107. In addition, associated works are required to facilitate construction and O&M of the Onshore Transmission Infrastructure, including access, signage, haul roads, spoil storage, material storage, fencing, borrow pits (if any), earthworks, welfare, security, landscape mitigation, ecological mitigation, biodiversity enhancement, operational lighting and drainage.

1108. As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Wind Farm Infrastructure (located within the Bellrock WFDA) was presented in the **Bellrock WFDA Environmental Impact Assessment (EIA) Report**, which was submitted in support of the Section 36 Consent and Marine Licence Application for the Bellrock Wind Farm Infrastructure in April 2026 (Bellrock Offshore Wind Farm Limited, 2026a). The **Bellrock WFDA EIA Report** considered the potential impacts and subsequent effects of the Bellrock Wind Farm Infrastructure on the environment. An EIA Scoping Report for the Bellrock Offshore Transmission Infrastructure was also submitted to Scottish Ministers on 17 August 2026 (Bellrock Offshore Wind Farm Limited, 2026b) with an EIA Report in support of the Marine Licence Application proposed to be submitted by the end of 2027.

1109. An assessment of the economic impacts for the whole Bellrock Project, covering the Bellrock WFDA, OfTDA, and OnTDA combined, was presented in a standalone report titled 'Economic Impact of the Bellrock Offshore Wind Farm' appended to the **Bellrock WFDA EIA Report**. This standalone report followed a distinct economic impact methodology to specifically capture the beneficial economic, employment, and supply chain impacts of the whole project.

1110. While the core analysis of the 'Economic Impact of the Bellrock Offshore Wind Farm' report will remain identical across the Bellrock WFDA, OfTDA and OnTDA EIA reports, the report will be reviewed and updated prior to each consent application to reflect the most up-to-date project parameters, economic baseline data, and relevant policy or guidance. The standalone report will, therefore, be revised and updated prior to submission alongside the Bellrock OnTDA EIA Report. This is confirmed in **Section 15.7** below.

1111. This Chapter of the **Bellrock OnTDA Scoping Report** provides an overview of the existing environment and sets out the methodology and approach to assessing effects on socioeconomic, recreation and tourism receptors in the Bellrock OnTDA EIA Report. This Chapter has been prepared by BiGGAR Economics Limited.

1112. This Chapter should be read in conjunction with the following chapters of the **Bellrock OnTDA Scoping Report**:

- **Chapter 5: Landscape and Visual Impact;**
- **Chapter 11: Onshore Archaeology and Cultural Heritage;**
- **Chapter 12: Traffic and Transport;**
- **Chapter 13: Noise and Vibration;** and
- **Chapter 18: Human Health.**

1113. This Chapter is likely to have key inter-relationships with the above receptors, which will be considered appropriately, where relevant, in the Bellrock OnTDA EIA Report.

15.2 Legislation, Policy and Guidance

1114. **Table 15.1** sets out a summary of the legislation, policy, and guidance documents which have been considered in the preparation of this Chapter, where appropriate. The overarching legislation and policy relevant to the Bellrock OnTDA is described in **Chapter 2: Legislative and Policy Context**.

Table 15.1: Summary of Relevant Legislation, Policy and Guidance for Socioeconomics, Tourism and Recreation

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Legislation	
Town and Country Planning (Scotland) Act (1997)	Principal legislative framework for Scotland's planning system, requiring material considerations to be taken into account in the preparation of development plans and the determination of development proposals.
Land Reform (Scotland) Act 2003	Establishes statutory public rights of access to most land and inland water in Scotland. This is a fundamental baseline requirement for assessing potential impacts on recreational routes, access rights, and core paths.
The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017	Schedule 4 states that the description of the likely significant effects should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.
Planning (Scotland) Act 2019	Sets the statutory framework for development planning in Scotland, establishing the requirement for development plans to consider the economic and social impacts of development.
Policy	
Scotland's National Marine Plan (Scottish Government, 2015a)	Overarching guidance for planning and consenting. It sets out a series of objectives, including around maximising economic benefits through a competitive local supply chain in Scotland. This is relevant to the standalone 'Economic Impact of the Bellrock Offshore Wind Farm' report, which will be submitted as an appendix to the Bellrock OnTDA EIA Report.
Scotland Outlook 2030: Responsible Tourism for a Sustainable Future (Scottish Tourism Alliance, 2020)	The national tourism strategy aimed at balancing economic growth with environmental and community well-being. Relevant for contextualising the tourism baseline and assessing potential secondary effects on the local visitor economy.
Sectoral Marine Plan for Offshore Wind Energy (Scottish Government, 2020b)	The Sectoral Marine Plan provides the spatial planning framework for offshore wind in Scottish waters. It is a key planning document for identifying areas of opportunity and managing potential conflicts with other marine users, such as commercial fisheries. It should be noted that this plan is currently under review. This is relevant to the standalone 'Economic Impact of the Bellrock Offshore Wind Farm' report, which will be submitted as an appendix to the Bellrock OnTDA EIA Report.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
The Offshore Wind Sector Deal (UK Government, 2020)	The Offshore Wind Sector Deal is linked to the development of a supply chain for offshore wind projects, which informs the socioeconomic assessment of the Bellrock Onshore Transmission Infrastructure.
Scotland's National Strategy for Economic Transformation – Delivering Economic Prosperity (Scottish Government, 2022a)	Sets a vision for a wellbeing economy; informs how the Bellrock Onshore Transmission Infrastructure supports economic activity.
Aberdeenshire Local Development Plan 2023 (Aberdeenshire Council, 2023)	As the primary spatial planning document for the region, the local development plan sets out policies for safeguarding local assets, promoting high-quality places, and supporting economic diversification. The following policies are considered relevant: ▪ **Policy B1: Town Centre Development** considers businesses and developments; ▪ **Policy B3: Tourist Facilities** aims to support tourist facilities; and ▪ **Policy PR1: Protecting Important Resources** aims to protect public open space and recreational routes These are relevant for assessing impacts on local economic development, amenity, and the visitor economy. It informs the assessment of how the Bellrock Onshore Transmission Infrastructure interacts with local development priorities.
National Planning Framework 4 (NPF4) (Scottish Government, 2023)	The following NPF4 policies are considered relevant to socioeconomics, tourism and recreation: ▪ **Policy 11: Energy** encourages developments that maximise net economic impact. ▪ **Policy 25**: Community Wealth Building supports local economic priorities.
The Green Industrial Strategy (Scottish Government, 2024a)	Highlights offshore wind as a primary opportunity for attracting supply chain investment relevant to the Onshore Transmission Infrastructure.
Offshore Wind Focus (Scottish Government, 2024b)	Outlines public sector investment opportunities to enable economic benefits from offshore wind to be realised in Scotland.
National Marine Plan 2 Planning Position Statement (Scottish Government, 2024e)	While National Marine Plan 2 is not yet adopted, this statement signals the future direction of marine planning policy in Scotland. The assessment will acknowledge these emerging priorities, particularly regarding the co-existence of marine users and the maximisation of sustainable economic benefits. This is relevant to the standalone 'Economic Impact of the Bellrock Offshore Wind Farm' report, which will be submitted as an appendix to the Bellrock OnTDA EIA Report.
The Offshore Wind Industrial Growth Plan (Renewable UK, OWIC, Crown Estate Scotland (CES, 2024)	This plan sets out strategic opportunities for the UK supply chain, informing the assessment of economic impacts from the Bellrock Onshore Transmission Infrastructure and cumulative impacts from the wider project pipeline.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Clean Power 2030 Action Plan: A new era of clean electricity (UK Government, 2024a)	The expansion in offshore wind capacity to 2030 will contribute to supply chain development, providing potential benefits for the construction and O&M of the Bellrock Onshore Transmission Infrastructure.
Regional Economic Strategy (Aberdeen City Council, Aberdeenshire Council, and Opportunity north east, 2024)	This strategy provides a long-term vision to transform the north east economy, focusing on a just transition to net zero, retaining skilled workforces, and harnessing offshore energy expertise. It is relevant for framing the economic baseline and assessing the economic contribution of the Bellrock Onshore Transmission Infrastructure to the regional economy.
Draft Updated Sectoral Marine Plan for Offshore Wind Energy (Scottish Government, 2025a)	This plan will (on adoption) confirm the strategic designation of the Bellrock site as a commercial offshore wind development area (identified as Option Area E1B). It provides the context for the 'Need for the Project' and establishes the national baseline for assessing cumulative socioeconomic effects.
Update to the 2020 Offshore Wind Policy Statement: Scotland's Offshore Wind Ambition (Scottish Government, 2026)	In January 2026, the Scottish Government significantly increased its offshore wind ambition to 40 Gigawatt (GW) by 2040, emphasising energy security and a £100 billion economic opportunity driven largely by floating wind technology. The update reaffirms the Government's commitment to supporting the delivery of the existing project pipeline, which includes the Bellrock Onshore Transmission Infrastructure (listed as a project holding an Option to Lease awarded).
Community Wealth Building Strategy (Aberdeenshire Council, 2026a)	This strategy sets out the local authority's priorities for retaining economic wealth within the region through fair employment, local supply chain development, and community empowerment. It is relevant for assessing how the Onshore Transmission Infrastructure of Bellrock can align with, and support local economic priorities.
Energy Developments Community Wealth Building Charter (Aberdeenshire Council, 2026b)	This Charter outlines the specific expectations for energy developers to contribute to the local economy and community wealth. It emphasises the importance of local supply chain engagement, skills development, and shared benefits, directly informing the standalone 'Economic Impact of the Bellrock Offshore Wind Farm' report. and the Applicant's approach to local economic benefits.
Guidance	
Defining 'Local Areas' for Assessing the Economic Impact of Offshore Renewables and Other Marine Developments: Guidance Principles (Scottish Government, 2022b)	This Scottish Government guidance provides a set of principles for defining appropriate geographic 'local areas' to ensure a consistent and proportionate approach when assessing the economic impacts of marine developments. This is relevant for defining local study areas used in the standalone 'Economic Impact of the Bellrock Offshore Wind Farm' report, which will be submitted as an appendix to the Bellrock OnTDA EIA Report.
General Advice for Offshore Socioeconomic Impact Assessment (SEIA), Marine Analytical Unit (MAU) (MAU, 2023)	This document offers technical advice from the Scottish Government's MAU on best practices for conducting SEIAs for offshore developments, covering topics like data sources, methodologies, and presentation of results.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
The Green Book: UK Government Guidance on Appraisal (HM Treasury, 2026)	This guidance is relevant as it provides the best practice methodology for economic appraisal, including the standard discount rates that should be used when calculating the net present value of long-term economic impacts.

15.3 Consultation

1115. Consultation regarding the socioeconomics, tourism and recreation assessment for the Bellrock Onshore Transmission Infrastructure has been an ongoing process following initial engagement commenced during the scoping phase for the Bellrock WFDA in 2024.

1116. Following the integration of the Onshore Transmission Infrastructure into the project design in April 2025 (see **Chapter 1: Introduction** for details), the socioeconomics whole project assessment methodology was further refined and consulted upon in July 2025.

1117. The Applicant will continue to engage with stakeholders during the pre-application phase, following the publication of the Bellrock OnTDA Scoping Opinion and supporting consultation responses.

1118. A summary of consultation activities undertaken to date is provided in **Table 15.2**.

Table 15.2: Consultation Relevant to Socioeconomics, Tourism and Recreation

Consultee	Date/Document	Comment	How Comment is Addressed
Marine Directorate - Licensing Operations Team (MD-LOT)	2024 Bellrock WFDA Scoping Opinion (MD-LOT, 2024)	*'in line with MD-SEDD socioeconomics advice, advise that the assessment of socio-economic impacts would benefit from the inclusions of a short list of potential epicentres of impact […] the Scottish Ministers advise that a full Socio-Economic Impact Assessment ("SEIA") must be included with the EIA Report and should be transparent in its methodological choices for assessment of socioeconomic impacts.'*	The core socioeconomic impact assessment methodology established for the Bellrock WFDA will be applied to the Bellrock OnTDA (see **Section 15.7** of this **Bellrock OnTDA Scoping Report**).
MD-LOT, MAU	July 2025 Letter: Consultation on whole project methodology for the Bellrock Offshore Wind Farm - Wind Farm Development Area Environmental Impact	*'[MD-MAU] has got back to confirm a nil response as it does not provide advice post-scoping'*	Noted

Consultee	Date/Document	Comment	How Comment is Addressed
	Assessment - Methodology for the Socioeconomics, Tourism and Recreation Assessment (Bellrock Offshore Wind Farm Limited, 2025)		
Aberdeenshire Council	July 2025 Letter: Consultation on whole project methodology for the Bellrock Offshore Wind Farm - Wind Farm Development Area Environmental Impact Assessment - Methodology for the Socioeconomics, Tourism and Recreation Assessment (Bellrock Offshore Wind Farm Limited, 2025)	*'I can confirm I agree with the proposed methodology [in relation to the socio-economics, tourism and recreation assessment.'*	The proposed methodology is outlined in **Section 15.7** of this **Bellrock OnTDA Scoping Report**.
Aberdeenshire Council (Economic Development)	19 August 2026 Pre-Application Advice letter	*'Economic Statement/ Assessment of Economic Need should be included within any formal submission in accordance with Policy 11c (Energy) and Policy 25 (Community Wealth Building) of NPF4.* *Aberdeenshire Council has produced a Community Wealth Building Strategy, and a Community Wealth Building Energy Developments Charter, which detail how the Council considers that these issues can be demonstrated'*	The socioeconomics assessment will quantify the economic impacts of the Bellrock Onshore Transmission Infrastructure (**Section 15.7.1** of this **Bellrock OnTDA Scoping Report**.) and consider the Bellrock Project's alignment with NPF4 and Aberdeenshire Council's Community Wealth Building principles.
Aberdeenshire Council (Natural Environment)		*'There are concentrations of core paths around Stonehaven. Public Rights of Way are also present, particularly at the proposed landfall point. Further detail on Rights of Way is available from ScotWays. The EIA should assess the impacts on public access and provide suitable mitigation.* *It is suggested that the applicant is explore options to enhance public access infrastructure as part of the project.'*	Potential impacts on recreational routes (including Core Paths and the coastal path) will be assessed as part of the Tourism and Recreation assessment. Measures for the management of public access will be embedded within the Construction Environmental Management Plan (CEMP) (**Table 15.4** of this **Bellrock OnTDA Scoping Report**).

15.4 Existing Environment

15.4.1 Study Areas

15.4.1.1 Socioeconomic Study Area

1119. The socioeconomic study areas for the assessment of employment and economic Gross Value Added (GVA) effects will be defined in line with the guidance on the identification of 'local areas' for offshore developments published by the Scottish Government (Scottish Government, 2022b). This guidance identified six principles for identifying local study areas for offshore developments:

- **Principle 1 (Dual Geographies)**: The local area for the supply chain and investment impacts should be separate from the local area(s) for wider socioeconomic impacts, including tourism and recreation;
- **Principle 2 (Appropriate Impacts)**: The appropriate impacts to be considered for assessments should be identified before defining the local areas;
- **Principle 3 (Epicentres)**: The local areas should include all the epicentres of the appropriate impacts;
- **Principle 4 (Accountability)**: The local areas used in the assessment should comprise of pre-existing economic or political geographies (e.g. community councils, local authorities, development agencies) to enhance accountability;
- **Principle 5 (Understandable)**: The local areas should be defined in such a way that they are understandable to the communities they describe; and
- **Principle 6 (Connected Geography)**: The local area for the supply chain and investment impacts should consist of connected (including coastal) pre-existing economic or political geographies.

1120. The epicentres of impact associated with the Bellrock Onshore Transmission Infrastructure will include the locations of the key construction sites, specifically the landfall at Cowie, the onshore export cable corridor, the OnSS, and the Hurlie substation connection works. The economic impacts will also be assessed at the level of the Aberdeenshire, Scottish and UK economies, i.e. each of these constitutes a study area for assessing socioeconomic effects.

15.4.1.2 Tourism and Recreation Study Area

1121. The tourism and recreation assessment will cover a smaller study area than the socioeconomic assessment. For tourism and recreation, the study area will focus on the local administrative areas that contain the Bellrock Offshore Infrastructure and will experience environmental effects (specifically landscape and visual, noise and vibration, and traffic and transport effects) that have the potential to impact visitor behaviour.

1122. The extent of the tourism and recreation study area is defined by the realistic worst-case geographic spread of these primary environmental effects. For example, the landscape and visual impact assessment considers a study area of 5 km from the Bellrock OnSS (subject to final confirmation of the Landscape and Visual Impact Assessment study area). The tourism and

recreation study area will, therefore, include the electoral wards which contain the tourism and recreation receptors within this 5 km boundary because these receptors would be considered the epicentres of impact.

1123. The Bellrock OnTDA Scoping Boundary is located within the Aberdeenshire Council, Kincardine and Mearns administrative area. Given the extensive geographic extent of the local authority, the tourism and recreation study area defined at the scoping stage is based on the electoral wards that fall within the 5 km buffer of the Bellrock OnTDA Scoping Boundary. The electoral wards that have been defined at the scoping stage and constitute the tourism and recreation study area are:

- North Kincardine;
- Stonehaven and Lower Deeside; and
- Mearns.

15.4.2 Data and Information Sources

1124. Socioeconomic, tourism and recreation specific information will be reviewed and analysed to inform the socioeconomics, tourism and recreation baseline. Information on socioeconomics within the socioeconomic study areas, and tourism and recreation within the tourism and recreation study area, will be collected through a detailed desktop review of existing studies and datasets, which are summarised in **Table 15.3**.

1125. The datasets listed in **Table 15.3** represent the most current information available at the time of writing this Scoping Report. At the time of drafting the EIA Report, the latest available data and information sources will be utilised, as several datasets may be updated following the scoping phase.

Table 15.3: Key Data and Information Sources for Socioeconomics, Tourism and Recreation

Dataset	Source	Year of Publication	Description
Socioeconomics			
2018-based Principal Population Projections for Council Areas	National Records of Scotland (NRS)	2020	Population projections.
Collaborating for Growth: Strategies for Expanding the UK Offshore Wind Supply Chain	Offshore Wind Industry Council (OWIC)	2020	Information on the UK Offshore Wind Supply Chain.
Guidance on Assessing the Socioeconomic Impacts of Offshore Wind Farms	Oxford Brookes University	2020	Guidance on SEIAs of offshore wind farms.
General Practice - General Practitioners Workforce and Practice List Sizes	Public Health Scotland	2022	General Practitioners (GPs) in Scotland.

Dataset	Source	Year of Publication	Description
Job Density	Office for National Statistics (ONS)	2023	Employment over time across the UK.
Offshore Wind Skills Intelligence Report	OWIC	2023	Skills evidence for the offshore wind sector.
Annual Population Survey	ONS	2024	Employment, unemployment rates, and qualifications across the UK.
Dwelling Stock by Tenure, UK	ONS	2024	Housing stock in the UK.
Education and Training Statistics for the UK	UK Government	2024	Teacher per pupil numbers.
Guide to an Offshore Windfarm	BVG Associates	2024	Information on the contracts required for an offshore wind farm.
House Price Statistics	Registers of Scotland	2024	Housing prices in Scotland.
Housing Statistics: Stock by Tenure	Scottish Government	2024	Housing stock in Scotland.
Northern Ireland Annual General Medical Services Statistics	Business Services Organisation	2024	Number of GPs in Northern Ireland, used alongside other regional datasets to define the complete UK baseline.
Northern Ireland Housing Statistics	Department for Communities	2024	Housing data for Northern Ireland, used alongside other regional datasets to define the complete UK baseline.
Annual Business Survey	ONS	2025	Information on economic activity in the UK.
Annual Survey of Hours and Earnings 2025	ONS	2025	Earnings across the UK.
Business Register and Employment Survey 2024	ONS	2025	Sectoral employment across Great Britain (GB).
Mid-2024 Population Estimates - Local Authority	NRS	2025	Population estimates.
Population Estimates - Local Authority Based by Five-year Age Band	ONS	2025	Population estimates by local authority, used to define the wider UK baseline (complementing the NRS Scottish data).
Principal Population Projections 2022-based	ONS	2025	Scotland and UK-level population projections.
Pupil Census Supplementary Statistics 2025	Scottish Government	2025	Pupil numbers across Scotland.

Dataset	Source	Year of Publication	Description
Teacher Census Supplementary Statistics 2025	Scottish Government	2025	Teacher numbers across Scotland.
Tourism and Recreation			
Annual Growth Sector Statistics	Scottish Government	2023	Evidence on tourism employment and GVA across Scotland.
International Passenger Survey 2022	ONS	2023	Overnight visitors and spending for international visitors.
Industry Statistics Database 2024	Scottish Government	2024	Information on sustainable tourism activity.
VisitScotland - Research and Insights	VisitScotland	2024	Information on tourism activity.
GB Day Visitor Survey 2024	Kantar	2025	Day visitor trips and spending across GB.
The GB Tourism Survey 2024	Kantar	2025	Overnight visitor trips and spending across GB.
Core Paths Scotland	data.gov.uk/NatureScot	2026	Spatial data identifying designated core paths within the study area.
National Cycle Network (NCN) Mapping	Sustrans	2026	Spatial data identifying NCN routes within the study area.
Scotland's National Catalogue of Rights of Way, Heritage Paths and Scottish Hill Track routes	The Scottish Rights of Way and Access Society (ScotWays)	2026	Rights of ways records.
Walkhighlands	Walkhighlands	2026	Information and mapping of local recreational trails and walking routes within the study area.

15.4.3 Socioeconomics Baseline

1126. The population of Scotland is predicted to increase from approximately 5,546,900 in 2024 (NRS, 2025) to 5,770,152 in 2043 (NRS, 2020). Conversely, the population of Aberdeenshire is expected to decrease from 265,000 to 263,000 during the same period. Furthermore, the proportion of individuals within the working-age demographic (defined statistically by the ONS and NRS as 16 to 64 years old) is predicted to decline in both areas, dropping by 2.1 percentage points in Scotland and 4.7 percentage points in Aberdeenshire.

1127. The development of onshore transmission infrastructure to support the offshore renewables sector represents a strategic opportunity for Scotland, and particularly Aberdeenshire, to scale its local economy, stimulate supply chain growth, and attract and retain working-age individuals through

high-quality job opportunities. The socioeconomics baseline overview will outline current population structures, future demographic projections, economic activity, employment rates, industrial structures, and levels of deprivation. This baseline characterisation will be undertaken at Aberdeenshire, Scotland, and UK levels.

15.4.4 Tourism and Recreation Baseline

1128. Sustainable tourism is identified in the national tourism strategy, 'Scotland Outlook 2030: Responsible Tourism for a Sustainable Future', which was launched in 2020. It seeks to balance economic growth with environmental and community well-being. Sustainable tourism is also identified in Scotland's Economic Strategy (2015) as one of Scotland's key growth sectors. Tourism accounts for around 239,000 jobs in Scotland and is worth approximately £10.8 billion in visitor spend.

1129. The tourism and recreation baseline will outline the scale of the local tourism economy and identify key attractions within the tourism and recreation study area. This will include an overview of visitor numbers and their associated economic spend. Furthermore, specific terrestrial tourism and recreation receptors, such as Dunnottar Castle, Stonehaven Golf Club, the Stonehaven Heated Open Air Pool, Swanley Livery and local visitor accommodation, and recreational routes including local Core Paths and the NCN, will be fully identified, mapped, and assessed during the EIA stage to evaluate any potential secondary impacts on visitor behaviour and recreational amenity.

15.5 Potential Impacts

1130. The socioeconomics, tourism and recreation impacts considered in this assessment are those defined in the general advice published by the Scottish Government's MAU in 2023 (MAU, 2023). While this guidance primarily highlights impacts associated with the development of an offshore wind farm, the principles and categories are directly applicable to the associated onshore transmission infrastructure. These have been grouped into three primary categories:

- Economic impacts:
  - Increase in employment and GVA, (including direct, indirect and induced impacts).
- Social impacts:
  - Demographic changes;
  - Changes to housing demand;
  - Changes to other local public and private services; and
  - Sociocultural effects.
- Impacts on other sectors:
  - Tourism and recreation.

15.5.1 Embedded Mitigation Measures

1131. Embedded mitigation has been identified, as presented as presented in **Table 15.4** and in **Appendix B: Mitigation and Monitoring Register (Volume 1)**, in accordance with the mitigation hierarchy, with the aim of avoiding, preventing, reducing, or where possible, offsetting potential adverse environmental effects. Consistent with the Institute of Environmental Management and Assessment (IEMA) guidance (2024) (now known as Institute of Sustainability and Environmental Professionals (ISEP)), primary (inherent design measures) and tertiary (standard good practice) mitigation are embedded within the project design and are, therefore, considered in the assessment of effects. Secondary mitigation measures will be identified where required through the EIA process, informed by the outcomes of the initial impact assessment.

1132. The current embedded mitigation measures may be refined as the project design evolves. In addition, further embedded mitigation measures may be developed as part of the iterative design process.

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Table 15.4: Embedded Mitigation Measures Relevant to Socioeconomics, Tourism and Recreation

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
X	X	✓	Production of a Decommissioning, Restoration and Aftercare Strategy.	The Decommissioning, Restoration and Aftercare Strategy will set out the framework for the safe, orderly, and environmentally acceptable decommissioning and removal of the Bellrock Onshore Transmission Infrastructure, in the interests of safety and environmental protection.	Tertiary
✓	X	X	Development of and adherence to a CEMP.	The CEMP will set out the measures to be implemented to avoid or reduce adverse effects on the environment and local communities/receptors during the construction phase. This will include a clear definition of roles and responsibilities and reference to relevant Health and Safety protocols. This will also include specific measures for the management of core paths and public access routes during the construction phase (e.g. through a Public Access Management Plan).	Tertiary
✓	✓	X	Site selection was informed by the Bellrock OnTDA Design Principles and included consideration of sensitive receptors.	The Bellrock OnTDA has been developed in accordance with a set of Design Principles that have informed the site selection process, refinement of the project design envelope and development of embedded mitigation measures. To minimise recreational effects, the Design Principles include a commitment to avoid recreational receptors where possible.	Primary

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	✓	✓	Engage with potential suppliers to build local supply chain capacity.	Engagement with the supply chain will be undertaken with the aim supporting and enhancing the participation of local businesses. Alongside this, the Energy Pathfinder[1] (or similar initiative) will be utilised to ensure visibility of relevant opportunities for Scottish and UK suppliers to bid for work. This measure will ensure opportunities for supply chain spending in Scotland and the UK are maximised.	Tertiary
✓	✓	✓	Collaborate with local and national agencies on enterprise and skills development programmes to train and upskill the workforce.	This measure is to ensure local residents have access to the opportunities created.	Tertiary

Notes:

[1] Energy Pathfinder (https:// energypathfinder.nstauthority.co.uk/projects) is a searchable database of upcoming construction and O&M contracts for North Sea oil and gas and renewable energy projects.

15.6 Scoping of Potential Impacts

1133. This section sets out the initial assessment of potential impacts on socioeconomics, tourism and recreation due to the construction, O&M, and decommissioning of the Bellrock Onshore Transmission Infrastructure. The assessment is based on a combination of:

- The definition of the Bellrock Onshore Transmission Infrastructure at the scoping stage;
- Embedded mitigation, as set out in **Section 15.5.1**;
- The level of understanding of the baseline at the scoping stage;
- The existing evidence base for socioeconomics and tourism effects due to the Bellrock Onshore Transmission Infrastructure;
- Relevant policy; and
- The professional judgement of qualified economists.

1134. The socioeconomics impacts that are considered in this section are those defined in the general advice published by the Scottish Government's MAU in 2023 (MAU, 2023), as listed in **Section 15.5**.

15.6.1 All Phases

15.6.1.1 Increase in Employment and Gross Value Added

1135. The expenditure associated with the Bellrock Onshore Transmission Infrastructure will generate direct, indirect, and induced economic benefits across the Aberdeenshire, Scottish, and UK economies. This impact will, therefore, be **scoped in** for further assessment in the EIA across all three phases:

- **Construction:** Capital expenditure during the construction of the infrastructure will directly support temporary construction jobs and generate GVA;
- **O&M:** While the Bellrock OnSS will be unmanned, ongoing operational expenditure (the costs associated with routine maintenance, periodic inspections, and periodic repairs) will continue to support off-site contractor employment and supply chain GVA over the project's operational lifetime; and
- **Decommissioning:** Expenditure associated with the removal and decommissioning of the infrastructure will support temporary employment and generate GVA at the end of the project's lifecycle.

15.6.1.2 Demographic Changes

1136. The requirement for a temporary workforce within the Bellrock OnTDA has the potential to alter local population dynamics, resulting in short-term population increases during construction and decommissioning. This impact is, therefore, scoped in for further assessment in the EIA for the

construction and decommissioning phases. However, as the OnSS will be unmanned during operations, there will be no permanent operational workforce to drive sustained demographic changes. Demographic changes are, therefore, **scoped out** for the O&M phase.

15.6.1.3 Changes to Housing Demand

1137. The requirement for a temporary workforce within the Bellrock OnTDA is likely to increase demand for short-term accommodation within Aberdeenshire during construction and decommissioning. This impact will, therefore, be **scoped in** for further assessment in the EIA for these phases. Due to the unmanned nature of the operational substation, there will be no permanent workforce requiring long-term accommodation. Changes to housing demand are, therefore, **scoped out** for the O&M phase.

15.6.1.4 Changes to Other Local Public and Private Services

1138. The requirement for a temporary workforce in the local area may increase demand on local public and private services, such as healthcare, education, transport, and recreational facilities during construction and decommissioning. This impact will, therefore, be **scoped in** for further assessment in the EIA for these phases. For the reasons outlined above regarding the unmanned substation, changes to local public and private services are **scoped out** for the O&M phase.

15.6.1.5 Sociocultural Effects

1139. Sociocultural effects are identified in the general advice published by the Scottish Government's MAU in 2023 (MAU, 2023) as a potential type of impact on:

- Lifestyles/quality of life;
- Gender issues;
- Family structure;
- Social problems (e.g. crime, ill-health, deprivation);
- Human rights;
- Community stress and conflict; integration, cohesion and alienation; and
- Community character or image.

1140. During the construction and decommissioning phases, the presence of temporary construction compounds, HGV traffic, and active civil engineering works (such as cable trenching) within and adjacent to local communities (e.g. Cowie and Stonehaven) has the potential to cause local disruption. This disruption, alongside the influx of a temporary construction workforce, may influence community cohesion, perceived quality of life, and temporary community stress. Therefore, sociocultural effects are **scoped in** for the construction and decommissioning phases.

1141. During the O&M phase, the onshore export cables will be buried, and the OnSS will be a static asset subject to local design and screening requirements. Due to the unmanned nature of the operational substation, there will be no permanent workforce present in the area. Consequently, there is no pathway through which operational infrastructure activities would give rise to long-term

community stress, alter family structures, or fundamentally change the community character. Sociocultural effects are, therefore, **scoped out** for the O&M phase.

15.6.1.6 Tourism and Recreation

1142. During the construction and decommissioning phases, construction works (e.g. cable trenching, HGV traffic, and temporary construction compounds) have the potential to generate secondary effects, such as noise, visual intrusion, and access restrictions, that could deter visitors or temporarily disrupt local tourism assets (e.g. Dunnottar Castle, Stonehaven Golf Club, coastal walking paths, Core Paths, and NCN routes). Therefore, tourism and recreation impacts are **scoped in** for the construction and decommissioning phases.

1143. During the O&M phase, the permanent presence of the OnSS and routine maintenance activities have the potential to result in long-term visual or landscape changes that could influence visitor behaviour or the amenity of local tourism assets. Therefore, tourism and recreation impacts are **scoped in** for the O&M phase.

15.6.2 Bellrock Project Whole Project Assessment

1144. The Bellrock OnTDA Whole Project Assessment will follow the general methodology set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessment** and will consider whether interactions between the Bellrock Onshore Transmission Infrastructure and the Bellrock Offshore Transmission Infrastructure and/or the Bellrock Wind Farm Infrastructure have the potential to alter the magnitude of impacts and significance of effects on socioeconomic and tourism receptors identified in the Bellrock OnTDA-alone assessment. Refer to **Plate 4.3** in **Chapter 4: Approach to Scoping and Environmental Impact Assessment** for the approach and methodology that will be followed for the Bellrock OnTDA Whole Project Assessment.

15.6.2.1 Socioeconomics

1145. The beneficial economic, employment, and supply chain impacts of the Bellrock Onshore Transmission Infrastructure (comprising the Bellrock WFDA, OfTDA, and OnTDA) will be captured and presented within a standalone report appended to the Bellrock OnTDA EIA Report. The first iteration of the standalone 'Economic Impact of the Bellrock Offshore Wind Farm' report was submitted alongside the **Bellrock WFDA EIA Report** (Bellrock Offshore Wind Farm Limited, 2026). This report will be revised and updated when submitted as an appendix to the Bellrock OnTDA EIA Report. As the 'Economic Impact of the Bellrock Offshore Wind Farm' report covers all Development Areas of the Bellrock Project, the whole project assessment for beneficial economic, employment, and supply chain effects are therefore **scoped in** for all phases.

1146. Due to the potential overlaps of receptors associated with the eventual port locations and those in the epicentres of impact associated with the Bellrock Onshore Transmission Infrastructure, other socioeconomic effects, i.e. those related to demographic changes, changes in housing demand, changes to other local public and private services, and socio-cultural effects, cannot be ruled out at this stage. Therefore, the whole project assessment for these socioeconomic effects is **scoped in** for all phases relevant phases (i.e. construction and decommissioning).

15.6.2.2 Tourism and Recreation

1147. The tourism and recreation assessment within the Bellrock OnTDA EIA Report will focus on the potential impacts of the Bellrock Onshore Transmission Infrastructure. As the offshore assets (Bellrock WFDA and OfTDA) do not possess plausible pathways to affect coastal tourism receptors due to their distance from shore, they do not contribute to a cumulative 'whole project' tourism effect. Consequently, the Bellrock OnTDA EIA Report will serve as the complete assessment of tourism and recreation effects for the Bellrock Project, and an additional 'whole project' tourism assessment is not required, and is **scoped out** from further consideration.

15.6.3 Potential Cumulative Effects

1148. The Bellrock OnTDA Cumulative Effects Assessment (CEA) will be undertaken in accordance with the methodology set out in **Section 4.7** of **Chapter 4: Approach to Scoping and Environmental Impact Assessment**. An overview of the Bellrock OnTDA assessment process, including the relationship between the Bellrock OnTDA Whole Project Assessment and the CEA, is provided in **Plate 4.3**.

1149. Overall, the CEA is a two-staged process, with the first stage assessing the impacts as a result of the Bellrock OnTDA Whole Project Assessment (**Section 15.6.2**) together with the Hurlie substation. The second stage will then assess the impacts as a result of the Bellrock OnTDA Whole Project Assessment together with the Hurlie substation plus impacts arising from other reasonably foreseeable plans and projects where there is conceptual, spatial, and/or temporal overlap. This will determine the potential for cumulative impacts and subsequent cumulative effects on socioeconomics, tourism and recreational receptors.

1150. For socioeconomics and tourism and recreation, this will primarily focus on the cumulative economic, traffic, and amenity effects associated with the concurrent or sequential development of other regional infrastructure projects (e.g. grid reinforcements, transmission infrastructure for other offshore wind developments, other onshore wind or solar developments, and large-scale housing developments in Aberdeenshire). Cumulative effects are, therefore, **scoped in** for all phases.

15.6.4 Potential Transboundary Effects

1151. The Bellrock Onshore Transmission Infrastructure is located entirely onshore within the UK (Scotland). There is no plausible physical, visual, or socioeconomic pathway for the localised onshore construction, O&M, or decommissioning activities to affect populations, economies, or tourism assets located in other countries outside the UK. Therefore, potential transboundary effects are **scoped out** for all receptors across all phases.

15.6.5 Summary of Potential Socioeconomics, Tourism and Recreation Impacts Scoped In and Scoped Out

1152. **Table 15.5** summarises the outcomes of the scoping assessment presented in **Section 15.6.1** to **Section 15.6.4**, identifying the relevant impacts for socioeconomics, tourism and recreation and confirming whether these have been scoped in or scoped out of further assessment in the EIA.

Table 15.5: Summary of Potential Socioeconomics, Tourism and Recreation Impacts Scoped In (✓) or Scoped Out (X)

Potential Impact	Scoped In (✓) or Scoped Out (X)		
	Construction	O&M	Decommissioning
Increase in employment and GVA	✓	✓	✓
Demographic changes	✓	X	✓
Changes to housing demand	✓	X	✓
Changes to other local public and private services	✓	X	✓
Sociocultural effects	✓	X	✓
Tourism and recreation	✓	✓	✓
Bellrock OnTDA Whole Project Assessment (socioeconomics)*	✓	✓	✓
Bellrock OnTDA Whole Project Assessment (tourism and recreation)*	X	X	X
Cumulative effects	✓	✓	✓
Transboundary effects	X	X	X
Notes: * see **Section 15.6.2** for further details on the scoping of the Bellrock OnTDA Whole Project Assessment for Socioeconomics, Tourism and Recreation.			

15.7 Proposed Approach to Impact Assessment

1153. The assessment of socioeconomics, tourism and recreation receptors will comply with the general approach set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessment** and the guidance listed in **Section 15.2**. Further detail on the specific approach to assessment for this topic is provided below.

15.7.1 Socioeconomic Impact Assessment Methodology

1154. As detailed above in **Section 15.6.2**, the beneficial economic, employment, and supply chain impacts of the Bellrock Project as a whole (i.e. the Bellrock WFDA, OfTDA, and OnTDA combined) will be captured and presented within a standalone report appended to the Bellrock OnTDA EIA Report. The first iteration of the standalone 'Economic Impact of the Bellrock Offshore Wind Farm' report was submitted alongside the **Bellrock WFDA EIA Report** (Bellrock Offshore Wind Farm Limited, 2026). This report will be revised and updated when submitted as an appendix to the Bellrock OnTDA EIA Report.

1155. To assess the socioeconomic impacts of the Bellrock Onshore Transmission Infrastructure, the focus will be on the direct and indirect (supply chain) impacts. In addition to this, the assessment will also consider the effects of staff spending and the socioeconomic impact that this subsequent increase in demand stimulates (the induced impact).

1156. The socioeconomic impacts will be considered for each study area and will be reported in terms of:

- **GVA**: this is a measure of economic value added by an organisation, industry or region and is typically estimated by subtracting the non-staff operational costs from the turnover of an organisation. In this assessment, GVA will be aggregated across all relevant businesses to capture the full direct, indirect (supply chain), and induced economic activity;
- **Years of Employment**: this is a measure of employment which is equivalent to one person being employed for a year and is typically used when considering short to medium term employment impacts, such as those associated with the construction phase of the Bellrock Onshore Transmission Infrastructure; and
- **Jobs**: this is a measure of employment which considers the headcount employment in an organisation or industry. This measure is used when considering long term impacts such as the jobs supported during the O&M phase of the Bellrock Onshore Transmission Infrastructure.

1157. The socioeconomic impact assessment will consider the lowest, realistic levels of expenditure associated with the Bellrock Onshore Transmission Infrastructure, since that would represent the realistic 'worst-case' scenario in terms of the expected positive socioeconomic effects. This will take account of the 'Commitment' scenario in the updated Supply Chain Development Statement Outlook (Bellrock Offshore Wind Farm, 2026). The updated 2026 Supply Chain Development Statement Outlook sets out a commitment to spend £1.7 billion within the Scottish supply chain across the project lifecycle, with an ambition to reach a total spend of £2.1 billion. The economic impact assessment will take account of deadweight, leakage, displacement and substitution (the definitions and application of which will be detailed in full within the Bellrock OnTDA EIA Report).

1158. In accordance with NPF4 Policies 11 and 25, and responding directly to pre-application advice from Aberdeenshire Council (see **Table 15.2**), the socioeconomic impact assessment will also include an analysis of how the Bellrock Onshore Transmission Infrastructure aligns with local economic development priorities. This analysis will outline the Applicant's approach to maximising local economic benefits, supporting fair employment and supply chain opportunities, and demonstrating alignment with the principles set out in Aberdeenshire Council's Community Wealth Building Strategy (Aberdeenshire Council, 2026a) and Energy Developments Community Wealth Building Charter (Aberdeenshire Council, 2026b).

1159. The socioeconomic impact assessment will include the entire Bellrock Onshore Transmission Infrastructure. Full details, specific to the Bellrock OnTDA, are discussed in **Chapter 3: Project Description.**

1160. The analysis for the Bellrock Onshore Transmission Infrastructure will cover three phases:

- Construction;
- O&M; and
- Decommissioning.

1161. The impacts during the construction phase will be based on the actual expenditure that has occurred to date as well as the planned expenditure associated with this phase. In addition to the total impact over the period, the assessment will also consider the timings of impacts during this phase to understand the fluctuations of this activity.

1162. The impacts during the O&M phase for the Bellrock Onshore Transmission Infrastructure will be based on projected O&M expenditure.

1163. In instances where impacts are expected to occur over several years, such as the O&M phase or the decommissioning phase, a discount rate will be applied. This allows impacts that occur sooner to be valued more highly than impacts that occur in the future, a concept known as time preference. In this instance a discount rate of 3.5% will be chosen, which is in line with the UK Government's Green Book (HM Treasury, 2026). On this basis it is expected that the decommissioning phase impacts will be substantially lower than those for the construction phase.

15.7.2 Tourism and Recreation Impact Assessment Methodology

1164. The assessment of effects on tourism and recreation is focused on identifying potential secondary effects. These are indirect effects that occur when a primary environmental change, such as an increase in construction noise, altered access routes, or a change in the local landscape, influences visitor behaviour, the commercial viability of a tourism business, or the amenity and use of a recreational asset.

1165. To identify these potential secondary effects, the findings of the primary technical assessments will be reviewed, specifically focusing on:

- **Chapter 5: Landscape and Visual Impact;**
- **Chapter 12: Traffic and Transport;** and
- **Chapter 13: Noise and Vibration.**

1166. Where a significant primary effect is identified in one of these chapters, the tourism assessment will then determine whether that effect is likely to result in a significant consequential change to tourism and recreation assets within the study area, relative to baseline conditions. The significance of the effect will be determined by combining the magnitude of the impact (i.e. the scale of the expected change in visitor behaviour) with the sensitivity of the specific tourism asset (i.e. how reliant the asset is on the pre-existing environmental condition and its ability to adapt to changes).

15.8 Scoping Questions to Consultees

1167. The following questions are posed to consultees to help them frame and focus their response to the socioeconomics, tourism and recreation scoping exercise, which will in turn inform the EIA:

- Do you agree with the study areas defined for socioeconomics, tourism and recreation?
- Do you agree with the use of data listed in this Chapter to inform the Bellrock OnTDA EIA Report?
- Are there any further data sources or guidance documents that should be considered?
- Do you agree with the scoping in and scoping out of impact pathways in relation to socioeconomics, tourism and recreation (as presented in **Table 15.5**)?
- Do you agree with the assessment of transboundary effects in relation to socioeconomics, tourism and recreation?
- Do you agree with the assessment of cumulative impacts in relation to socioeconomics, tourism and recreation?
- Do you agree with the proposed assessment methodology for socioeconomics, tourism and recreation?
- Do you agree on the suitability of the proposed embedded mitigation of relevance to socioeconomics, tourism and recreation that have been identified for the Bellrock Onshore Transmission Infrastructure?

15.9 References

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16 Greenhouse Gas Assessment

16.1 Introduction

1168. This Chapter of the **Bellrock Onshore Transmission Development Area (OnTDA) Scoping Report** considers the scope of potential impacts on the environment arising from greenhouse gas (GHG) emissions associated with the construction, operation and maintenance, and decommissioning of the Bellrock Onshore Transmission Infrastructure.

1169. The Bellrock OnTDA Scoping Boundary (shown in **Figure 1.1 (Appendix A (Volume 1))**) defines the area within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process (as discussed in **Section 1.4** in **Chapter 1: Introduction**) to form the boundary of the Bellrock OnTDA Planning Permission in Principle (PPP) Application.

1170. For the purposes of this **Bellrock OnTDA Scoping Report**, the Bellrock OnTDA Scoping Boundary encompasses the anticipated Onshore Transmission Infrastructure and associated activities for the Bellrock OnTDA landward of Mean Low Water Springs (MLWS). The Bellrock OnTDA Scoping Boundary overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) between Mean High Water Springs (MHWS) and MLWS.

1171. The Bellrock Onshore Transmission Infrastructure includes:

- **Landfall**: located at Cowie, Aberdeenshire, where between two and six ducts are installed using trenchless techniques, allowing the offshore export cables to be brought ashore and connected to onshore export cables within the transition joint bay;
- **Onshore export cables**: up to six underground High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) onshore cable circuits, each up to 18 km in length, installed between landfall and the onshore substation;
- **Onshore substation (OnSS)**: electrical equipment (such as converters, transformers, switchgear, and protection and control systems) enabling renewable electricity from the Bellrock Wind Farm Development Area (WFDA) received via the onshore export cables to be exported to the National Electricity Transmission System, and ancillary infrastructure; and
- **Hurlie substation connection works**: Infrastructure between the Bellrock OnSS to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the National Electricity Transmission System.

1172. In addition, associated works are required to facilitate construction and O&M of the Onshore Transmission Infrastructure, including: access, signage, haul roads, spoil storage, material storage, fencing, borrow pits (if any), earthworks, welfare, security, landscape mitigation, ecological mitigation, biodiversity enhancement, operational lighting and drainage.

1173. As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Wind Farm Infrastructure (located within the Bellrock WFDA) was presented in the **Bellrock WFDA Environmental Impact Assessment (EIA) Report**, which was submitted in support of the Section 36 Consent and Marine Licence Application for the Bellrock Wind Farm Infrastructure in April 2026 (Bellrock Offshore Wind Farm Limited, 2026a). The **Bellrock WFDA EIA Report** considered the potential impacts and subsequent effects of the Bellrock Wind Farm Infrastructure on the environment. An EIA Scoping Report for the Bellrock Offshore Transmission Infrastructure was also submitted to Scottish Ministers on 17 August 2026 (Bellrock Offshore Wind Farm Limited, 2026b), with an EIA Report in support of the Marine Licence Application proposed to be submitted by the end of 2027.

1174. This Chapter of the **Bellrock OnTDA Scoping Report** provides an overview of the existing environment and sets out the proposed methodology and approach to assessing effects on GHG receptors within the Bellrock OnTDA EIA Report. This Chapter has been prepared by Haskoning.

1175. The GHG assessment Chapter of the Bellrock OnTDA EIA Report (herein the 'OnTDA GHG assessment') will include consideration of both the impacts of the Bellrock Onshore Transmission Infrastructure and associated activities on GHG emissions. As discussed in **Chapter 4: Approach to Scoping and Environmental Impact Assessment** the assessment of the Bellrock Wind Farm Infrastructure has been included in the separate Bellrock WFDA consent application and, therefore, the **Bellrock WFDA EIA Report**, submitted April 2026. Similarly, the Bellrock OfTDA EIA Report will include the assessment of the Bellrock Offshore Transmission Infrastructure.

1176. The Bellrock OnTDA GHG assessment will comprise the following, which will be presented in the Bellrock OnTDA EIA Report**:**

- An assessment to consider GHG emissions released over the lifecycle of the Bellrock Onshore Transmission Infrastructure, and the avoided emissions from the provision of renewable electricity to the National Electricity Transmission System from the wider Bellrock Project;
- A Bellrock Project GHG Whole Project Assessment for the Bellrock Project (i.e. the Bellrock OnTDA, OfTDA and WFDA combined). This will build on the Bellrock Project GHG Whole Project Assessment presented in the **Bellrock WFDA EIA Report** and Bellrock OfTDA EIA Report and will evaluate the net contribution of the Bellrock Project as a whole to climate change, through an estimation of GHG emissions arising from infrastructure associated with all component parts (Bellrock OnTDA, OfTDA and WFDA). Although the assessments presented in each EIA Report will remain valid, this iterative approach will be undertaken allowing for up-to-date information to be incorporated within each submission. Further details are discussed in **Section 16.5.2**; and
- A land use and land use change emissions assessment, which will assess the impact of the potential loss of stored and sequestered carbon resulting from the direct loss of habitat due to activities within the Bellrock OnTDA.

1177. This approach to the Bellrock OnTDA GHG assessment allows for assessments to be undertaken in support of the Bellrock OnTDA application (separate applications for the Bellrock OnTDA, OfTDA and WFDA) and allows for a whole project assessment (consideration of the Bellrock Project as a whole).

1178. This Chapter should be read in conjunction with the following chapters of the **Bellrock OnTDA Scoping Report**:

- **Chapter 8: Land Use and Agriculture;**
- **Chapter 9: Onshore Ecology and Nature Conservation;** and
- **Chapter 17: Climate Change Risk Assessment.**

1179. The Bellrock OnTDA GHG assessment is likely to have key inter-relationships with the above receptors, which will be considered appropriately where relevant in the Bellrock OnTDA EIA Report.

16.2 Legislation, Policy and Guidance

1180. **Table 16.1** sets out the legislation, policy and guidance that have been considered in the preparation of this Chapter, where appropriate. The overarching policy and legislation relevant to the Bellrock Onshore Transmission Infrastructure is provided in **Chapter 2: Legislative and Policy Context**.

Table 16.1: Summary of Relevant Legislation, Policy and Guidance for the Bellrock OnTDA GHG Assessment

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Legislation	
The United Nations Framework Convention on Climate Change (UNFCCC), 1992	The UNFCC is an international treaty which established a global climate governance framework and solidified climate change as an agenda item for future agreements and policies. The UNFCCC facilitated intergovernmental climate change negotiations such as the Conference of the Parties.
Town and Country Planning (Scotland) Act (1997)	Principal legislative framework for Scotland's planning system, requiring material considerations to be taken into account in the preparation of development plans and the determination of development proposals.
The Kyoto Protocol, 1997	Following the UNFCCC, the Kyoto Protocol committed industrialised countries to limit and reduce their GHG emissions in accordance with individual targets to reduce the rate and extent of global warming. Annex A of the Kyoto Protocol defined key GHGs as follows: ▪ Carbon dioxide (CO_2); ▪ Methane (CH_4); ▪ Nitrous oxide (N_2O); ▪ Hydrofluorocarbons (HFC); ▪ Perfluorocarbons (PFC); ▪ Sulphur hexafluoride (SF_6); and ▪ Nitrogen trifluoride (NF_3).

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
The Paris Agreement, 2015	The Paris Agreement entered into force in 2016 and was ratified by the United Kingdom (UK) Government at Conference of the Parties 22. It is a legally binding international treaty with an overarching goal of "*holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels*". The Paris Agreement requires countries to submit national climate action plans known as Nationally Determined Contributions (NDC), with each successive NDC reflecting increasing decarbonisation ambitions.
The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017	Schedule 4 states that the description of the likely significant effects should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.
The Climate Change Act 2008 Climate Change Act 2008 (2050 Target Amendment Order 2019)	The Climate Change Act 2008 provides the legal basis for the UK's long-term response to tackling climate change. The 2050 Target Amendment Order introduced in 2019 revised the UK's target to net zero by 2050, with an interim target of 78% emission reduction by 2035 compared to 1990 levels. The Act requires the UK Government to set legally binding carbon budgets to limit GHG emissions in a given time period. These budgets are set by the Committee on Climate Change in five-year periods, and are set out in **Table 16.4**.
Energy Act 2023	The Energy Act 2023 aims to transform the UK's energy system by strengthening energy security, supporting the delivery of net zero, and ensuring household bills are affordable in the long term. The Act will help the government deliver net zero by 2050 in a pragmatic, proportionate, and realistic way. It also emphasizes offshore wind farms as key components in providing the UK's renewable energy.
Climate Change (Scotland) Act 2009 Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 Climate Change (Emissions Reduction Targets) (Scotland) Act 2024 Climate Change (Scotland) Act 2009 (Scottish Carbon Budgets) Amendment Regulations 2025	Scotland has its own distinct climate change legislation. The Climate Change (Scotland) Act 2009 was implemented to reduce the greenhouse gas emissions in Scotland by at least 80% by 2050. The Climate Change (Annual Targets) (Scotland) Order 2011 outlines the targets for 2023-2027. The Climate Change (Scotland) Act 2009 and the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 accelerates Scotland's overall target in the 2009 Act to net zero by 2045. In November 2024, the Climate Change (Emissions Reduction Targets) (Scotland) Act 2024 modified the Climate Change (Scotland) Act 2009 to introduce limits on the amount of GHGs emitted in Scotland over a five-year period. This replaces the requirements for annual targets as outlined in the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 with a system of targets based on carbon budgets. These are set out in **Table 16.5**. The overall target of net zero by 2045 will remain in place.
Policy	
The Climate Change Plan, Third Report on Proposals and Policies (2018-2032) (Scottish Government, 2020a)	The Scottish Government publishes Climate Change Plans to set out the pathway to achieving its GHG emission reduction targets per the Climate Change (Scotland) Act 2009. The 2018-2032 Update included the Offshore Wind Policy Statement that supports the development of between 8 to 11 GW of offshore wind capacity by 2030, and the most

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Scotland's Climate Change Plan: 2026-2040 (Scottish Government, 2026a)	recent Climate Change Plan: 2026-2040 reaffirms offshore wind projects as an 'opportunity area' for Scotland.
UK Climate Change Strategy 2021 to 2024 (HM Government, 2021a)	The latest UK Climate Change Strategy aids UK exporters and suppliers through the transition to net zero by increasing support to clean growth and climate adaptation, reducing GHG emissions and understanding and mitigating climate-related financial risks. The Strategy highlights the importance of transforming the financial system to boost innovation and transition away from high carbon sectors.
Aberdeenshire Council route map to 2030 and beyond (Aberdeenshire Council, 2022)	The route map sets out Aberdeenshire Council's plans to reach its long-term climate and sustainability goals.
The UK net zero Strategy 2021 (Department for Business, Energy and Industrial Strategy, 2021) and British Energy Security Strategy, 2022 (BEIS, 2022)	The UK net zero Strategy and British Energy Security Strategy apply to Scotland and provide a national commitment to the provision of low-carbon, secure and affordable energy sources, including an ambition to deliver up to 50 GW of offshore wind capacity by 2030.
National Planning Framework 4 (Scottish Government, 2023)	Scotland's fourth National Planning Framework (NPF4) sets out the national spatial strategy up to 2045, which guides infrastructure projects on principles and priorities. The following policies are considered relevant to the GHG assessment: ▪ **Policy 1: Tackling the climate and nature crises** which seeks to reduce carbon emissions to zero; ▪ **Policy 2: Climate mitigation** and adaptation which requires developments to minimise their lifecycle GHG emissions as far as possible; and ▪ **Policy 11: Energy** which aims to expand renewable, low-carbon and zero emissions technologies.
Aberdeenshire Council Local Development Plan 2023 (Aberdeenshire Council, 2023)	The following policy is considered relevant to GHG assessment: ▪ **Policy C2: Renewable Energy** requires developments to consider renewable energy targets and greenhouse gas emissions.
Carbon Budget Delivery Plan (Department for Energy Security and net zero's (DESNZ) (DESNZ, 2023a) Carbon Budget and Growth Delivery Plan (DESNZ, 2025)	The Carbon Budget Delivery Plan 2023, and subsequent Carbon Budget and Growth Delivery Plan 2025, set by the UK Government, outlines the proposals and plans to enable the delivery of the 4th, 5th and 6th Carbon Budget as part of the requirements under the Climate Change Act 2008. At the time of writing, the UK Government has indicated that a delivery plan setting out how the 7th Carbon Budget will be met will be published, however, no definite timescale for its publication has been confirmed.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Guidance	
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (World Resource Institute and World Business Council for Sustainable Development, 2015)	The guidance document provides requirements for the preparation of GHG emission inventories and the consideration of direct and indirect GHG emissions (Scope 1, 2 and 3 emissions).
PAS2080: Carbon Management in Buildings and Infrastructure (2023) (British Standards Institution, 2023)	The guidance document provides specifications for the management of whole-life carbon in built environment projects and best practice measures to enable further emission reductions.
Institute of Sustainability & Environmental Professionals (ISEP): Assessing greenhouse gas emissions and evaluating their significance with supplementary guidance (Edition 2.1) (ISEP, 2026)	The guidance document presents guidelines for undertaking GHG assessments, evaluating the significance of a development's GHG emissions in an EIA context, and approach to mitigation. An additional supplement to the guidance was published in 2026, which clarifies the 2022 guidance, to aid practitioners in the interpretation and application of the guidance in practice.
The Offshore Wind Industry Product Carbon Footprinting Guidance (Carbon Trust, 2026)	The guidance document provides offshore wind industry-specific guidance for the calculation of full carbon footprints for offshore wind farms.

16.3 Consultation

1181. Consultation conducted as part of the Bellrock WFDA EIA pertinent to the methodology of the whole project assessment for the Bellrock OnTDA GHG assessment, was presented to the Marine Directorate - Licensing Operations Team (MD-LOT), NatureScot and Aberdeenshire Council through letters issued in July 2025. Aberdeenshire Council agreed with the proposed methodology (**Table 16.2**) and MD-LOT and NatureScot did not provide comment. No other consultation relevant to the Bellrock OnTDA GHG assessment has taken place to date.

Table 16.2: Consultation Relevant to the Bellrock OnTDA GHG assessment

Consultee	Date/Document	Comment	How Comment has been Addressed
Aberdeenshire Council	28 July 2025, Email	*'Thank you for your letter detailing the proposed methodology for the GHG and CCR assessments. I can confirm I agree the proposed approach'*	Noted. The methodology for the Bellrock OnTDA GHG assessment is

Consultee	Date/Document	Comment	How Comment has been Addressed
MD-LOT	1 August 2025, Email	*'Thank you for your email regarding greenhouse gas and climate change resilience assessments. We have reviewed your letter and advise that MD-LOT has no further comment to provide and would direct you to the advice contained in MD-LOT's scoping opinion of 08 August 2024.'*	set out in **Section 16.6.2**.

16.4 Existing Environment

16.4.1 Study Area

1182. All GHG emissions will affect the same receptor i.e. the global atmosphere, as opposed to directly affecting any specific local receptor. Emissions which are released or avoided due to a development will have the same global effect on atmospheric GHG concentration, and its net effect on climate change regardless of where they occur. Therefore, the study area of the Bellrock OnTDA GHG assessment is not geographically defined (ISEP, 2026).

1183. The scope of the Bellrock OnTDA GHG assessment will include quantifying direct and indirect GHG emissions arising from the Bellrock Onshore Transmission Infrastructure over its full lifecycle: construction (including upstream activities which result in embodied carbon in materials used to construct the onshore infrastructure such as the OnSS, the connection works and onshore export cables), O&M, and decommissioning. As the Bellrock Project will supply renewable energy to the National Electricity Transmission System, the Bellrock OnTDA GHG assessment will also account for emission savings from the displacement of grid electricity which would have otherwise been generated from alternative forms. The study area for the Bellrock OnTDA GHG assessment will encompass all associated GHG emitting activities, including carbon benefits beyond the infrastructure system such as avoided emissions from exported electricity. The proposed assessment boundary for the Bellrock OnTDA GHG assessment is detailed under **Section 16.6**.

1184. The scope will also include quantifying emissions from changes to onshore carbon sequestering habitats and ecosystems during each phase of the Bellrock OnTDA. The assessment will build upon the methodology and results presented in **Chapter 8: Land Use and Agriculture** and **Chapter 9: Onshore Ecology and Nature Conservation** and will focus on the potential impact of the Bellrock OnTDA on carbon sequestration rates in the identified habitats and ecosystems.

1185. Onshore habitats and ecosystems store carbon in plants and soils and can form long-term carbon sinks. Carbon storage (stock) and carbon flux (sequestration) is dependent on land cover, soil condition and management practices, and is sensitive to land use change and physical disturbance. Construction activities including vegetation clearance, soil excavation, compaction, drainage and other ground disturbances can alter soil structure and expose stored soil organic carbon to oxidation, potentially resulting in the release of CO_2 to the atmosphere and a reduction in the soil's long-term carbon sequestration capacity.

1186. The Bellrock OnTDA GHG assessment will, therefore, consider the effects of the Bellrock Onshore Transmission Infrastructure on onshore carbon stocks and sequestration rates, including potential carbon storage (stock) losses through the release of CO_2. The study area for the assessment will be defined by the Bellrock OnTDA, and will assess:

- The loss of sequestered carbon in habitats located in the Bellrock OnTDA; and
- The potential for continued loss of sequestered carbon resulting from the loss of habitats in the Bellrock OnTDA.

16.4.2 Data and Information Sources

1187. The desk-based sources used to characterise the existing environment and inform the Bellrock OnTDA GHG assessment will consist primarily of publicly available datasets and reports from government and industry sources. **Table 16.3** identifies potential desk-based sources, which will be updated throughout the EIA process.

Table 16.3: Summary of Key Data and Information Sources for the Bellrock OnTDA GHG Assessment

Dataset	Temporal Coverage	Description
Dolan and Heath (2012), Life Cycle Greenhouse Gas Emissions of Utility Scale Wind Power	2012	GHG emission benchmarks for offshore wind projects to inform assumptions used in the Bellrock OnTDA GHG assessment regarding the likely contribution of emission sources to the Bellrock OnTDA's GHG footprint.
Thompson and Harrison (2015), Life Cycle Costs and Carbon Emissions of Offshore Wind Power	2015	
Schmid et al, (2020), Accelerating Wind Turbine Blade Circularity	2020	
Carbon Storage and Sequestration by Habitat NERR094 (Gregg et al., 2021)	2021	Carbon sequestration potential for various land use types in the UK.
United Nations Economic Commission for Europe (UNECE) (2022) Carbon Neutrality in the UNECE Region: Integrated Life-cycle Assessment of Electricity Sources	2022	Categorisation of energy technologies and their environmental impact, including the life cycle carbon footprint of different generation technologies.
Inventory of Carbon and Energy (ICE) Database v4.1 (Jones and Hammond, 2025)	2025	Emission factors for embodied carbon in materials used during construction and replacement or repair activities.
Committee on Climate Change (2025a) UK Carbon Budgets	Various, most recent publication in 2025	National carbon budgets are used to contextualise the Onshore Transmission Infrastructure's GHG emissions.

Dataset	Temporal Coverage	Description
Committee on Climate Change (2025b) Scotland Carbon Budgets	2025	Scotland Carbon Budgets used to contextualise the Onshore Transmission Infrastructure's GHG emissions.
DESNZ Greenhouse Gas Reporting Conversion Factors (2026a)	2026 (or latest at the time of assessment)	Emission factors suitable for UK-based operations for various activities such as fuel consumption.
DESNZ (2026b) Digest of UK Energy Statistics	2026 (or latest at the time of assessment)	Up-to-date statistics for the UK power sector, including the operational GHG intensity of each fuel or generation source.

1188. No topic-specific baseline surveys are proposed for the Bellrock OnTDA GHG assessment. However, cross-disciplinary engagement with the Applicant's development team and other relevant EIA chapters will help refine the assessment where applicable and identify suitable mitigation measures. This includes a review of the surveys and desk studies undertaken for the onshore ecology assessment (**Chapter 9: Onshore Ecology and Nature Conservation**) and the land use and agriculture assessment (**Chapter 8: Land Use and Agriculture**), which will be used to assess the potential loss of sequestered carbon.

16.4.3 Baseline

1189. In accordance with ISEP guidance (ISEP, 2026), a GHG assessment evaluates the effect significance of emissions released or avoided by a development, based on its alignment with a science-based transition towards net zero and requirements set by international climate commitments, national policies and best industry practice. To contextualise the assessment, national carbon budgets and relevant existing and emerging net zero policies, targets and performance standards will be reviewed and compared against the predicted GHG impacts.

1190. The Scottish Government has its own offshore wind capacity ambitions in support of the UK's national target (discussed in **Section 16.2**), with the award of the ScotWind Offshore Wind leasing round in Scottish waters by the Crown Estate Scotland in 2022, and the subsequent Innovation and Targeted Oil and Gas leasing round in 2023. The Bellrock Project falls within the ScotWind leasing round. ScotWind's objective is to help Scotland achieve its net-zero emissions target by 2045, by granting property rights for the seabed in Scottish waters for new commercial scale offshore wind projects in a way that is fair and transparent. In doing so, ScotWind facilitates and encourages development of the low-carbon energy generation needed to meet the world-leading targets committed to in The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019. The leasing context for the Bellrock Project is discussed further in **Chapter 2: Legislative and Policy Context**.

1191. The Offshore Wind Policy Statement (Scottish Government, 2020b) and the Sectoral Marine Plan for Offshore Wind Energy (Scottish Government, 2020c) include a target to deliver up to 11 GW of offshore wind capacity by 2030 to support Scotland's commitment to net zero by 2045 (Updated Sectoral Marine Plan is expected to be published in autumn 2026). According to the Scottish Energy Statistics Hub, Scotland's operational offshore wind capacity measured around 4.2 GW in

June 2025, with an additional 17 GW in planning, awaiting construction or under construction (Scottish Government, 2025). The latest updates to the Offshore Wind Policy Statement resets the Scottish Government's offshore wind policy ambition to up to 40 GW of new offshore wind capacity by 2040, in addition to the already operational or consented capacity (Scottish Government 2026b).

1192. The UK Government has also set out its intention to decarbonise all sectors of the UK economy, including the power sector, through a series of policy frameworks (Updated Sectoral Marine Plan is expected to be published in autumn 2026). This ambition was first articulated within the Clean Growth Strategy (BEIS, 2017), which set out proposals for reducing emissions across the economy. It was subsequently reaffirmed as a commitment within the Offshore Wind Sector Deal[25] (BEIS, 2019), which reinforced the UK Government's aims to advance offshore wind generation as an integral part of a future low-cost, low-carbon and flexible grid system. In light of recent progress, the commitment to 30 GW offshore wind capacity within the Offshore Wind Sector Deal has been superseded by a 40 GW by 2030 target as set out in the Ten Point Plan for a Green Industrial Revolution (HM Government, 2020) and the net zero Strategy: Build Back Greener (HM Government, 2021b). The UK Government has since increased its offshore wind capacity target to 50 GW by 2030 in the British Energy Security Strategy (BEIS, 2022).

1193. The renewable electricity generated by the Bellrock Project could displace an equivalent amount of electricity which would have been generated using alternative energy sources. The focus of the Bellrock OnTDA GHG assessment will be to determine the Bellrock Onshore Transmission Infrastructure's contribution towards Scotland's and the UK's national emission reduction and long-term net zero targets. This will be achieved by comparing a 'Do Nothing' scenario to the emissions avoided as a result of the Bellrock Onshore Transmission Infrastructure operations.

1194. A 'Do Nothing' scenario will assume that the Bellrock Project is not constructed, and different future baseline environments based on the energy and climate policies adopted. The approach used by RenewableUK (2025) to calculate avoided emissions uses the operational GHG intensity of electricity generated using 'all non-renewable fuels' (i.e. 422 tonnes CO_2 per gigawatt hour (GWh) electricity (DESNZ, 2026a)). Natural gas is the most common form of fossil fuel generation of electricity in the UK (DESNZ, 2026c), which has a lower operational GHG intensity (365 tonnes CO_2 per GWh electricity) (DESNZ, 2025a), which provides a more conservative assessment of the emissions avoided by the Onshore Transmission Infrastructure. Therefore, to evaluate the impact of the Bellrock Project, it is assumed that the electricity produced displaces generation from 'natural gas' sources. It is recognised that all new combustion power stations (at or above 300 MW) in the UK need to be constructed carbon capture ready. Therefore, to provide a conservative assessment, it will be assumed that the natural gas generating sources will be equipped with carbon capture and storage. A sensitivity analysis will also be undertaken to compare other reasonable alternatives, such as natural gas without carbon capture and storage, to assess the range of possible scenarios and the potential influence on the impact assessment.

1195. An alternative 'Do Nothing' scenario will also be considered, using the long-run marginal emission factor, which includes all forms of generation sources for the National Electricity Transmission System. The models used to derive the long-run marginal factors are subject to a level of

[25] This policy paper was withdrawn on 26 June 2025, and replaced by the government's Modern Industrial Strategy, a 10-year economic growth and investment plan.

uncertainty, influenced by the pace of innovation in the market, technological feasibility, demand levels and investment decisions (DESNZ, 2023b). These uncertainties increase into the 2030s and 2040s, which covers a portion of the time when the Bellrock Project would be operational. They are, therefore, indicative of what the future electricity mix may look like, rather than being a prescriptive forecast. Additionally, the use of long-run marginal emission factors would be inconsistent with policy and energy transition (or at least contain an internal circularity), as it would present a scenario whereby renewable energy generated by the Bellrock Project appears to be displacing future electricity generation from renewable sources. However, achieving future electricity generation from renewable sources will require the development of projects such as the Bellrock Project. Given this internal circularity, the use of long-run marginal emission factors in a 'Do Nothing' scenario is not proposed to be included in the Bellrock OnTDA GHG assessment.

1196. As discussed in **Table 16.1**, the UK has established Carbon Budgets, which provide a legally binding five-year limit for GHG emissions in the UK. There are currently seven UK Carbon Budgets that have been adopted as legislation and will run up to 2042 as outlined in **Table 16.4**. The UK is currently in the fourth Carbon Budget period.

Table 16.4: UK Carbon Budgets (2008 to 2037)

Budget	Period	Carbon Budget Level (Mt CO_2e)	Reduction Below 1990 Levels	
			UK Targets	Achieved by the UK
1st Carbon Budget	2008 to 2012	3,018	25%	30%
2nd Carbon Budget	2013 to 2017	2,782	32%	38%
3rd Carbon Budget	2018 to 2022	2,544	38% by 2020	44%
4th Carbon Budget	2023 to 2027	1,950	52% by 2025	-
5th Carbon Budget	2028 to 2032	1,725	58% by 2030	-
6th Carbon Budget	2033 to 2037	965	78% by 2035	-
7th Carbon Budget	2038 to 2042	535	87% by 2040	-
Net zero Target by 2050			**100%**	-

1197. Additionally, as discussed in **Table 16.1**, Scotland has established its own Carbon Budgets, which run up to 2045. There are currently four Scottish Carbon Budgets, enforced through the Climate Change (Scotland) Act 2009 (Scottish Carbon Budgets) Amendment Regulations 2025, which are outlined in **Table 16.5.**

Table 16.5: Proposed Scottish Carbon Budget (2026 to 2045)

Budget	Period	Carbon Budget Level (Mt CO_2e)	Reduction Below 1990 Levels
1st Carbon Budget	2026 to 2030	175	57%
2nd Carbon Budget	2031 to 2035	126	69%
3rd Carbon Budget	2036 to 2040	81	80%
4th Carbon Budget	2041 to 2045	24	94%
Net zero Target by 2045			**100%**

1198. As identified in **Chapter 9: Onshore Ecology and Nature Conservation** and **Appendix C: Interim Preliminary Ecological Appraisal Report (Volume 1)**, field ecology surveys conducted by Cura Terrae, the consultancy formerly known as EnviroCentre, recorded a range of habitats within the Bellrock OnTDA Scoping Boundary, including those with potential to store and sequester carbon.

1199. The baseline for assessing the potential loss of sequestered carbon will be established based on the existing land use within the site, as identified through field surveys or, where field survey data are unavailable, habitat information from the Habitat Map of Scotland (NatureScot, 2022). Carbon sequestration rates will be derived from those presented the Natural England Research Report NERR094 (Gregg et al, 2021).

1200. To provide context to the GHG emissions reported in the assessment, and support the evaluation of their significance in relation to climate change, the baseline review will consider the Carbon Budgets and emissions reduction targets relevant to each project phase (construction, O&M, and decommissioning) of the Bellrock Onshore Transmission Infrastructure. The baseline review will also examine recent national emission data for Scotland and the UK, the emission contribution of the electricity sector to national emissions, and the lifecycle GHG intensities associated with different electricity generation technologies.

16.5 Potential Impacts

1201. Potential impacts considered in the Bellrock OnTDA GHG assessment include direct and indirect emissions released as a result of the activities associated with the Bellrock Onshore Transmission Infrastructure during construction, O&M and decommissioning. The provision of renewable energy via the Bellrock Onshore Transmission Infrastructure will also result in avoided emissions by displacing grid electricity which would have otherwise been generated using more GHG-intensive sources.

1202. It should be noted that GHG emissions released or avoided by the Bellrock Onshore Transmission Infrastructure may occur outside its spatial boundary and the UK's territorial boundary, such as upstream activities that result in 'embodied' carbon in materials used for the Bellrock Onshore Transmission Infrastructure. However, as GHG emissions contribute to climate change irrespective

of where they are generated, and recognising the importance of avoiding the displacement of emissions overseas (commonly referred to as 'carbon leakage') as UK emissions are reduced, these emissions will be included within the Bellrock OnTDA GHG assessment. Consequently, they will be considered in the context of the UK and Scotland's GHG emission reduction targets and wider climate ambitions. GHG emission sources in the assessment boundary are detailed in **Section 16.6**.

16.5.1 Embedded Mitigation Measures

1203. Embedded mitigation has been identified, as presented in **Table 16.6** and **Appendix B: Mitigation and Monitoring Register (Volume 1),** in accordance with the mitigation hierarchy, with the aim of avoiding, preventing, reducing, and where possible, offsetting potential adverse environmental effects. Consistent with the IEMA guidance (2024), primary (inherent design measures) and tertiary (standard good practice) mitigation are embedded within the Project Design Envelope (PDE) and are, therefore, considered in the assessment of effects. Secondary mitigation measures will be identified where required through the EIA process, informed by the outcomes of the initial impact assessment.

1204. The ISEP guidance (2026) highlights the importance of embedded mitigation in minimising GHG emissions from a development. The ISEP GHG Management Hierarchy establishes a structure to eliminate, reduce, substitute and remove such emissions as set out in the ISEP guidance (ISEP, 2026), and the Institute of Civil Engineers (ICE) PAS2080 guidance document (ICE, 2023). The Bellrock OnTDA GHG Assessment will consider mitigation measures which are designed into the Bellrock Onshore Transmission Infrastructure and will identify opportunities for further emission reduction where practicable, in line with the GHG Management Hierarchy. This could include measures to minimise traffic or embodied carbon through the efficient use of materials. In addition, the PAS2080 guidance document (ICE, 2023) will be reviewed to outline best practice carbon management measures for further consideration.

1205. The current embedded mitigation measures may be refined as the PDE evolves. In addition, further embedded mitigation measures may be developed as part of the iterative design process.

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Table 16.6: Embedded Mitigation Measures Relevant to the Bellrock OnTDA GHG Assessment

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	✓	✓	Adherence to Environmental Management System (International Standards Organization 14001)).	The Environmental Management System will provide a structured framework to systematically identify, manage and reduce GHG emissions across the lifecycle of the Bellrock Project, and will support the application of the GHG Management Hierarchy.	Tertiary
X	✓	X	Implementation of a Gas Leakage Monitoring and Detection System, if SF6-containing equipment is required.	SF_6 has a high global warming potential and operational leakage from electrical equipment could contribute to lifecycle GHG emissions. Gas leakage monitoring, prompt repair and consideration of SF_6-free alternatives will reduce the risk and magnitude of O&M GHG emissions associated with switchgear and other relevant equipment. In the rare event of a leakage occurring, the fault will be repaired as soon as reasonably practicable. The Bellrock Project will consider SF_6-free electrical equipment during detailed design and procurement where alternatives are technically and commercially feasible.	Tertiary

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16.6 Scoping of Potential Impacts

16.6.1 Construction, Operation and Maintenance and Decommissioning Phases

1206. The scoping exercise for the Bellrock OnTDA GHG assessment identifies emission sources which are included or excluded from the assessment boundary and is presented in accordance with the PAS2080 lifecycle modules.

1207. **Table 16.7** shows the GHG emission sources which are proposed to be scoped in and scoped out of the Bellrock OnTDA EIA Report.

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Table 16.7: Potential Greenhouse Gas Impacts Scoped In and Scoped Out of the Bellrock OnTDA EIA Report

Phase	PAS2080 Lifecycle module	Potential Emission Sources	Scoping Outcome (Scoped In/Scoped Out)
Site Preparation/Pre-construction (including Product Stage) and Construction	A0: Preliminary Studies, Design and Engineering	Emissions from design and engineering activities are not likely to be significant. It is anticipated that most works will be office-based. However, pre-construction surveys and activities such as the creation of temporary means of access will be considered where possible. Further details on site preparation/pre-construction works are provided in **Chapter 3: Project Description.**	**Scoped in**
	A1: Raw Materials Supply A2: Transport to Manufacturing Site A3: Manufacturing	Embodied carbon in materials used during the construction of onshore infrastructure such as transition joint bay(s), onshore export cables, OnSS, and other built assets. Embodied carbon in materials in this assessment are emissions arising from the raw material extraction and manufacturing of materials used for the Bellrock Onshore Transmission Infrastructure.	**Scoped in**
	A4: Transport to/from Temporary Construction Compounds	Fuel consumption from the movement of materials, equipment, onshore waste and personnel to/from the onshore temporary construction compounds via road vehicles.	**Scoped in**
	A5: Construction	Fuel and electricity consumption associated with plant and equipment use during onshore construction activities. There will be direct loss of habitat due to activities within the study area, which could result in the loss of carbon stocks. These potential effects have been scoped in.	**Scoped in**
O&M	B1: Use	Direct emissions from components and materials installed as part of the infrastructure, such as SF_6 used in switchgear. The loss of habitats could have the potential for continued loss of sequestered carbon during O&M. These potential effects have been scoped in.	**Scoped in**
	B2: Maintenance B3: Repair B4: Replacement B5: Refurbishment	Fuel and electricity consumption associated with transport (road vehicles) and plant equipment use during onshore O&M activities. Embodied carbon in materials used in spare parts during repair and replacement events.	**Scoped in**

Phase	PAS2080 Lifecycle module	Potential Emission Sources	Scoping Outcome (Scoped In/Scoped Out)
	D: Benefits and Loads beyond the Infrastructure System	Avoided emissions from the provision of renewable energy to the National Electricity Transmission System.	**Scoped in**
	B6: Operational Energy Use	The operational energy requirements for the Bellrock Onshore Transmission Infrastructure are assumed to be delivered entirely by the Bellrock Project's generation.	**Scoped out**
	B7: Operational Water Use	The operational water use for the Bellrock Onshore Transmission Infrastructure is anticipated to be negligible and, therefore, emissions are not likely to be significant.	**Scoped out**
	B8: User's Utilisation of Infrastructure	Emissions from user's utilisation are not relevant to the Bellrock OnTDA. End users will consume the electricity generated by the Bellrock Project but will not directly interact with the infrastructure.	**Scoped out**
Decommissioning (End-of-Life)	C1: Deconstruction C2: Transport to/from Site C3: Waste Processing for Recovery C4: Disposal	Emissions associated with the deinstallation of the Bellrock Onshore Transmission Infrastructure, transport to landfill or other end destinations and the treatment and processing for reuse, recycling, recovery or disposal.	**Scoped in**

16.6.2 Bellrock Project GHG Whole Project Assessment

1208. The Bellrock Project GHG Whole Project Assessment for the Bellrock Project (i.e. the Bellrock OnTDA, OfTDA and WFDA), will build on the Bellrock Project GHG Whole Project Assessments presented in the **Bellrock WFDA EIA Report** and Bellrock OfTDA EIA Report. This Bellrock Project GHG Whole Project Assessment within the Bellrock OnTDA EIA Report will evaluate the net contribution of the Bellrock Project as a whole to climate change, through an estimation of GHG emissions arising from infrastructure associated with all component Bellrock Development Areas (Bellrock OnTDA, OfTDA and WFDA). Although the assessments presented in each EIA Report will remain valid, this iterative approach will be undertaken allowing for up-to-date information (if required) to be incorporated within each submission. Further details are discussed in **Section 16.6.2**.

16.6.3 Potential Cumulative Effects

1209. As outlined in **Section 16.4.1**, the receptor for the Bellrock OnTDA GHG assessment is the global atmosphere. GHG emissions, wherever they occur, have the potential to contribute to climate change, and, therefore, their effects are global and cumulative by nature. The ISEP guidance (2026) states that the effects of GHG emissions from specific cumulative projects should not be individually assessed, as there is no basis for selecting which projects to assess cumulatively over any other. In addition, as outlined in **Section 16.1** and **Section 16.5.2**, a Bellrock Project GHG Whole Project Assessment will evaluate the net contribution of the Bellrock Project, including the Bellrock WFDA and Bellrock OfTDA, as a whole to atmospheric GHG concentrations in the global atmosphere. As such, no additional consideration of cumulative effects with other projects or plans is required for the Bellrock OnTDA GHG assessment, and cumulative effects have been **scoped out** of the EIA for the Bellrock OnTDA GHG assessment.

16.6.4 Potential Transboundary Effects

1210. As the receptor for the Bellrock OnTDA GHG assessment is the global atmosphere, GHG impacts are transboundary by nature. Emissions considered in the Bellrock OnTDA GHG assessment will be contextualised using the relevant UK and Scottish carbon budgets and national net zero targets, which have been established in accordance with international climate commitments such as the UK's NDC under the Paris Agreement (2015). As such, no additional assessment of transboundary effects is required for the Bellrock OnTDA GHG assessment, and transboundary effects have been **scoped out** of the EIA for the Bellrock OnTDA GHG assessment.

16.6.5 Summary of Potential GHG Impacts Scoped In and Scoped Out

1211. A summary of potential impacts scoped in and out from further assessment in the Bellrock OnTDA EIA Report is provided in **Table 16.9** below.

Table 16.8: Summary of Potential GHG Impacts Scoped In (✓) or Scoped Out (X)

Potential Impact	Scoped In (✓) or Scoped Out (X)		
	Construction	O&M	Decommissioning
Whole lifecycle GHG emissions	✓	✓	✓
Bellrock OnTDA Whole Project Assessment*	✓	✓	✓
Cumulative effects	X	X	X
Transboundary effects	X	X	X
Notes: * see **Section 16.6.2** for further details on the scoping of the Bellrock OnTDA Whole Project Assessment for Greenhouse Gas Assessment.			

16.7 Proposed Approach to Impact Assessment

1212. The Bellrock OnTDA GHG assessment will be undertaken in accordance with the following guidance documents:

- Assessing Greenhouse Gas Emissions and Evaluating their Significance with Supplementary Guidance (ISEP, 2026);
- The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (World Resources Institute and World Business Council for Sustainable Development, 2015);
- PAS 2080: Carbon Management in Buildings and Infrastructure (British Standards Institution, 2023); and
- Offshore Wind Industry Product Carbon Footprinting Guidance (Carbon Trust, 2026).

1213. The Bellrock OnTDA GHG assessment for the Bellrock OnTDA EIA Report will be structured as follows:

- Emissions from the construction of the Bellrock Onshore Transmission Infrastructure, including upstream embodied carbon emissions and the loss of carbon stocks;
- Emissions from the O&M of the Bellrock Onshore Transmission Infrastructure, including the continued loss of sequestered carbon, or emissions sequestered through habitat creation and reinstatement;
- Avoided emissions from the provision of renewable energy into the National Electricity Transmission System during the operation of the Bellrock Onshore Transmission Infrastructure;
- Emissions from decommissioning of the Bellrock Onshore Transmission Infrastructure;

- A summary of lifecycle emissions of the Bellrock Onshore Transmission Infrastructure across the construction, O&M and decommissioning phases; and
- Combined emissions of the Bellrock Onshore Transmission Infrastructure, Offshore Transmission Infrastructure and Wind Farm Infrastructure and associated activities to establish the net GHG emissions of the Bellrock Project as a whole, across the construction, O&M and decommissioning phases.

1214. GHG emissions will be estimated using a standard calculation-based methodology, which involves multiplying activity data supplied by the Applicant's development team by representative emission factors, and, where applicable, calorific values, load factors and global warming potential factors.

1215. Industry benchmarks and assumptions based on professional judgment will be used where data gaps exist. The data for quantifying end-of-life emissions during decommissioning and emissions from spare parts used during repair and replacement events will be estimated with reference to industrial or academic literature averages, and estimates of emissions during construction, with any assumptions clearly stated.

16.7.1 Assessment Criteria

1216. As outlined in **Section 16.4.1**, the receptor for the Bellrock OnTDA GHG assessment is defined as the global atmosphere. The receptor's sensitivity will be characterised as high, given that any net reduction of GHG emissions will support decarbonisation efforts in line with national and international climate commitments.

1217. The magnitude of impact is not defined, as the significance of effect for the Bellrock OnTDA GHG assessment is not determined by the magnitude of emissions alone (ISEP, 2026). However, GHG emission values (both in terms of emissions released and avoided) will be calculated and expressed as tonnes of carbon dioxide equivalent (CO_2e) to account for differences in global warming potential between GHGs. GHG emissions will be calculated using a lifecycle approach in alignment with the PAS 2080 modules and The Carbon Trust guidance and presented both by project phase and over the whole lifecycle.

1218. Significance criteria for the assessment will be adapted from ISEP's guidance (2026), which recognises that: *"when evaluating significance, all new GHG emissions contribute to a negative environmental effect. However, some projects will replace existing development or baseline activity that have higher GHG profiles. The significance of a project's emissions should therefore be based on its net impacts, which may be positive, negative or negligible"*.

1219. The ISEP guidance provides relative significance descriptions to assist assessments of GHG emissions in an EIA context. Section 6 of the guidance (ISEP, 2026) describes five distinct levels of significance (major adverse, moderate adverse, minor adverse, negligible and beneficial), which are not based solely on whether a project emits GHG emissions, but on how a development makes a relative contribution towards achieving a science-based transition towards net zero. For the purposes of the EIA, major adverse, moderate adverse and beneficial effects will be considered as significant.

1220. To assist in evaluating significance of the GHG impacts of the Bellrock Onshore Transmission Infrastructure, comparisons to the UK and Scotland Carbon Budgets and relevant existing and emerging net zero policies, targets and performance standards will be undertaken. The assessment will conclude whether and how the Bellrock Onshore Transmission Infrastructure (as part of the Bellrock Project) contributes to or undermines the UK's and Scotland's emission reduction efforts and trajectory towards net zero. This will be carried out based on the Bellrock Project GHG Whole Project Assessment detailed in **Section 16.6.2**. Additional parameters will be calculated to contextualise the predicted carbon benefits where appropriate, including the GHG intensity of electricity generated (RenewableUK, 2025).

16.7.2 Approach to the Bellrock Project GHG Whole Project Assessment

1221. To evaluate the net contribution of the Bellrock Project to climate change, an assessment referred to as the 'Bellrock Project GHG Whole Project Assessment' will be undertaken (see **Section 16.5.2**). The Bellrock Project GHG Whole Project Assessment will comprise of:

- GHG emissions from the construction, O&M and decommissioning of the Bellrock Onshore Transmission Infrastructure, which will be calculated in the Bellrock OnTDA GHG assessment and presented in the Bellrock OnTDA EIA Report;
- GHG emissions from the construction, O&M and decommissioning of the Bellrock Wind Farm Infrastructure, as presented in the **Bellrock WFDA EIA Report**; and
- GHG emissions from the construction, O&M and decommissioning of the Bellrock Offshore Transmission Infrastructure, as will be presented in the **Bellrock OfTDA EIA Report**.

1222. The study area for the Bellrock Project GHG Whole Project Assessment will encompass all GHG emitting activities, including avoided emissions, associated with the construction, O&M and decommissioning of the Bellrock Onshore Transmission Infrastructure, Offshore Transmission Infrastructure and Wind Farm Infrastructure combined.

1223. The lifecycle GHG emissions associated with the Bellrock Onshore Transmission Infrastructure will be combined with the calculated lifecycle emissions for the Bellrock Offshore Transmission Infrastructure and the Bellrock Wind Farm Infrastructure to determine the total emissions for the Bellrock Project. To evaluate the overall effect significance of the Bellrock Project, the assessment criteria presented in **Section 16.6.1** will also be used for the Bellrock Project GHG Whole Project Assessment.

1224. The Bellrock Project GHG Whole Project Assessment, as noted in **Section 16.1**, will be presented in the Bellrock OnTDA EIA Report, which will be an updated and final version of the previous assessment submitted within the **Bellrock WFDA EIA Report** and Bellrock OfTDA EIA Report. Although the assessments presented in each EIA Report will remain valid, this iterative approach will be undertaken allowing for up-to-date information (if required) to be incorporated within each submission.

16.8 Scoping Questions to Consultees

1225. The following questions are posed to consultees to help them frame and focus their response to the GHG scoping exercise, which would in turn inform the EIA:

- Do you agree with the study area definitions and the approach to characterising the existing environment?
- Do you agree that all relevant data sources have been identified in this Chapter?
- Do you agree that all receptors and potential impacts have been identified in this Chapter?
- Do you agree with the GHG emission sources that have been scoped in/out of this Chapter?
- Do you agree with the proposed methodology for the Bellrock OnTDA GHG assessment and the iterative approach to the Bellrock Project GHG Whole Project Assessment?

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17 Climate Change Risk Assessment

17.1 Introduction

1226. This Chapter of the **Bellrock Onshore Transmission Development Area (OnTDA) Scoping Report** considers the potential impacts associated with the construction, operation and maintenance (O&M), and decommissioning of the Bellrock Onshore Transmission Infrastructure from climate change.

1227. The Bellrock OnTDA Scoping Boundary (shown in **Figure 1.1 (Appendix A (Volume 1))**) defines the area within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process (as discussed in **Section 1.4** in **Chapter 1: Introduction**) to form the boundary of the Bellrock OnTDA Planning Permission in Principle (PPP) Application.

1228. For the purposes of this **Bellrock OnTDA Scoping Report**, the Bellrock OnTDA Scoping Boundary encompasses the anticipated Onshore Transmission Infrastructure and associated activities for the Bellrock OnTDA landward of Mean Low Water Springs (MLWS). The Bellrock OnTDA Scoping Boundary overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) between Mean High Water Springs (MHWS) and MLWS.

1229. The Bellrock Onshore Transmission Infrastructure includes:

- **Landfall**: located at Cowie, Aberdeenshire, where between two and six ducts are installed using trenchless techniques, allowing the offshore export cables to be brought ashore and connected to onshore export cables within the transition joint bay;
- **Onshore export cables**: up to six underground High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) onshore export cables, each up to 18 km in length, installed between landfall and the onshore substation;
- **Onshore substation (OnSS)**: electrical equipment (such as converters, transformers, switchgear, and protection and control systems) enabling renewable electricity from the Bellrock Wind Farm Development Area (WFDA) received via the onshore export cables to be exported to the National Electricity Transmission System, and ancillary infrastructure; and
- **Hurlie substation connection works**: Infrastructure between the Bellrock OnSS to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the National Electricity Transmission System.

1230. In addition, associated works are required to facilitate construction and O&M of the Onshore Transmission Infrastructure, including: access, signage, haul roads, spoil storage, material

storage, fencing, borrow pits (if any), earthworks, welfare, security, landscape mitigation, ecological mitigation, biodiversity enhancement, operational lighting and drainage.

1231. As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Wind Farm Infrastructure (located within the Bellrock WFDA) was presented in the **Bellrock WFDA Environmental Impact Assessment (EIA) Report**, which was submitted in support of the Section 36 Consent and Marine Licence Application for the Bellrock Wind Farm Infrastructure in April 2026 (Bellrock Offshore Wind Farm Limited, 2026a). The **Bellrock WFDA EIA Report** considered the potential impacts and subsequent effects of the Bellrock Wind Farm Infrastructure on the environment. An EIA Scoping Report for the Bellrock Offshore Transmission Infrastructure was also submitted to Scottish Ministers on 17 August 2026 (Bellrock Offshore Wind Farm Limited, 2026b), with an EIA Report in support of the Marine Licence Application proposed to be submitted by the end of 2027.

1232. A climate change risk (CCR) assessment will be undertaken to evaluate future trends in climate change and the vulnerability and resilience of the Bellrock Onshore Transmission Infrastructure to such changes. The CCR assessment will consider the Bellrock Onshore Transmission Infrastructure only, with the vulnerability and resilience to climate change impacts considered separately for the Bellrock Wind Farm Infrastructure and the Bellrock Offshore Transmission Infrastructure in their respective EIA Reports.

1233. As discussed in **Chapter 4: Approach to Scoping and Environmental Impact Assessment** the assessment of the Bellrock Wind Farm Infrastructure is included in the separate **Bellrock WFDA EIA Report** submitted in April 2026 (Bellrock Offshore Wind Farm Limited, 2026).

1234. This Chapter should be read in conjunction with the following chapters of the **Bellrock OnTDA Scoping Report**:

- **Chapter 6: Geology and Ground Conditions;**
- **Chapter 7: Hydrology and Flood Risk;**
- **Chapter 18: Human Health;** and
- **Chapter 19: Major Accidents and Disasters**.

1235. This Chapter is likely to have key inter-relationships with the above receptors, which will be considered appropriately where relevant in the Bellrock OnTDA EIA Report.

17.2 Legislation, Policy and Guidance

1236. **Table 17.1** identifies the legislation, policy and guidance relevant to the climate change chapters and the assessment where appropriate. The overarching legislation relevant to the Bellrock Offshore Transmission Infrastructure is described in **Chapter 2: Legislative and Policy Context**.

Table 17.1: Summary of Relevant Legislation, Policy and Guidance for Climate Change Risk Assessment

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Legislation	
Town and Country Planning (Scotland) Act (1997)	Principal legislative framework for Scotland's planning system, requiring material considerations to be taken into account in the preparation of development plans and the determination of development proposals.
The Climate Change Act 2008; Climate Change (Scotland) Act 2009; Climate Ready Scotland: Second Scottish Climate Change Adaptation Programme 2019-2024 (Scottish Government, 2019)	The Climate Change Act 2008 requires the United Kingdom (UK) Government to undertake a CCR Assessment every five years and identify key climate risks and opportunities to national communities and economic sectors. The Climate Change (Scotland) Act 2009 poses a similar requirement for the preparation of strategic programmes for climate change adaptation following the publication of each UK CCR Assessment. The third UK CCR Assessment was published in 2022 (Department for Environment Food and Rural Affairs (Defra), 2022), followed by the third National Adaptation Programme (Defra, 2023), which outlines priority adaptation actions to be taken. In Scotland, climate Ready Scotland, The Scottish Climate Change Adaptation Programme 2019-2024, sets out national adaptation priorities and actions, including improving the resilience of infrastructure to current and future climate change.
The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017	Schedule 4 states that the description of the likely significant effects should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.
Policy	
Independent Assessment of UK Climate Risk (Climate Change Committee, 2021)	Prepared by the Climate Change Committee to inform CCRA3, the Independent Assessment of UK Climate Risk evaluates the magnitude and urgency of climate risks facing the UK. The report identifies infrastructure resilience as a priority area requiring increased adaptation action and highlights the growing risks associated with flooding, heat, coastal change and cascading infrastructure failures. The findings provide supporting evidence for assessing climate vulnerability, resilience and adaptive capacity within major infrastructure developments.
UK Climate Change Risk Assessment 2022 (Defra, 2022)	The Third UK Climate Change Risk Assessment (CCRA3) provides the UK Government's statutory assessment of the risks and opportunities arising from climate change under the Climate Change Act 2008. The assessment identifies risks to infrastructure, energy systems and critical services from flooding, coastal change, extreme temperatures, water scarcity and other climate hazards. It provides an important evidence base for project-level climate change risk assessments and adaptation planning, helping to identify the climate hazards and pathways that may affect the Bellrock Project throughout its lifecycle.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Aberdeenshire Council Local Development Plan 2023 (Aberdeenshire Council, 2023)	The following policy is considered relevant to CCR assessment: ▪ **Policy C2**: Renewable Energy requires developments to consider renewable energy targets.
National Planning Framework 4 (NPF4) (Scottish Government, 2023)	As a long-term vision for spatial development, NPF4 supports the enhancement of the climate resilience of existing and future developments. The following policy is considered relevant to CCR assessment: ▪ **Policy 2**: Climate mitigation and adaptation requires developments to be sited and designed to adapt to current and future risks from climate change.
Scottish National Adaptation Plan (SNAP3/2024–2029) (Scottish Government, 2024)	Sets out Scotland's strategic response to climate risks identified in the UK CCR Assessment, including actions to improve the resilience of infrastructure and essential services. The Plan reinforces the need for projects to assess Exposure, Vulnerability and Adaptive Capacity over their lifecycle and demonstrates policy support for adaptation-led design.
Guidance	
UK Climate Projections 2018 (UKCP18) and Met Office Climate Projection Guidance (Met Office, 2018 onwards)	UKCP18 provides the UK's authoritative climate projections, including future changes in temperature, precipitation, sea level rise and other climate variables under a range of emissions scenarios. The projections form a key evidence base for understanding how climate conditions may change over the lifetime of the Bellrock Onshore Transmission Infrastructure and support the assessment of future climate hazards, risks and adaptation requirements. Where used, UKCP18 and associated Met Office guidance underpin the climate assumptions adopted within the climate change risk assessment methodology.
IEMA[1]: Environment Impact Assessment Guide to Climate Change Resilience and Adaptation (2020) *(This guidance is currently under review and the latest version relevant at the time of Bellrock OnTDA EIA will be used.)*	The guidance document provides a methodology for characterising the climate baseline and assessing a development's vulnerability and resilience to climate change in the EIA process.
Scottish Government – Keeping Scotland Running: Building Resilience to a Changing Climate (Scottish Government, 2020)	Provides guidance for operators of critical infrastructure on managing climate risks, cascading failures and long-term resilience planning. Particularly relevant to offshore energy infrastructure and grid-connected assets.
European Commission: Technical Guidance on the Climate Proofing of Infrastructure in the Period 2021 to 2027 (European Commission, 2021)	The guidance document outlines climate adaptation considerations for infrastructure projects and a risk assessment methodology for integration into impact assessments.
Climate Change Risk Assessment Framework for Public Services Boards (Natural Resources Wales, 2023)	The Natural Resources Wales Climate Change Risk Assessment Framework provides a structured methodology for identifying, assessing and prioritising climate risks. The framework adopts a risk-based approach that considers climate hazards, exposure, vulnerability and adaptive

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
	capacity, supporting robust and transparent climate risk assessments. Where applied, it can inform the methodology used to assess climate-related risks and resilience within infrastructure and development projects.
Adaptation Scotland – Adaptation Capability Framework (Adaptation Scotland, 2024)	Provides an evidence-based framework for assessing adaptive capacity across organizations and sectors. The framework supports structured evaluation of resilience measures, governance and operational readiness relevant to infrastructure projects.
Climate Change Allowances for Flood Risk Assessment in Land Use Planning (Scottish Environmental Protection Agency (SEPA), 2025)	SEPA's Climate Change Allowances provide recommended climate change uplifts for rainfall intensity, river flows and sea levels to support flood risk assessment and land-use planning in Scotland. The guidance ensures that future climate conditions are appropriately considered when assessing flood risk and resilience. Where flooding is identified as a relevant climate hazard, the allowances help inform the assessment of future flood extents, frequencies and consequences affecting the Bellrock Onshore Transmission Infrastructure.
C40 Cities Climate Change Risk Assessment Guidance (C40 Cities, 2025)	The guidance document includes a Climate Hazard Taxonomy based on the United Nations Disaster Risk Reduction classification, which provides the basis for identifying and screening climate hazards. While primarily intended for use in urban settings, the approach is broadly applicable to build environment projects of all types.
Notes: [1] IEMA was renamed the Institute of Sustainability and Environmental Professionals (ISEP) in 2025.	

17.3 Consultation

1237. Consultation with Aberdeenshire Council has been undertaken, including engagement through Aberdeenshire Council's Pre-application Advice Service. A summary of consultation activities undertaken to date is provided in **Table 17.2.**

Table 17.2: Consultation Relevant to Climate Change Risk Assessment

Consultee	Date/Document	Comment	How Comment has been Addressed
Aberdeenshire Council	19 August 2026, Pre-Application Advice letter	*"1 in 200 + CC is the storm return period we would expect all designs to be designed for. That means that we would expect all SuDS on the actual substation site to be designed for 1 in 200 year + CC."*	Comment has been addressed within **Chapter 7: Hydrology and Flood Risk** of this **Bellrock OnTDA Scoping Report**, where flood risk assessment is considered.

17.4 Existing Environment

17.4.1 Study Area

1238. The scope of the CCR assessment will be limited to evaluating the vulnerability and resilience of the Bellrock OnTDA and its receptors (as defined in **Section 17.1** respectively) to the effects of climate change. Therefore, the CCR assessment study area is geographically defined by the extent of the Bellrock OnTDA Scoping Boundary (**Figure 1.1 (Appendix A (Volume 1))**). The CCR assessment will be informed by historical observations and future projections of climate variables. The spatial resolution of the baseline data collected for the CCR assessment will provide representative coverage of the Bellrock OnTDA Scoping Boundary and the wider region of eastern Scotland (Met Office, 2016a).

1239. The temporal boundary of the CCR assessment will be defined by the construction, O&M and decommissioning phases of the Bellrock Onshore Transmission Infrastructure:

- The construction period for the Bellrock Onshore Transmission Infrastructure is assumed to be up to 56 months, including testing, snagging and commissioning;
- The operational lifetime is assumed to be up to 40 years for the Bellrock Onshore Transmission Infrastructure; and
- The duration of decommissioning has not yet been defined and will depend on the decommissioning strategy adopted for the Bellrock Onshore Transmission Infrastructure. In the absence of detailed decommissioning information, a precautionary approach will be adopted for the purposes of the assessment. For EIA purposes, it is assumed to be similar in timescales as the construction period.

1240. To characterise the future baseline climate, representative time slices will be identified in alignment with the construction, O&M and decommissioning phases of the Bellrock Onshore Transmission Infrastructure, and climate change projection data will be presented for each time slice to reflect changes in climate change severity over time and capture the likely climate conditions for each project phase.

1241. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process to form the boundary of the Bellrock OnTDA. The CCR assessment study area will be updated for the Bellrock OnTDA EIA to reflect this refinement (see **Section 1.4** in **Chapter 1: Introduction**).

17.5 Data and Information Sources

1242. The desk-based sources used to characterise the existing environment and inform the CCR assessment will consist primarily of publicly available datasets and reports from government and industry sources. **Table 17.1** identifies potential desk-based sources, which will be updated throughout the EIA process.

Table 17.1: Summary of Key Data and Information Sources for Climate Change Risk Assessment

Dataset	Temporal Coverage	Description
IPCC Fifth Assessment Report AR5 (IPCC, 2014)	2014	Provides a comprehensive assessment of climate change science and defines a set of Representative Concentration Pathways (RCPs), which describe possible future trajectories of atmospheric greenhouse gas (GHG) concentrations based on different socioeconomic and policy assumptions. These RCPs are widely used in climate projection modelling to assess future climate conditions.
Met Office's UK Climate Averages and Regional Climate Summaries (Met Office, 2016b)	Various	Historical climate observations and current climate conditions for the UK.
Met Office UKCP18 Database and supporting reports (Met Office, 2018)	Various	Climate change projection data and summaries for the UK for various climate variables such as air temperature and precipitation. Note: UKCP data is most applicable to onshore and coastal areas. '18' refers to the year that the data was first approved and published, although updates and enhancements to the data have been published since 2018. As such the data are considered to be applicable.
Scotland's Marine Assessment (Moffat et al., 2020).	2020	Reports on the vision for the (Scottish) seas: *"clean, healthy, safe, productive, biologically diverse marine and coastal environments, managed to meet the long-term needs of nature and people."* The assessment presents, where possible, trends for the period from 2014 to 2018 with longer term data presented where this sets the 2014 to 2018 period in a longer-term context.
Scottish Government – Keeping Scotland Running: Building Resilience to a Changing Climate (Scottish Government, 2020)	2020	Provides guidance for operators of critical infrastructure on managing climate risks, cascading failures and long-term resilience planning. Particularly relevant to offshore energy infrastructure and grid-connected assets.
Marine Climate Change Impacts Partnership Report Card and Supporting Publications (MCCIP, 2020)	Various	A collection of evidence reviews and summary reports on climate change effects in the marine environment.
Offshore Wind Climate Adaptation and Resiliency Study, New York State Energy Research and Development Authority (Weisenfeld et al., 2021)	2021	Review of key climate factors for the offshore wind sector and opportunities for climate resilience.
Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (IPCC, 2023)	2023	Current state of knowledge on climate science and possible climate futures. Provides the most up-to-date and comprehensive assessment of the global state of scientific knowledge on climate change, including observed

Dataset	Temporal Coverage	Description
		and projected climate impacts, risks, mitigation pathways, and adaptation options under a range of future climate scenarios.
Adaptation Scotland – Adaptation Capability Framework (Adaptation Scotland, 2024)	2024	Provides an evidence-based framework for assessing adaptive capacity across organisations and sectors. The framework supports structured evaluation of resilience measures, governance and operational readiness relevant to infrastructure projects.
SEPA – Climate Change Allowances for Flood Risk Assessment in Land-Use Planning (SEPA, 2025)	2025	Sets out climate change allowances for rainfall, river flows and coastal flooding to be used in assessments. The guidance informs how projected climate change should be incorporated into exposure and design considerations for flood-related climate hazards.

1243. No baseline surveys are proposed for the CCR assessment. However, cross-disciplinary engagement with the Applicant's development team and other relevant EIA chapters will help refine the assessment and identify suitable mitigation measures.

17.5.1 Climate Change Risk Assessment

1244. The current baseline for the CCR assessment will be defined using historical climate data and meteorological records maintained by Met Office. Climate averages for the 1991 to 2020 time period will be obtained from the nearest climate station to the Bellrock OnTDA, which is Inverbervie No 2 (Met Office, 2020) located at Easting: 383,884 m, Northing: 773,425 m, for temperature, precipitation and wind variables (Met Office, 2023). This will be supplemented with regional climate characteristics (Met Office, 2016b), based on observations recorded between 1981 and 2010, and other relevant published climate datasets and literature where appropriate. The Bellrock OnTDA Scoping Boundary lies within the eastern Scotland climate region.

1245. Climate change projections will be used to characterise the future baseline climate within the CCR assessment study area, with changes to climate variables serving as indications of likely climate hazards. The Met Office's UKCP database provides probabilistic climate change projections for the UK at a spatial resolution of 25 km grid squares, covering the time period from 1961 to 2100. Climate projections based on probability assessments provide a broad range of possible climate outcomes and account for uncertainties present in climate models. The grid cell corresponding to the Bellrock OnTDA Scoping Boundary is centred at Easting: 387,500 m and Northing: 787,500 m.

1246. UKCP data uses RCPs, which depict future GHG concentrations based on a range of emissions scenarios. For the CCR assessment, projection data will be obtained for RCP4.5 (intermediate scenario) and RCP8.5 (high emissions scenario) and presented at three probability levels, where applicable: 10th percentile, 50th percentile (median) and 90th percentile. In line with best practice (IEMA, 2020), this approach will provide a robust overview of the future baseline climate.

1247. To describe projected changes in climate variables at the local scale, projections from the relevant UKCP grid cell encompassing the Bellrock OnTDA PPP Boundary will be used. Climate variables considered within the assessment are expected to include temperature, precipitation, wind, flooding and other relevant climate hazards that may influence the construction, O&M, and decommissioning of the Bellrock Onshore Transmission Infrastructure. Where information gaps exist, these will be supplemented using other available literature sources.

1248. Climate change projections are commonly provided as time series data. For the CCR assessment, the data will be processed and presented as climate averages over selected time slices. It is assumed that these time slices will provide sufficient temporal coverage of the CCR assessment study area. The construction, O&M, and decommissioning phases of the Bellrock Onshore Transmission Infrastructure will be segmented into multi-year time slices (typically 20 to 30-year periods), depending on data availability, to illustrate differences in short-term, medium-term and long-term climate change.

17.6 Potential Impacts

1249. Potential impacts considered in the CCR assessment for construction, O&M and decommissioning of the Bellrock Onshore Transmission Infrastructure include extreme weather events and chronic climatic changes with the potential to harm receptors and affect their ability to maintain their function or purpose. A high-level review of direct interdependencies with other critical infrastructure or activities, such as the National Electricity Transmission Network, will also be undertaken to identify the potential for cascading risks and their effects on the Bellrock Onshore Transmission Infrastructure and associated activities. Receptor groups considered in the CCR assessment include:

- Infrastructure receptors such as the landfall, transition joint bays, onshore export cables, cable trenches and trenchless crossings, link boxes, temporary haul roads, the OnSS, Hurlie substation connection works, temporary construction compounds, access infrastructure, drainage infrastructure, environmental mitigation areas and associated equipment and plant (refer to **Chapter 3: Project Description** for all infrastructure and associated activities);
- Human receptors such as construction workers, operational personnel, maintenance personnel and other site users; and
- Environmental receptors such as habitats and species associated with environmental mitigation, habitat enhancement and landscaping measures.

17.6.1 Embedded Mitigation Measures

1250. Embedded mitigation has been identified, as presented in **Table 17.2** and **Appendix B: Mitigation and Monitoring Register (Volume 1)**, in accordance with the mitigation hierarchy, with the aim of avoiding, reducing and managing the potential adverse effects of climate change on the Bellrock Onshore Transmission Infrastructure. Primary (inherent design measures) and tertiary (standard good practice) mitigation are embedded within the project design and are, therefore, considered in

the assessment of effects. Secondary mitigation measures will be identified where required through the EIA process, informed by the outcomes of the initial impact assessment.

1251. The design of the Bellrock Onshore Transmission Infrastructure and relevant health and safety requirements provide an inherent degree of climate resilience. The CCR assessment will consider the technical requirements of the Bellrock Onshore Transmission Infrastructure, design specifications and operational strategy, which are informed by applicable engineering standards, industry best practice and standard management procedures.

1252. The assessment will consider the resilience of key infrastructure receptors to current and future climate hazards. Existing design measures that contribute to climate resilience will be identified and taken into account within the assessment.

1253. Where potential climate-related risks are identified, additional adaptation and resilience measures will be considered, where appropriate, to reduce the vulnerability of the Bellrock Onshore Transmission Infrastructure to future changes in climate conditions. Such measures will be informed by available guidance, published literature and consultation with the engineering team.

1254. Recognising the uncertainties associated with long-term climate projections, the assessment will also consider the need for adaptive management measures in line with IEMA guidance (2020), ensuring that climate-related risks can be appropriately monitored and managed throughout the construction, O&M, and decommissioning phases of the Bellrock OnTDA.

1255. The current embedded mitigation measures may be refined as the project design evolves. In addition, further embedded mitigation measures may be developed as part of the iterative design process during the EIA process.

Table 17.2: Embedded Mitigation Measures Relevant to Climate Change Risk

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	X	✓	Development of and adherence to a Construction Environmental Management Plan (CEMP).	The CEMP will set out procedures to avoid, reduce and manage potential environmental effects arising from the construction and operation of the Onshore Transmission Infrastructure, in accordance with relevant legislation, policy and guidance. The CEMP will include measures relating to climate resilience where relevant, including management of surface water, pollution prevention, incident response procedures and measures to minimise disruption during extreme weather events.	Tertiary
✓	✓	✓	Following relevant industry guidance and best practice, whilst ensuring compliance with applicable national and international legislation.	This will include compliance with relevant requirements relating to flood risk (**Chapter 7: Hydrology and Flood Risk**), drainage, water environment protection (**Chapter 9: Onshore Ecology and Nature Conservation**), health and safety (**Chapter 18: Human Health**), pollution prevention, waste management and invasive non-native species (INSS) mitigation plan (**Chapter 9: Onshore Ecology and Nature Conservation**).	Tertiary

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
X	✓	X	Production of a Drainage Impact Assessment (DIA).	The drainage design will account for current and future rainfall projections and will include appropriate surface water management measures, attenuation features, drainage infrastructure and erosion protection measures where required (**Chapter 7: Hydrology and Flood Risk**). The DIA will include a drainage strategy which will seek to ensure that the Onshore Transmission Infrastructure remains resilient to increased precipitation, surface water flooding, watercourse flooding and associated erosion risks throughout its operational lifetime.	Tertiary
✓	✓	✓	The design of the Onshore Transmission Infrastructure will be undertaken in accordance with applicable engineering standards and good practice guidance in relation to climate resilience requirements.	Design parameters for infrastructure, drainage systems, earthworks, access routes and electrical equipment will consider appropriate allowances for current and future climate conditions, including increased rainfall intensity, flooding, temperature change and extreme weather events where relevant. This embedded mitigation will contribute to the long-term resilience of the development throughout its operational life.	Tertiary

17.7 Scoping of Potential Impacts

17.7.1 Construction, Operation and Maintenance and Decommissioning Phases

1256. The scoping exercise for the CCR assessment identifies climate hazards relevant to the Bellrock Onshore Transmission Infrastructure based on the UK Climate Change Risk Assessment (Defra, 2022), advice and evidence published by the CCC (2021), UKCP18, and relevant climate change adaptation guidance (IEMA (now ISEP), 2020). The assessment will identify potential climate-related impacts that may arise from current and future climate conditions, and will determine whether these could result in likely significant effects on the Bellrock Onshore Transmission Infrastructure.

1257. **Table 17.3** outlines the climate hazards which are proposed to be scoped in and scoped out of the Bellrock OnTDA EIA Report and their potential for climate change impacts to the Bellrock Onshore Transmission Infrastructure.

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Table 17.3: Potential Climate Change Risk Impacts Scoped In (✓) or Scoped Out (X) for the Bellrock OnTDA EIA Report

Climate Hazard	Type of Climate Hazard	Potential Climate Change Impacts to the Bellrock OnTDA	Scoped In (✓) or Scoped Out (X)		
			Construction	O&M	Decommissioning
Extreme precipitation (e.g. heavy rainfall, snowfall, hail)	Extreme weather event	Extreme precipitation events could delay construction, O&M, and decommissioning activities. Heavy rainfall may lead to localised flooding of working areas, temporary construction compounds and access routes, reduce site accessibility, increase erosion and sediment mobilisation, damage temporary works and drainage infrastructure, and create health and safety risks for personnel. Therefore, the impacts are **scoped in** for all three phases.	✓	✓	✓
Storms and extreme winds (e.g. gales, thunderstorms)	Extreme weather event	Storms and extreme wind events could delay construction, O&M, and decommissioning activities, damage temporary works, plant, equipment and infrastructure, disrupt access arrangements, create safety risks for personnel, and increase inspection, maintenance and repair requirements. Therefore, the impacts are **scoped in** for all three phases.	✓	✓	✓
Extreme temperatures (e.g. heatwaves and cold weather)	Extreme weather event	Extreme temperatures could reduce workforce productivity and require changes to working practices. They may also adversely affect workforce health and safety, increase deterioration of infrastructure and equipment, and affect the installation, operation and performance of construction materials and electrical equipment. Therefore, the impacts are **scoped in** for all three phases.	✓	✓	✓
Flooding (e.g. surface water, groundwater, river and coastal flooding)	Extreme weather event	Flooding could affect temporary construction compounds, access routes, cable routes, landfall infrastructure, the OnSS and Hurlie substation connection works. This may disrupt construction, O&M, and decommissioning activities, increase erosion and drainage management requirements, and result in damage to infrastructure and associated assets. Therefore, the impacts are **scoped in** for all three phases.	✓	✓	✓

Climate Hazard	Type of Climate Hazard	Potential Climate Change Impacts to the Bellrock OnTDA	Scoped In (✓) or Scoped Out (X)		
			Construction	O&M	Decommissioning
Drought and water scarcity	Chronic climatic change	Drought conditions and reduced water availability could affect construction activities where water resources are required. They may also impact the establishment of landscaping and habitat enhancement measures and could contribute to ground shrinkage and settlement in susceptible soils. The identified impacts relate primarily to construction activities requiring water resources, landscaping establishment, and early groundworks. O&M and decommissioning have limited water requirements, and drought/water scarcity are not expected to materially affect asset performance, maintenance activities, or decommissioning works. Therefore, the impacts are **scoped in** for the construction phase.	✓	X	X
Changes in precipitation patterns	Chronic climatic change	Long-term changes in precipitation patterns could increase pressure on drainage systems, alter runoff characteristics, increase erosion risk and require enhanced drainage and water management measures throughout the operational lifetime of the development. The risk relates to gradual, long-term changes in precipitation patterns affecting site drainage and water management over the operational lifetime of the development. Construction and decommissioning are temporary phases of limited duration, and any rainfall-related impacts during these periods are managed through standard construction environmental controls and drainage measures. Therefore, the impacts are **scoped in** for the O&M phase.	X	✓	X

Climate Hazard	Type of Climate Hazard	Potential Climate Change Impacts to the Bellrock OnTDA	Scoped In (✓) or Scoped Out (X)		
			Construction	O&M	Decommissioning
Changes in average temperature	Chronic climatic change	Increases in average temperatures could accelerate the deterioration of infrastructure and equipment, increase maintenance requirements, affect the success of landscaping and habitat mitigation measures, and influence long-term asset performance. The risk relates to gradual increases in average temperatures affecting asset condition and performance over the long term. Construction and decommissioning are temporary phases of limited duration, and temperature-related impacts on infrastructure, equipment, and vegetation can be managed through standard construction and environmental management practices. Therefore, the impacts are **scoped in** for the O&M phase.	X	✓	X
Wildfires	Extreme weather event	An increase in wildfire frequency or severity could affect vegetation, forestry, habitat enhancement areas, access routes and above-ground infrastructure. This risk may be particularly relevant in and around Fetteresso Forest and other vegetated areas within the Bellrock OnTDA. Therefore, the impacts are **scoped in** for all three phases.	✓	✓	✓
Land instability (e.g. landslips, erosion, ground movement)	Extreme weather event/Chronic climatic change	Changes in climate conditions may increase erosion and localised ground instability as a result of prolonged rainfall, flooding or changing ground conditions. Such effects could affect cable routes, slopes, access infrastructure, temporary works and drainage features. The risk relates to the long-term effects of changing climate conditions on ground stability, erosion processes and drainage performance over the operational life of the development. Therefore, the impacts are **scoped in** for all three phases.	✓	✓	✓

Climate Hazard	Type of Climate Hazard	Potential Climate Change Impacts to the Bellrock OnTDA	Scoped In (✓) or Scoped Out (X)		
			Construction	O&M	Decommissioning
Sea level rise	Chronic climatic change	Sea level rise may affect coastal areas through increased coastal flood risk, coastal erosion and changes in shoreline processes. These effects could influence the resilience of landfall infrastructure and associated temporary works during construction, O&M, and decommissioning. However, as noted in **Chapter 7: Hydrology and Flood Risk**, the preferred landfall Area of Search is not at risk from coastal flooding due to the relatively high and steep physical geography. Therefore, the impacts are **scoped out** for all three phases.	X	X	X
Changes in sea conditions (e.g. waves, currents, salinity)	Chronic climatic change	Changes in sea conditions are primarily relevant to offshore infrastructure. With the exception of potential indirect influences on coastal processes at the landfall area, these hazards are not expected to result in significant impacts on the Bellrock Onshore Transmission Infrastructure and are, therefore, scoped out of the CCR assessment. Consequently, the impacts are **scoped out** for all three phases.	X	X	X
Earthquakes and seismic events	Extreme weather event	The UK experiences relatively low levels of seismic activity, and climate change is not expected to influence the frequency or magnitude of earthquakes. Significant climate-related impacts on the Bellrock Onshore Transmission Infrastructure are, therefore, not anticipated and this hazard is scoped out of the CCR assessment. Therefore, the impacts are **scoped out** for all three phases.	X	X	X

17.7.2 Bellrock OnTDA Whole Project Assessment

1258. The Bellrock OnTDA Whole Project Assessment approach is set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessment** (see **Plate 4.3**).

1259. The CCR assessment differs from other EIA topics in that it considers the vulnerability and resilience of the Bellrock Onshore Transmission Infrastructure to climate change impacts. Climate vulnerability effects and impacts are specific to each Development Area of the Bellrock Project and will not result in impacts to or from a neighbouring Development Area. Therefore, the Bellrock OnTDA Whole Project Assessment is **scoped out** of the EIA for the CCR assessment.

17.7.3 Potential Cumulative Effects

1260. The Bellrock OnTDA Cumulative Effects Assessment approach is set out in **Section 4.7** of **Chapter 4: Approach to Scoping and Environmental Impact Assessment** (see **Plate 4.3**).

1261. The CCR assessment differs from other EIA topics in that it considers the vulnerability and resilience of the Bellrock Onshore Transmission Infrastructure to climate change impacts. Climate vulnerability effects and impacts are specific to the development and will not result in impacts to or from a neighbouring development. As such, no additional consideration of cumulative effects is required for the CCR assessment, and cumulative effects have, therefore, been **scoped out** of the EIA for the CCR assessment.

17.7.4 Potential Transboundary Effects

1262. It is not relevant to assess transboundary effects relating to CCR, as the assessment focuses on the effects of climate change on the Bellrock Onshore Transmission Infrastructure. Therefore, transboundary effects are **scoped out** of the EIA for the CCR assessment.

17.7.5 Summary of Potential Climate Change Impacts Scoped In and Scoped Out

1263. A summary of potential impacts scoped in and scoped out from further assessment in the Bellrock OnTDA EIA Report is provided in **Table 17.4** below.

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Table 17.4: Summary of Potential Climate Change Risk Impacts Scoped In (✓) or Scoped Out (X)

Potential Impact	Receptor(s)	Description of Potential Effects	Scoped In (✓) or Scoped Out (X)		
			Construction	O&M	Decommissioning
Vulnerability and resilience to climate change impacts	Bellrock Onshore Transmission Infrastructure, human and environmental receptors associated with the Bellrock OnTDA.	Climate hazards may result in delays to construction, O&M, and decommissioning activities. Climate hazards may reduce accessibility to construction compounds, infrastructure and maintenance locations. Flooding, erosion and other climate-related hazards may affect temporary construction compounds, access routes, cable routes, drainage infrastructure and working areas. Climate hazards may damage the landfall, onshore export cables, OnSS, Hurlie substation connection works and associated infrastructure. Climate hazards may increase maintenance, repair and replacement requirements throughout the operational life of the development. Climate hazards may reduce the performance, reliability and resilience of infrastructure and associated assets. Climate hazards may affect the establishment and effectiveness of habitat creation, landscaping and environmental mitigation measures. Climate hazards may create health and safety risks for construction workers, operational personnel and maintenance staff. Climate hazards may disrupt construction programming, maintenance activities and access for inspections and repairs. Climate hazards may increase operational downtime and reduce the availability of infrastructure and associated assets.	✓	✓	✓

Potential Impact	Receptor(s)	Description of Potential Effects	Scoped In (✓) or Scoped Out (X)		
			Construction	O&M	Decommissioning
Bellrock OnTDA Whole Project Assessment*	Bellrock Onshore Transmission Infrastructure and any relevant Offshore Transmission Infrastructure and Wind Farm Infrastructure, human and ecological receptors associated with the Bellrock OnTDA and any relevant human and ecological receptors associated with the Bellrock OfTDA and WFDA.	None	X	X	X
Cumulative effects	Bellrock Onshore Transmission Infrastructure, human and ecological receptors associated with the Bellrock OnTDA.	None	X	X	X
Transboundary effects	Bellrock Onshore Transmission Infrastructure, human and ecological receptors associated with the Bellrock OnTDA.	None	X	X	X
Notes: * see **Section 17.7.2** for further details on the scoping of the Bellrock OnTDA Whole Project Assessment for Climate Change Risk Assessment.					

17.8 Proposed Approach to Impact Assessment

1264. The CCR assessment and subsequent resilience assessment will use sector-specific guidance and literature to determine the likely climate hazards, considering data included in the UKCP18 climate database. The CCR assessment will use the output from other topics, such as the Flood Consequence Assessment, to provide an assessment of the vulnerability of the Bellrock Onshore Transmission Infrastructure to climate change.

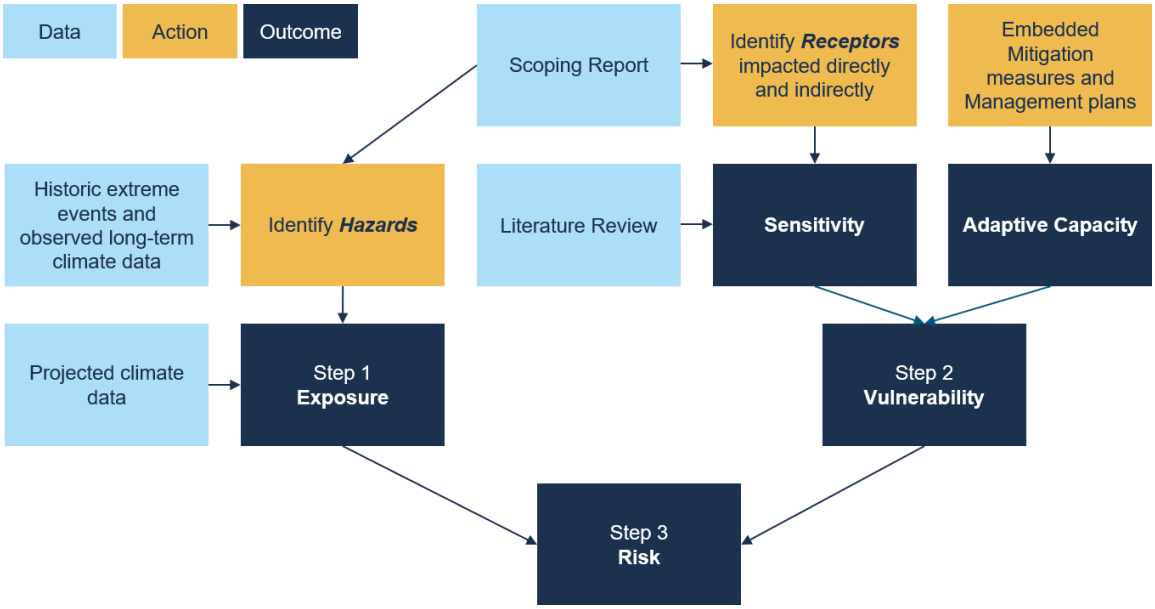
1265. The methodology for the assessment will be informed by IEMA guidance, Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation (IEMA (now ISEP), 2020) and the Natural Resources Wales guidance, CCR Assessment Framework for Public Services Boards (Natural Resources Wales, 2023). As the CCR assessment considers climate change impacts on the Bellrock Onshore Transmission Infrastructure, as opposed to the impacts of the Bellrock Onshore Transmission Infrastructure on other receptors, the assessment methodology differs from the general EIA approach presented in **Chapter 4: Approach to Scoping and Environmental Impact Assessment**.

1266. A three-step methodology is adopted for the CCR assessment in line with industry good practice for assessments of CCRs:

- First, relevant future climate 'Hazards' are identified using historic climate data and climate change projections, and the Exposure of the Bellrock Onshore Transmission Infrastructure is assessed for the construction, O&M and decommissioning phases;
- Second, the 'Vulnerability' of project Receptors is evaluated by considering their 'Sensitivity' to climate Hazards and their 'Adaptive Capacity', taking account of embedded design and management measures; and
- Finally, 'Exposure' and 'Vulnerability' are combined to determine the climate-related 'Risks' and to confirm whether additional adaptation measures are required.

1267. The step-by-step approach undertaken for the CCR assessment is set out in **Plate 17.1**.

Plate 17.1: Three-step CCR Assessment Methodology



17.9 Scoping Questions to Consultees

1268. The following questions are posed to consultees to help frame and focus their response to the climate change risk assessment scoping exercise, which would in turn inform the EIA:

- Do you agree with the study area definitions and the proposed approach to characterising the current and future climate baseline?
- Do you agree that all relevant climate data sources, guidance documents and climate change projections have been identified?
- Do you agree that all relevant climate hazards applicable to the Bellrock Onshore Transmission Infrastructure have been identified?
- Do you agree that all relevant receptors and potential climate change impacts have been identified?
- Do you agree with the climate hazards and associated climate change impacts that have been scoped in and scoped out of the Bellrock OnTDA EIA Report?
- Do you agree with the proposed methodology for the Bellrock OnTDA Climate Change Risk Assessment?

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18 Human Health

18.1 Introduction

1269. This Chapter of the **Bellrock Onshore Transmission Development Area (OnTDA) Scoping Report** considers the potential impacts on human health associated with the construction, operation and maintenance (O&M), and decommissioning of the Bellrock Offshore Transmission Infrastructure.

1270. The Bellrock OnTDA Scoping Boundary (shown in **Figure 1.1 (Appendix A (Volume 1))**) defines the area within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process (as discussed in **Section 1.4** in **Chapter 1: Introduction**) to form the boundary of the Bellrock OnTDA Planning Permission in Principle (PPP) Application.

1271. For the purposes of this **Bellrock OnTDA Scoping Report**, the Bellrock OnTDA Scoping Boundary encompasses the anticipated Onshore Transmission Infrastructure and associated activities for the Bellrock OnTDA landward of Mean Low Water Springs (MLWS). The Bellrock OnTDA Scoping Boundary overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) between Mean High Water Springs (MHWS) and MLWS.

1272. The Bellrock Onshore Transmission Infrastructure includes:

- **Landfall**: located at Cowie, Aberdeenshire, where between two and six ducts are installed using trenchless techniques, allowing the offshore export cables to be brought ashore and connected to onshore export cables within the transition joint bay;
- **Onshore export cables**: up to six underground High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) onshore cable circuits, each up to 18 km in length, installed between landfall and the onshore substation;
- **Onshore substation (OnSS)**: electrical equipment (such as converters, transformers, switchgear, and protection and control systems) enabling renewable electricity from the Bellrock Wind Farm Development Area (WFDA) received via the onshore export cables to be exported to the National Electricity Transmission System, and ancillary infrastructure; and
- **Hurlie substation connection works**: infrastructure between the Bellrock OnSS to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the National Electricity Transmission System.

1273. In addition, associated works are required to facilitate construction and O&M of the Onshore Transmission Infrastructure, including: access, signage, haul roads, spoil storage, material storage, fencing, borrow pits (if any), earthworks, welfare, security, landscape mitigation, ecological mitigation, biodiversity enhancement, operational lighting and drainage.

1274. As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Wind Farm Infrastructure (located within the Bellrock WFDA) was presented in the **Bellrock WFDA Environmental Impact Assessment (EIA) Report**, which was submitted in support of the Section 36 Consent and Marine Licence Application for the Bellrock Wind Farm Infrastructure in April 2026 (Bellrock Offshore Wind Farm Limited, 2026a). The **Bellrock WFDA EIA Report** considered the potential impacts and subsequent effects of the Bellrock Wind Farm Infrastructure on the environment. An EIA Scoping Report for the Bellrock Offshore Transmission Infrastructure was also submitted to Scottish Ministers on 17 August 2026 (Bellrock Offshore Wind Farm Limited, 2026b), with an EIA Report in support of the Marine Licence Application proposed to be submitted by the end of 2027.

1275. This Chapter of the **Bellrock OnTDA Scoping Report** provides an overview of the existing environment and sets out the methodology and approach to assessing effects of the Bellrock Onshore Transmission Infrastructure on human health. This Chapter has been prepared by Haskoning.

1276. This Chapter should be read in conjunction with the following chapters of the **Bellrock OnTDA Scoping Report**:

- **Chapter 5: Landscape and Visual Impact;**
- **Chapter 6: Geology and Ground Conditions;**
- **Chapter 7: Hydrology and Flood Risk;**
- **Chapter 8: Land Use and Agriculture;**
- **Chapter 12: Traffic and Transport;**
- **Chapter 13: Noise and Vibration**;
- **Chapter 14: Air Quality**;
- **Chapter 15: Socioeconomics, Tourism and Recreation;** and
- **Chapter 17: Climate Change Risk Assessment.**

1277. This Chapter is likely to have key inter-relationships with the above receptors, which will be considered appropriately where relevant in the Bellrock OnTDA EIA Report.

18.2 Legislation, Policy and Guidance

1278. **Table 18.1** sets out the legislation, policy and guidance which have been considered in the preparation of this Chapter where appropriate. The overarching policy and legislation relevant to the infrastructure and activities associated with the Bellrock OnTDA is described in **Chapter 2: Legislative and Policy Context**.

Table 18.1: Summary of Relevant Legislation, Policy, and Guidance Relevant for Human Health Assessment

Relevant Legislation, Policy, and Guidance	Relevance to the Assessment
Legislation	
Town and Country Planning (Scotland) Act (1997)	Principal legislative framework for Scotland's planning system, requiring material considerations to be taken into account in the preparation of development plans and the determination of development proposals.
Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017	Requires that EIA must identify and evaluate a proposed development's likely significant effects on various factors under the 'population and human health' assessment.
Planning (Scotland) Act 2019	Section 19 provides for Scottish Ministers to make regulations requiring the likely health effects of national or major developments to be considered as part of the planning process.
Policy	
National Transport Strategy 2 (Transport Scotland, 2020) National Transport Strategy Delivery Plan 2025-26 (Transport Scotland, 2026)	Promotes active travel and reduced emissions, with direct health benefits.
Cleaner Air for Scotland 2, 2021 (Scottish Government, 2021)	National air quality strategy linking planning decisions with air pollution and human health protection.
National Planning Framework 4 (Scottish Government, 2023)	NPF4 places a strong emphasis on the role of planning in improving health and wellbeing and reducing health inequalities. The following policies are considered relevant to human health: ▪ **Policy 11: Energy** requires developments to demonstrate how impacts to communities, including from noise and landscape and visual impacts are addressed; ▪ **Policy 23: Health and Safety** aims to protect people and places from environmental harm, and proposals should demonstrate that adverse effects resulting from air quality and noise impacts are addressed; and ▪ **Policy 25: Community Wealth Building** aims to tackle economical disadvantage and reduce inequalities which may lead to impacts on human health.
The Aberdeenshire Local Development Plan (Aberdeenshire Council, 2023)	The following policies are considered relevant to human health: ▪ **Policy P1: Layout, Siting and Design** requires that developments are safe and pleasant, and

Relevant Legislation, Policy, and Guidance	Relevance to the Assessment
	adaptable to future needs, which will support community wellbeing; and ▪ **Policy C2: Renewable Energy** requires an assessment of impacts to communities. The plan takes an integrated approach to health, requiring that: ▪ Development proposals support healthier lifestyles and environments; ▪ Potential adverse effects on amenity and environmental quality are avoided or mitigated; and ▪ Necessary infrastructure is delivered to maintain and enhance community wellbeing.
Local Air Quality Management Policy Guidance (Scottish Government, 2024)	Requires local authorities to consider air quality in planning decisions.
Community Wealth Building Strategy (Aberdeenshire Council, 2026a) Community Wealth Building Energy Developments Charter (Aberdeenshire Council, 2026b)	Aberdeenshire Council has published two documents that set out the Council's expectations for large-scale energy developments to deliver lasting benefits for local communities. The strategy focuses on keeping more wealth in the local area by supporting jobs, businesses and supply chains linked to major energy, transmission and infrastructure projects. The charter sets out what the council expects from developers and how projects should contribute positively to communities.
Scotland's Climate Change Plan: 2026-2040 (Scottish Government, 2026)	Addresses the wider determinants of health, including climate resilience, air quality, access to green infrastructure, transport, housing, economic wellbeing and the reduction of environmental risks associated with climate change.
Guidance	
International Commission on Non-Ionizing Radiation Protection Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields (1 Hz–100 kHz) (ICNIRP, 2010)	The guidelines provide exposure thresholds used to assess and manage potential effects of Electromagnetic fields (EMF) emissions on human health, helping to ensure that public exposure remains within levels considered protective of health.
Institute of Environmental Management and Assessment (2022) Effective Scoping of Human Health in Environmental Impact Assessment (IEMA, 2022a)	Provides guidance on identifying the human health topics that should be considered within an EIA and establishing proportionate assessment boundaries. The guidance promotes a risk-based approach to scoping, enabling practitioners to focus on the health determinants and population groups most likely to be affected by a proposed development.

Relevant Legislation, Policy, and Guidance	Relevance to the Assessment
Institute of Environmental Management and Assessment (IEMA, now Institute of Sustainability and Environmental Professionals (ISEP)) Determining Significance for Human Health in Environmental Impact Assessment (IEMA, 2022b)	Provides a framework for assessing the significance of potential health effects arising from a development. The guidance supports a consistent and transparent approach to evaluating health impacts by considering the nature, magnitude, duration and distribution of effects across affected populations.
A Guide to Health Impact Assessment (Public Health Scotland, 2025)	Provides practical guidance on undertaking a Health Impact Assessment to identify and evaluate the potential effects of a proposal on the health and wellbeing of a population. The guidance promotes the consideration of wider determinants of health, including socioeconomic, environmental and community factors, and supports the development of measures to enhance positive health outcomes and reduce adverse effects.

18.3 Consultation

1279. In relation to Scotland-based developments, the IEMA (2022a) guidance on scoping advises the following organisations are consulted in relation to human health:

- Director of Public Health for the relevant National Health Service Board;
- Public Health Scotland;
- Relevant Health and Social Care Partnership; and
- Local Authority Environmental Health Department.

1280. Consultation with Aberdeenshire Council has been undertaken, including engagement through Aberdeenshire Council's Pre-application Advice Service. A summary of consultation activities undertaken to date is provided in **Table 18.2**.

1281. The other consultees listed above are proposed to be engaged with alongside the formal scoping process to receive feedback on the scoping information provided within this **Bellrock OnTDA Scoping Report**.

Table 18.2: Consultation Relevant to Human Health

Consultee	Date/Document	Comment	How Comment has been Addressed
Aberdeenshire Council	11 June 2026 Meeting Minutes from the Bellrock Offshore Wind Farm Introductory Meeting	EMF needs to be considered in the Scoping Report.	Information on EMF exposure is provided in **Section 18.6.2.2**.

Consultee	Date/Document	Comment	How Comment has been Addressed
Aberdeenshire Council	19 August 2026 Pre-Application Advice letter	Comments were raised on health-related matters including: ▪ *'All private water supplies (PWS) with groundwater sources that potentially will fall within 250m of any limit of deviation or PiP planning application boundary will need to be identified and subsequently assessed. […]* ▪ *Cumulative landscape and visual effects with the Hurlie and Bowdun wind farm substations are a concern particularly in respect of effects on higher sensitivity recreational receptors and nearby residents […].The site encompasses areas of landfilling and other potentially contaminative activities/uses […] The acoustic consultants should contact environmental health to agree on a methodology and noise criteria before undertaking the assessment.'*	The comments raised will be addressed within the relevant chapters of the EIA (see **Chapter 5: Landscape and Visual Impact Assessment; Chapter 6: Geology and Ground Conditions; Chapter 7: Hydrology and Flood Risk; Chapter 13: Noise and Vibration**). No additional consideration of health effects is considered necessary beyond the assessments presented within those chapters.

18.4 Existing Environment

18.4.1 Study Area

1282. The human health study area considers the area within the Bellrock OnTDA Scoping Boundary (as shown in **Figure 1.1** (**Appendix A (Volume 1)**), as well as the area beyond this where there is potential for wider effects (e.g. access to key community services and/or food production).

1283. Human health receptors considered in this scoping exercise include the local residential population and vulnerable groups such as children, older adults and individuals with pre-existing health conditions. Key institutional human health receptors (e.g. schools, healthcare facilities, and care homes), have also been identified, with particular consideration given to potentially vulnerable or socio-economically disadvantaged communities.

1284. The human health study area is predominantly rural in character with scattered residential properties and farmhouses. Near the location of the proposed landfall, it is more populated with communities at Cowie and New Mains of Ury. There are no schools, General practitioner surgeries or other key community facilities within the Bellrock OnTDA Scoping Boundary, however these are located in Stonehaven, adjacent to the Bellrock OnTDA Scoping Boundary, to the south. There are four recorded PWS within the Bellrock OnTDA Scoping Boundary, all of which are located outside of the preferred landfall and OnSS Areas of Search (see **Chapter 6: Geology and Ground**

Conditions). The Stonehaven Bathing Water Protected Area lies approximately 550 m south of the preferred landfall Area of Search (see **Chapter 7: Hydrology and Flood Risk**).

1285. In accordance with IEMA (2022a) guidance, the health determinants considered in this scoping exercise include:

- Health related behaviours;
- Social environment;
- Economic environment;
- Bio-physical environment; and
- Institutional and built environment.

18.4.2 Data and Information Sources

1286. Human health baseline data has been gathered from a combination of statistical geographies. Scottish Index of Multiple Deprivation (SIMD) data were sourced using Data Zone Boundaries 2022 (Scottish Government, 2025a), with the human health study are located within the Fetteresso Netherley and Catter, Stonehaven North and Stonehaven South Data Zones, with the Bellrock OnSS specifically located within the Fetteresso, Netherley and Catter Data Zone (S01013820) (see **Figure 18.1 (Appendix A (Volume 1))**). Health and demographic data for Cowie and Stonehaven were obtained from the settlement level area overviews available through Scotland's 2022 Census results to provide an indication of the demographic characteristics of the surrounding communities. As no settlement level Census overview is available for the Fetteresso area containing the OnSS, Census data for this locality were derived from Output Area S00139161 (Scottish Government, 2025b). While these datasets are derived from different statistical geographies and are not directly comparable, they are considered appropriate for providing health data context for the human health study area.

1287. **Table 18.3** presents the data sources which have been used to inform this Chapter.

Table 18.3: Key Data Sources for Human Health

Dataset	Temporal Coverage	Description
Scotland Census (Scotland Census, 2022)	2022	Census 2022 data recording population structure, age profile, life expectancy and population change.
Scottish Index of Multiple Deprivation Mapping (Scottish Government, 2025a)	2026	Small-area deprivation data, including overall deprivation rankings and individual deprivation domains.
Public Health Scotland (Scottish Government, 2025b)	2026	Health profile data at area and comparator level, including indicators relating to behaviours, economy, life expectancy and mortality.

18.4.3 Baseline Environment

1288. The baseline data presented in **Table 18.4** has been gathered to provide information on the health status of the local population, to identify the sensitivity of the human health receptors within the human health study area and to allow comparison between local populations with Aberdeenshire and Scotland (where available).

1289. Data on deprivation is provided in the SIMD. The SIMD groups Scotland's data zones into ten deciles based on their relative level of deprivation. Decile one represents the 10% most deprived data zones in Scotland, while Decile ten represents the 10% least deprived. People living in areas within the higher deciles generally experience lower levels of deprivation and may have greater access to resources and opportunities that support health and wellbeing. Conversely, people living in areas within lower deciles are more likely to experience the disadvantages associated with deprivation and may be at greater risk of poorer health and social outcomes. It should be noted that SIMD is an area-based measure and does not necessarily reflect the circumstances of every individual living within a particular data zone.

1290. Fuel poverty reflects the proportion of households that have difficulty meeting the costs of adequate domestic energy consumption and is recognised as an important determinant of health and wellbeing. Areas with higher levels of fuel poverty may have lower resilience to social, economic and environmental challenges, as households have less financial capacity to respond to additional pressures and may be at greater risk of adverse health outcomes.

1291. Further information on the deprivation-related factors assessed for the Bellrock OnTDA is provided in **Chapter 15: Socioeconomics, Tourism and Recreation**.

Table 18.4: Human Health Data

Data Source	Scale				
	Local			Regional	National
	Cowie	Stonehaven	Fetteresso, Netherley and Catter	Aberdeenshire	Scotland
Demographic Indicators (Scotland Census, 2022)					
Life expectancy (males) (years)	N/A	N/A	N/A	64.10	77.12
Life expectancy (females) (years)	N/A	N/A	N/A	64.70	81.06
Population Age Groups (Scotland Census, 2022)					
<16 (%)	20.29	16.73	8.90	18.47	16.39
16- 64(%)	65.71	60.03	70.20	60.49	63.57
65+ (%)	13.86	23.24	20.80	21.04	20.05
Deprivation (Scottish Government, 2020)					
Index of Multiple Deprivation	6	4-10	8	N/A	N/A
Fuel Poverty (%)	N/A	N/A	N/A	26.10	24.40
Health (Scotland Census, 2022)					
General Heath 'Very Good' (%)	47.41	51.98	59.40	51.01	47.95
Aberdeenshire Council (2024) Scotland's Census 2022					
Population reporting a mental health condition (%)	N/A	N/A	N/A	8.30	11.30

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1292. Life expectancy data for Aberdeenshire is lower for both males and females compared to the national average. This suggests that underlying factors affecting health and wellbeing may be having a greater impact locally than across Scotland as a whole.

1293. Stonehaven has a higher proportion of older residents than the Aberdeenshire and Scotland averages. Older populations are generally considered more sensitive to changes that may influence health and wellbeing (WHO, 2025). The community closest to the proposed landfall (Cowie) contains a relatively higher proportion of children and a lower proportion of older residents, while the community close to the Bellrock OnSS (Fetteresso, Netherley and Catter) has the highest proportion of working-age residents.

1294. SIMD rankings indicate relatively low levels of deprivation within Fetteresso, Netherley and Catter Data Zone, while Stonehaven North and Stonehaven South Data Zones (see **Figure 18.1 (Appendix A (Volume 1))**) contain areas with a broader range of deprivation levels (deciles four to ten). Overall, the human health study area is not characterised by high levels of deprivation compared with other parts of Scotland.

1295. The Scottish Public Health Observatory (ScotPHO) provides fuel poverty data for Aberdeenshire and Scotland. The data indicates that fuel poverty is slightly more prevalent in Aberdeenshire (26.1%) compared to the national average (24.4%).

1296. Census 2022 health data indicate that the proportion of residents reporting their health as 'Very Good' is generally comparable to or higher than the Aberdeenshire and Scotland averages. The highest proportion is recorded within the Fetteresso, Netherley and Catter (59.4%), compared with 51.0% across Aberdeenshire and 48.0% across Scotland. This suggests that populations within much of the human health study area experience generally positive health outcomes.

1297. Mental health data suggests the Aberdeenshire population has reported lower cases of mental health issues (8.3%) compared to the national average (11.3%).

1298. Taking account of the baseline conditions described above, the population within the human health study area is assessed as having an overall low/medium sensitivity to potential health effects.

18.5 Potential Impacts

1299. Potential Impacts arising from the development of the Bellrock Onshore Transmission Infrastructure during the construction, O&M, and decommissioning phases are outlined below and summarised in **Table 18.6**.

18.5.1 Impacts During Construction

1300. Potential impacts on human health during the construction phase may arise from site preparation, enabling works and construction activities.

1301. These activities have the potential to affect human health receptors including residents, recreational users, visitors and businesses through a range of impact pathways, including:

- Temporary disruption to access to key community facilities and services;

- Reduced community connectivity resulting from construction traffic, temporary road closures, diversions and restricted access routes;
- Risks to public safety associated with construction activities, increased traffic movements and the presence of construction plant and equipment;
- Increased noise levels from construction plant, machinery, and vehicle movements, which may affect residential amenity, wellbeing and quality of life;
- Temporary deterioration in air quality arising from dust generation and vehicle emissions, with the potential to affect respiratory health and amenity;
- Potential impacts on PWS due to accidental pollution, disturbance of water sources, or changes to local hydrology, with potential to cause waterborne infectious diseases, short or long term toxic effects and reduced water availability;
- Exposure to existing or mobilised land contamination during ground disturbance works, which could present risks to human health and the environment; and
- Temporary loss of arable agricultural land and subsequent reduction in food production.

1302. These impact pathways may give rise to direct and indirect effects on human health and wellbeing, including impacts on physical health, mental wellbeing, amenity and access to community resources.

1303. The potential for impact on bathing waters is assessed separately in **Chapter 7: Hydrology and Flood Risk**.

18.5.2 Impacts During Operation and Maintenance

1304. Potential impacts during the O&M phase may arise from the long-term presence and operation of the onshore electrical infrastructure, including the Bellrock OnSS and associated transmission assets, as well as from periodic planned and unplanned maintenance activities. These activities have the potential to affect local communities and sensitive human health receptors through the following impact pathways:

- Exposure to EMF associated with the operation of electrical infrastructure;
- Changes to visual amenity and landscape character arising from the permanent presence of the onshore infrastructure (OnSS), including potential effects on views experienced by residents, recreational users and visitors to Fetteresso Forest and the surrounding area;
- Operational noise from transformers, from cooling systems and associated equipment, where human health receptors are located sufficiently close to the OnSS;
- Temporary disturbance associated with maintenance activities, including increased traffic movements during maintenance periods, noise and access restrictions; and
- Permanent loss of arable agricultural land and subsequent reduction in food production.

1305. The significance of these potential impacts is dependent on the proximity of residential properties and other sensitive human health receptors, the extent to which visual changes are perceived and

the frequency and duration of maintenance activities. Through these pathways, operational impacts may influence health and wellbeing, particularly in relation to quality of life, mental wellbeing, recreational experience and perceptions of the local environment.

1306. In addition to the potential impacts identified above, the operation of the Bellrock Onshore Transmission Infrastructure may generate a number of indirect beneficial effects for human health. These benefits are associated with the Bellrock Project's contribution to the transmission of renewable electricity and the wider transition to a low-carbon energy system. Potential beneficial effects include:

- Increased security and resilience of electricity supply, supporting the reliable provision of services and infrastructure that contribute to national population health and wellbeing;
- Contribution to national and regional decarbonisation targets through the integration of renewable energy generation into the electricity network, supporting long-term improvements in environmental quality and reductions in climate change-related health risks;
- Indirect benefits to public health arising from reduced greenhouse gas emissions and associated improvements in environmental sustainability; and
- Potential economic benefits associated with maintenance activities and the long-term operation of the infrastructure, supporting local employment, skills development and wider determinants of health.

1307. While these beneficial effects are generally indirect and are likely to be experienced at regional, national and wider population scales, they contribute positively to the wider determinants of health, including environmental sustainability, economic wellbeing, energy security and resilience to climate-related risks.

18.5.3 Impacts During Decommissioning

1308. Potential impacts during the decommissioning phase of the Bellrock Onshore Transmission Infrastructure will depend on the final decommissioning strategy, including the extent to which infrastructure is removed or left in-situ.

1309. Decommissioning impacts are anticipated to mirror those identified for the construction phase (**Section 18.5.1**), as they would arise from broadly similar activities. The nature and significance of effects are, therefore, expected to be the same as those assessed for construction and are not repeated here. Where infrastructure is left in-situ (either partially or wholly), impacts associated with the continued presence of infrastructure are considered in the O&M phase and are not duplicated here.

18.5.4 Embedded Mitigation Measures

1310. Embedded mitigation relevant to major accidents and disasters has been identified, as presented in **Table 18.5** and **Appendix B: Mitigation and Monitoring Register (Volume 1)**, in accordance with the mitigation hierarchy, with the aim of avoiding, preventing, reducing, and where possible, offsetting potential adverse environmental effects. Consistent with the IEMA guidance (2024), primary (inherent design measures) and tertiary (standard good practice) mitigation are embedded

within the project design and are, therefore, considered in the assessment of effects. Secondary mitigation measures will be identified where required through the EIA process, informed by the outcomes of the initial impact assessment.

1311. The embedded mitigation identified by other topics are relevant to human health (e.g. construction mitigation to minimise noise, dust and traffic disruptions and the re-instatement of agricultural land). The current embedded mitigation measures will be refined as the project design evolves as part of the iterative design process.

Table 18.5: Embedded Mitigation Measures Relevant to Human Health

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	X	X	Development of and adherence to a Construction Environment Management Plan (CEMP).	A CEMP will be prepared and implemented to set out the procedures to avoid, reduce, and manage potential environmental effects arising across the construction and O&M of the Bellrock Onshore Transmission Infrastructure, in accordance with relevant international and national legislation and guidance.	Tertiary
✓	X	X	Development of and adherence to a Construction Traffic Management Plan (CTMP).	Sets out measures for the safe management of construction traffic, including designated access routes, traffic controls, delivery scheduling and communication procedures. The CTMP reduces the likelihood of traffic accidents and helps minimise potential risks to construction workers, road users and nearby communities.	Tertiary
✓	✓	X	Site selection was informed by the Bellrock OnTDA Design Principles and included consideration of sensitive receptors.	The Bellrock OnTDA has been developed in accordance with a set of Design Principles that have informed the site selection process, refinement of the project design envelope and development of embedded mitigation measures. To minimise noise and vibration effects, the Design Principles include a commitment to maximise the distance from the Bellrock Onshore Transmission Infrastructure to sensitive human health receptors such as residential dwellings where possible.	Primary
X	X	✓	Production of a Decommissioning, Restoration and Aftercare Strategy.	The Decommissioning, Restoration and Aftercare Strategy will set out the framework for the safe, orderly, and environmentally acceptable decommissioning, in the interests of safety and environmental protection.	Tertiary
✓	X	X	Core project working hours will avoid night working, being 07:00 – 19:00 Monday to Friday and 07:00 – 12:00 on	Compliance with these working hours will reduce the potential for disturbance effects from construction noise and vibration.	Tertiary

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
			Saturdays. Deviation from these working hours may take place with some allowance for 24hour shift working for critical activities or where safety or emergency conditions require.		
X	✓	X	The use of three single-core (trefoil arrangement) high-voltage, metal sheathed cables and the burial of cables to a suitable depth.	This will act to reduce EMF emissions and limit potential exposure.	Primary

18.6 Scoping of Potential Impacts

18.6.1 Potential Impacts During Construction

18.6.1.1 Disruption to Access to Community Facilities and Services

1312. The Bellrock Onshore Transmission Infrastructure has the potential to reduce community connectivity and accessibility due to construction traffic, temporary road closures, diversions or restricted access routes (as considered in **Chapter 12: Traffic and Transport**).

1313. As the potential effects to community connectivity and accessibility associated with construction traffic are comprehensively addressed within **Chapter 12: Traffic and Transport**, and the population within the human health study area is assessed as having an overall low/medium sensitivity to potential health effects, a separate assessment of human health effects is not considered necessary. Significant effects on community connectivity and accessibility associated with construction traffic are, therefore, not anticipated beyond those reported in **Chapter 12: Traffic and Transport** and have been **scoped out** of further assessment within the Bellrock OnTDA EIA.

18.6.1.2 Risks to Public Safety

1314. The Bellrock Onshore Transmission Infrastructure has the potential to present temporary risks to public safety during the construction phase as a result of construction activities, increased traffic movements (as considered in **Chapter 12: Traffic and Transport**), the operation of construction plant and machinery, and the presence of an active construction site. However, these risks are typical of construction projects and will be managed through the implementation of embedded mitigation measures, including a CEMP and CTMP. These plans will include measures to control and secure site access, segregate construction activities from members of the public where necessary, manage vehicle movements, provide appropriate signage and traffic management and maintain safe access for residents, businesses and road users.

1315. As the potential effects to public safety associated with construction traffic are comprehensively addressed within **Chapter 12: Traffic and Transport**, and the population within the human health study area is assessed as having an overall low/medium sensitivity to potential health effects, a separate assessment of human health effects is not considered necessary. Significant effects on public safety associated with construction traffic are, therefore, not anticipated beyond those reported in **Chapter 12: Traffic and Transport** and have been **scoped out** of further assessment within the Bellrock OnTDA EIA.

18.6.1.3 Noise Effects on Amenity and Wellbeing

1316. Potential effects associated with construction noise and vibration on human health receptors will be assessed in detail within **Chapter 13: Noise and Vibration**. Construction activities have the potential to result in temporary increases in noise and vibration levels, which could affect nearby sensitive human health receptors. These effects will be managed through embedded mitigation measures, including the implementation of a CEMP and other standard construction management measures designed to minimise disturbance, such as the use of best practicable means, appropriate working practices, maintenance of plant and equipment and the management of construction working hours where required.

As the potential effects associated with construction traffic noise are comprehensively addressed within **Chapter 13: Noise and Vibration**, and the population within the human health study area is assessed as having an overall low/medium sensitivity to potential health effects, a separate assessment of human health effects is not considered necessary. Significant effects on human health arising from construction traffic noise are, therefore, not anticipated beyond those reported in **Chapter 13: Noise and Vibration** and have been **scoped out** of further assessment within the Bellrock OnTDA EIA.

18.6.1.4 Air Quality Effects from Dust and Emissions

1317. Construction activities have the potential to generate dust and air pollutant emissions from activities such as earthworks, vehicle movements, material handling and the operation of construction plant and equipment. These emissions have the potential to affect nearby sensitive human health receptors if not appropriately managed. Embedded mitigation measures will be implemented throughout the construction phase, including measures to control dust generation and dispersion and a CTMP to manage construction traffic and minimise vehicle-related emissions.

1318. As the potential effects associated with construction dust and air quality are comprehensively addressed within **Chapter 14: Air Quality**, and the population within the human health study area is assessed as having an overall low/medium sensitivity to potential health effects, a separate assessment of human health effects is not considered necessary. Significant effects on human health arising from construction dust and emissions are, therefore, not anticipated beyond those reported in **Chapter 14: Air Quality** and have been **scoped out** of further assessment within the Bellrock OnTDA EIA.

18.6.1.5 Risk of Contamination (Land and Water)

1319. Pollution, land contamination, disturbance of water sources and changes to local hydrology have the potential to adversely affect both the quality and availability of PWS. Such impacts may result in a range of health effects, from short-term illnesses associated with contaminated drinking water to longer-term chronic health conditions arising from prolonged exposure to pollutants. Vulnerable groups, including infants, older people, pregnant women and individuals with weakened immune systems, may be particularly susceptible to these adverse health effects.

1320. As the relevant exposure pathways and potential health effects are comprehensively addressed within **Chapter 6: Geology and Ground Conditions**, and the population within the human health study area is assessed as having an overall low/medium sensitivity to potential health effects, a separate assessment of human health effects is not considered necessary. Significant effects on human health arising from contamination are, therefore, not anticipated beyond those reported in **Chapter 6: Geology and Ground Conditions** and have been **scoped out** of further assessment within the Bellrock OnTDA EIA**.**

18.6.1.6 Loss of Arable Agricultural Land and Subsequent Reduction in Food Production

1321. The loss of arable agricultural land has the potential to reduce local food production and may indirectly affect food security if substantial areas of productive land are removed from agricultural use. In theory, a reduction in food production could contribute to decreased availability of locally produced food and associated economic impacts on agricultural businesses. However, such

effects on human health would generally only arise where losses are extensive or occur across a wider area, resulting in a measurable reduction in food supply.

1322. As the potential impacts on agricultural land and crop yield are comprehensively addressed within **Chapter 8: Land Use and Agriculture**, and the population within the human health study area is assessed as having an overall low/medium sensitivity to potential health effects, a separate assessment of human health effects is not considered necessary. Significant effects on human health arising from loss of arable agricultural land are, therefore, not anticipated beyond those reported in **Chapter 8: Land use and Agriculture** and have been **scoped out** of further assessment within the Bellrock OnTDA EIA.

18.6.2 Potential Impacts Operation and Maintenance

18.6.2.1 Effects on Visual Amenity and Landscape Character

1323. The potential effects on visual amenity and landscape character have been assessed within **Chapter 5: Landscape and Visual Impacts**. The development of the Bellrock OnTDA Scoping Boundary has been informed by relevant legislative requirements and site selection considerations (**Section 18.2**), including Schedule 9 of the Electricity Act 1989, which requires licence holders to have regard to the desirability of preserving natural beauty when developing electricity infrastructure. The design process will, therefore, seek to avoid or minimise potential adverse effects on landscape character and visual amenity where reasonably practicable.

1324. Whilst changes to landscape character and views can influence people's perceptions of their environment and contribute to wellbeing, significant human health effects are generally associated with substantial, widespread or long-term changes that result in meaningful alterations to quality of life. In this case, any effects on visual amenity and landscape character will be considered within the relevant technical assessment (**Chapter 5: Landscape and Visual Impact**). Given the population within the human health study area is assessed as having an overall low/medium sensitivity to potential health effects, a separate assessment of human health effects is, therefore, not considered necessary. Significant effects on human health arising from visual amenity and landscape impacts are, therefore, not anticipated beyond those reported in **Chapter 5: Landscape and Visual Impact** and have been **scoped out** of further assessment within the Bellrock OnTDA EIA.

18.6.2.2 Exposure to Electromagnetic Fields

1325. During operation, the onshore export cables from landfall to the proposed Bellrock OnSS and onward to the Hurlie substation will generate 50 Hz EMF. The use of metal-sheathed cables will screen the external electric field, while the use of a three-phase trefoil arrangement and appropriate cable burial depth and circuit configuration will reduce magnetic field levels at the ground surface. Magnetic-field strength decreases rapidly with increasing distance from underground cables, with the rate of attenuation dependent on cable configuration, circuit loading, burial depth and cable separation. Field strength would be expected to rapidly attenuate to background levels within a few metres of the source.

1326. Large electrical substations do not produce significant electric fields outside their boundary. There is equipment inside substations which produces magnetic fields. However, the field falls rapidly with distance, and at the perimeter fence the magnetic field from inside the substation is usually

approaching background levels. Additionally, the Bellrock Onshore Transmission Infrastructure will be compliant with the relevant exposure limits, as set by the International Commission on Non-Ionizing Radiation Protection Low Frequency Guidelines (ICNIRP, 2010).

1327. Given the highly localised nature of EMF emissions, the rapid attenuation of field strengths with distance, and compliance with recognised international exposure standards designed to protect human health, potential impacts of EMF on human health receptors have been **scoped out** for further assessment in the Bellrock OnTDA EIA.

18.6.3 Potential Impacts During Decommissioning

1328. At the end of operational life, the Bellrock Onshore Transmission Infrastructure will be decommissioned. The final decommissioning approach will be determined through the preparation of a Decommissioning, Restoration and Aftercare Strategy, and will consider relevant legislation, guidance, and industry best practice. However, decommissioning activities are anticipated to result in effects that are similar to, or no greater than, those associated with construction activities. Therefore, the effects **scoped out** of the assessment for the construction phase are also considered applicable to the decommissioning phase.

18.6.4 Bellrock OnTDA Whole Project Assessment

1329. The Bellrock OnTDA Whole Project Assessment will follow the general methodology set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessment** and will consider whether interactions between the Bellrock Onshore Transmission Infrastructure and the Bellrock Offshore Transmission Infrastructure and/or the Bellrock Wind Farm Infrastructure have the potential to alter the magnitude of impacts and significance of effects on air quality receptors identified in the Bellrock OnTDA-alone assessment. Refer to **Plate 4.3** (**Chapter 4: Approach to Scoping and Environmental Impact Assessment**) for the approach and methodology that will be followed for the Bellrock OnTDA Whole Project Assessment.

1330. Given that no impacts on human health have been scoped in for the Bellrock OnTDA and following the implementation of embedded mitigation and management measures throughout all project phases, interactions with the Bellrock OnTDA and other Development Areas of the Bellrock Project are not expected to increase the likelihood of impacts to human health and a whole project assessment for the Bellrock Onshore Transmission Infrastructure is **scoped out** for further assessment in the Bellrock OnTDA EIA.

18.6.5 Potential Cumulative Effects

1331. The Bellrock OnTDA Cumulative Effects Assessment (CEA) will be undertaken in accordance with the methodology set out in **Section 4.7** of **Chapter 4: Approach to Scoping and Environmental Impact Assessment**. An overview of the Bellrock OnTDA assessment process, including the relationship between the Bellrock OnTDA Whole Project Assessment and the CEA, is provided in **Plate 4.3**.

1332. Overall, the CEA is a two-staged process, with the first stage assessing the impacts as a result of the Bellrock OnTDA Whole Project Assessment (**Section 18.6.4**) together with the Hurlie substation. The second stage will then assess the impacts as a result of the Bellrock OnTDA Whole

Project Assessment together with the Hurlie substation plus impacts arising from other reasonably foreseeable plans and projects where there is conceptual, spatial, and/or temporal overlap. This will determine the potential for cumulative impacts and subsequent cumulative effects on human health receptors.

1333. No impacts on human health have been scoped in for the Bellrock Onshore Transmission Infrastructure, therefore, no cumulative effects are anticipated. A cumulative effects assessment is, therefore, **scoped out** for further assessment in the Bellrock OnTDA EIA.

18.6.6 Potential Transboundary Effects

1334. No human health impacts have been scoped in for further assessment, and considering the nature, scale and location of the Bellrock OnTDA Scoping Boundary, no significant transboundary effects on human health are anticipated. Transboundary human health effects are, therefore, proposed to be **scoped out** of the Bellrock OnTDA EIA.

18.6.7 Summary of Potential Human Health Impacts Scoped In and Scoped Out

1335. In summary, as detailed in **Section 18.6**, a review of the other technical assessments (as listed in **Section 18.1**), including embedded and proposed mitigation has concluded that no likely significant effects on human health are anticipated, beyond those already identified in other chapters. It is, therefore, proposed that a separate human health assessment is **scoped out**. **Table 18.6** provides a summary of the human health impacts which are proposed to be scoped out from being assessed as part of a stand-alone human health within the Bellrock OnTDA EIA Report.

Table 18.6: Summary of Potential Human Health Impacts Scoped In (✓) or Out (X)

Potential Impact	Receptor	Scoped In (✓) or Scoped Out (X)		
		Construction	O&M	Decommissioning
Temporary disruption to access to community facilities and services	Local population	X	X	X
Risks to public safety	Local population	X	X	X
Construction noise effects on amenity and wellbeing	Local population	X	X	X
Temporary air quality effects from dust and emissions	Local population	X	X	X
Effects on private water supplies	Local population	X	X	X
Exposure to land contamination	Local population	X	X	X
Exposure to EMF	Local population	X	X	X

Potential Impact	Receptor	Scoped In (✓) or Scoped Out (X)		
		Construction	O&M	Decommissioning
Effects on visual amenity and landscape character	Local population	X	X	X
Permanent loss of arable agricultural land and potential reduction in food production	General population	X	X	X
Bellrock OnTDA Whole Project Assessment*	N/A	X	X	X
Cumulative effects	N/A	X	X	X
Transboundary effects	N/A	X	X	X
Notes: Health effects scoped in will be assessed in the respective chapters of the Bellrock OnTDA EIA Report for Landscape and Visual, Geology and Ground Conditions, Land Use and Agriculture, Traffic and Transport, Noise and Vibration and Air Quality. * see **Section 18.6.4** for further details on the scoping of the Bellrock OnTDA Whole Project Assessment for Human Health.				

18.7 Scoping Questions to Consultees

1336. The following questions are proposed to consultees to help them frame and focus their response to the human health scoping exercise, which will in turn inform the EIA:

- Do you agree with the characterisation of the existing environment?
- Have all relevant data sources been identified in this **Bellrock OnTDA Scoping Report**?
- Have all the potential human health impacts resulting from Bellrock Onshore Transmission Infrastructure been identified in this **Bellrock OnTDA Scoping Report**?
- Have all relevant data sources been identified in this this **Bellrock OnTDA Scoping Report**?
- On the basis that the local population are not more sensitive than the national average, and each individual technical chapter will assess effects on human health receptors on their own merit, do you agree that a further assessment in addition to that presented in each technical chapter is not proportionate and that a stand-alone human health chapter should be scoped out of the Bellrock OnTDA EIA Report?

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19 Major Accidents and Disasters

19.1 Introduction

1337. This Chapter of the **Bellrock Onshore Transmission Development Area (OnTDA) Scoping Report** considers the scope of potential impacts on the environment arising from the vulnerability of the Bellrock Onshore Transmission Infrastructure to major accidents and disasters during its construction, operation and maintenance (O&M), and decommissioning phases.

1338. The Bellrock OnTDA Scoping Boundary (shown in **Figure 1.1 (Appendix A (Volume 1))**) defines the area within which the Bellrock Onshore Transmission Infrastructure will be constructed, operated and maintained, and decommissioned. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process (as discussed in **Section 1.4** in **Chapter 1: Introduction**) to form the boundary of the Bellrock OnTDA Planning Permission in Principle (PPP) Application.

1339. For the purposes of this **Bellrock OnTDA Scoping Report**, the Bellrock OnTDA Scoping Boundary encompasses the anticipated Onshore Transmission Infrastructure and associated activities for the Bellrock OnTDA landward of Mean Low Water Springs (MLWS). The Bellrock OnTDA Scoping Boundary overlaps with the Bellrock Offshore Transmission Development Area (OfTDA) between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS).

1340. The Bellrock Onshore Transmission Infrastructure includes:

- **Landfall**: located at Cowie, Aberdeenshire, where between two and six ducts are installed using trenchless techniques, allowing the offshore export cables to be brought ashore and connected to onshore export cables within the transition joint bay;
- **Onshore export cables**: up to six underground High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) onshore cable circuits, each up to 18 km in length, installed between landfall and the onshore substation;
- **Onshore substation (OnSS)**: electrical equipment (such as converters, transformers, switchgear, and protection and control systems) enabling renewable electricity from the Bellrock Wind Farm Development Area (WFDA) received via the onshore export cables to be exported to the National Electricity Transmission System, and ancillary infrastructure; and
- **Hurlie substation connection works**: Infrastructure between the Bellrock OnSS to (and within) the Hurlie substation to connect the Onshore Transmission Infrastructure to the National Electricity Transmission System.

1341. In addition, associated works are required to facilitate construction and O&M of the Onshore Transmission Infrastructure, including: access, signage, haul roads, spoil storage, material storage, fencing, borrow pits (if any), earthworks, welfare, security, landscape mitigation, ecological mitigation, biodiversity enhancement, operational lighting and drainage.

1342. As noted in **Chapter 1: Introduction**, the scope of the potential impacts of the Bellrock Wind Farm Infrastructure (located within the Bellrock WFDA) was presented in the **Bellrock WFDA Environmental Impact Assessment (EIA) Report**, which was submitted in support of the Section 36 Consent and Marine Licence Application for the Bellrock Wind Farm Infrastructure in April 2026 (Bellrock Offshore Wind Farm Limited, 2026a). The **Bellrock WFDA EIA Report** considered the potential impacts and subsequent effects of the Bellrock Wind Farm Infrastructure on the environment. An EIA Scoping Report for the Bellrock Offshore Transmission Infrastructure was also submitted to Scottish Ministers on 17 August 2026 (Bellrock Offshore Wind Farm Limited, 2026b), with an EIA Report in support of the Marine Licence Application proposed to be submitted by the end of 2027.

1343. This Chapter of the **Bellrock OnTDA Scoping Report** provides an overview of the existing environment and sets out the proposed methodology and approach to assessing effects on the environment arising from the vulnerability of the Bellrock Onshore Transmission Infrastructure to risks of major accidents and disasters within the Bellrock OnTDA EIA Report. This Chapter has been prepared by Haskoning.

1344. This Chapter should be read in conjunction with the following chapters of the **Bellrock OnTDA Scoping Report**:

- **Chapter 6: Geology and Ground Conditions;**
- **Chapter 7: Hydrology and Flood Risk;**
- **Chapter 9: Onshore Ecology and Nature Conservation;**
- **Chapter 10: Onshore Ornithology;**
- **Chapter 11: Traffic and Transport;**
- **Chapter 17: Climate Change Risk Assessment;** and
- **Chapter 18: Human Health**.

1345. This Chapter is likely to have key inter-relationships with the above receptors, which will be considered appropriately where relevant in the Bellrock OnTDA EIA Report.

19.1.1 Key Definitions

1346. The following definitions are relevant to this Chapter of the **Bellrock OnTDA Scoping Report** and are based on the definitions set out in Major Accidents and Disasters in EIA: A Primer (Institute of Environmental Management and Assessment (IEMA), 2020):

- An ‘accident’ refers to an event that occurs unexpectedly or by chance;
- A ‘disaster’ is a sudden accident or natural catastrophe that causes great damage or loss of life. These can be natural hazards, man-made hazards (e.g. accidental loss of containment), or external hazards (e.g. act of terrorism) that result in consequences for people or the environment;
- ‘Major accidents’ are events that threaten immediate or delayed serious environmental effects to human health, welfare, and/or the environment and require the use of resources beyond

those of the owner/operator or their appointed representatives to manage. Whilst malicious intent is not accidental, the outcome (e.g. a major fire) may be the same and, therefore, many mitigation measures will apply to both deliberate and accidental events;

- A 'receptor' refers to the specific component of the environment that could be adversely affected if the source of an impact reaches it;
- 'As Low As Reasonably Practicable' (ALARP) is used in assessment of major accidents and disasters "*involves weighing a risk against the trouble, time and money needed to control it*", noting that "*ALARP describes the level to which we expect to see risks controlled"*;
- 'Risk' is the likelihood of an impact occurring, along with the resulting effects or consequences on a receptor if it does occur;
- A 'risk event' is an identified, unplanned event relevant to the proposed development (in this case the Bellrock Onshore Transmission Infrastructure) that could result in a major accident or disaster, subject to assessment for significant adverse effects on an environmental receptor;
- 'Serious danger to human health' relates to the people present in the potentially affected areas, either permanently or for prolonged periods of time. This excludes workers operating the Onshore Transmission Infrastructure;
- 'Serious danger to the environment' is the loss or significant detrimental impact on populations of species or organisms, harm or loss of valued sites (including designated sites), valued cultural heritage sites, contamination of drinking water supplies, ground or groundwater, or permanent or long-lasting harm to environmental receptors that cannot be restored through minor clean-up or restoration efforts;
- 'Significant environmental effect' in the context of major accident and disaster assessment includes loss of life, permanent injury, and the temporary or permanent destruction of an environmental receptor that cannot be restored through minor clean-up and restoration efforts;
- A 'source' refers to the original cause of the hazard, which has the potential to cause harm; and
- 'Vulnerability' describes the potential for harm because of an event, for example due to sensitivity or value of receptors, and is influenced by sensitivity, adaptive capacity and magnitude of impact. In the context of the EIA Directive, the term refers to the 'exposure and resilience' of the development to the risk of a major accident and/or disaster.

19.2 Legislation, Policy and Guidance

1347. **Table 19.1** sets out the legislation, policy and guidance that have been considered in the preparation of this Chapter, where appropriate. The overarching policy and legislation relevant to the Bellrock Offshore Transmission Infrastructure is described in **Chapter 2: Legislative and Policy Context**.

Table 19.1: Summary of Relevant Legislation, Policy, and Guidance for Major Accidents and Disasters

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
Legislation	
Health and Safety at Work Act 1974	Defines the general duties of employers and employees for maintaining health and safety within most workplaces. It requires workplaces to provide adequate training of staff, adequate welfare provisions, a safe working environment and provision of relevant information and supervision.
Electricity at Work Regulations 1989	The Regulations require precautions to protect against the risk of death or personal injury from electricity during work activities.
Town and Country Planning (Scotland) Act (1997)	Schedule 4 of the Regulations states that the description of the likely significant effects should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.
The Management of Health and Safety at Work Regulations 1999	Outlines what employers must do to manage health and safety and apply this to work activities. The main duty of the employer is to produce risk assessments.
The Civil Contingencies Act 2004 and the Civil Contingencies Act 2004 (Contingency Planning) (Scotland) Regulations 2005	Provide a comprehensive framework for civil protection in the United Kingdom (UK) aimed at ensuring the country is prepared to respond to emergencies by assessing risks and developing emergency response plans.
Construction (Design and Management) Regulations 2015	Outlines the actions required for the health, safety and welfare of construction projects, with the aim of preventing injuries and ill health across all building and construction activities.
The Control of Major Accident Hazards Regulations 2015	Aims to prevent and mitigate the effects of major accidents involving dangerous substances that could pose significant risks to human health and/or the environment. In particular, Regulation 5(1) states: *"General duties of operators - 5.—(1) Every operator must take all measures necessary to prevent major accidents and to limit their consequences for human health and the environment."*
Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 'EIA Regulations'	Schedule 4 states that a description of the expected significant adverse effects of a development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned should be provided within an EIA.
Policy	
National Planning Framework 4 (NPF4), (Scottish Government, (2023)	The statutory planning policy framework for Scotland is a material consideration for offshore wind developers. It contains strong policy support for renewable energy infrastructure and emphasises resilience, risk management and sustainable development, including the need to consider the vulnerability of infrastructure to climate-related hazards and to ensure risks to human health, the environment and other receptors are appropriately identified and managed.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
	▪ **Policy 23: Health and safety** advises that development proposals that are within the vicinity of a major accident hazard site or major accident hazard pipeline will need to consider the associated risks and potential impacts arising from the interactions between the proposal and the major accident hazard site/pipeline.
Aberdeenshire Local Development Plan (Aberdeenshire Council, 2023)	Provides the local planning policy framework for Aberdeenshire and includes policies relating to climate resilience, environmental protection, flood risk and public safety, including the following policies relevant to major accidents and disasters: ▪ **Policy P4 Hazardous and Potentially Polluting Developments and Contaminated Land** – the policy requires that if a development is proposed within the consultation zone of a major hazard site or a major accident hazard pipeline, the developer should seek further advice. In determining planning applications for development within the consultation zones for hazardous installations (including oil and gas pipelines), Aberdeenshire Council will consult with, and take full account of advice from the Health and Safety Executive, the Competent Authority (in the case of Control of Major Accident Hazardous sites) and the facility's owners and operators, and will seek to ensure that any risk to public safety is not increased.
Guidance	
Guidelines for Environmental Risk Assessment and Management: Green Leaves III (Defra, 2011)	Provides guidelines for the assessment and management of environmental risks.
The International Organisation for Standardisation (ISO) 14001:2015. Environmental management system (ISO, 2015)	Provides a framework for organisations to design and implement their environmental management systems and demonstrate how they are managing their environmental impacts.
EIA Quality Mark Article: What is this MADness? (IEMA[1], 2017)	Provides a guidance on how to incorporate risk assessments associated with major accidents and disasters into the EIA process.
ISO 31000:2018. Risk Management – Guidelines (ISO, 2018a)	Provides a comprehensive framework for managing risk effectively across organisations. This ISO standard aims to identify, assess and manage risks through a systematic process.

Relevant Legislation, Policy and Guidance	Relevance to the Assessment
ISO 45001:2018. Occupational health and safety (OH&S) management systems (ISO, 2018b)	Specifies requirements for OH&S management system, and gives guidance for its use, to enable organisations to provide safe and healthy workplaces by preventing work-related injury and ill health, as well as by proactively improving its OH&S performance. Regarding emergency preparedness and response, clause 8.3 of the ISO 45001:2018 sets out guidelines for structured and proactive approach for the handling of workplace emergencies including the identification of potential emergency situations, development of response plans, training of employees, conduction of regular drills, and continuous emergency preparedness improvements.
Major Accidents and Disasters in EIA: A Primer (IEMA, 2020)	Provides a structured methodology for identifying, assessing and mitigating the risks of major accidents and disasters during the EIA process.
UK National Risk Register 2023	Used to identify relevant external major accident and disaster scenarios that could affect the Bellrock Onshore Transmission Infrastructure.
Health and Safety Executive General guidance for all workplaces	Used to inform hazard identification, risk management and accident prevention measures associated with the Bellrock Onshore Transmission Infrastructure.
Notes: [1] Currently known as the Institute of Sustainability and Environmental Professionals.	

19.3 Consultation

1348. Consultation with Aberdeenshire Council has been undertaken, including engagement through Aberdeenshire Council's Pre-application Advice service. A summary of consultation activities undertaken to date is provided in **Table 19.2**.

Table 19.2: Consultation Relevant to Major Accidents and Disasters

Consultee	Date/ Document	Comment	How Comment has been Addressed
Aberdeenshire Council	23 July 2026 Meeting Notes	Topics for inclusion in this **Bellrock OnTDA Scoping Report** were discussed, including major accidents and disasters.	This scoping report chapter has been prepared to consider the potential for significant effects to arise in relation to major accidents and disasters.
INEOS Forties Pipeline System	19 August 2026 Pre-Application Advice letter	*'INEOS FPS have no objection in principle to this proposed development but highlight our key concerns below.* 1. *Damage to pipeline during construction activities.* 2. *Interaction/ interference between the cable circuits and the pipeline/ ICCP groundbed, affecting the integrity of pipeline and/ or effectiveness of the ICCP groundbed.* *Prior to commencement of any works associated with the proposed development, INEOS FPS will request that a Pipeline Management Plan is developed and approved by the Planning Authority in conjunction with INEOS FPS. This should include the following key elements:* 1. *Prior to any site works (including pre work, ground investigations etc.) within 50m of the pipeline, the Applicant shall consult with INEOS FPS to agree work scopes, construction methods, specifications of pipeline crossing, risk mitigation measures and programme. The extents of the pipeline corridor shall be agreed before any construction activities and be clearly demarcated on site by means of temporary fencing and signage, or as agreed with INEOS FPS,*	The Applicant intends to engage with Ineos Forties Pipeline System following further site selection, once a refined location of any crossing of the Ineos Forties Pipeline System pipeline is known. **Section 19.6.1.4** sets out what procedures are in place to ensure compliance with the relevant legislation regarding pipelines crossings, should any occur.

Consultee	Date/ Document	Comment	How Comment has been Addressed
		for the duration of the construction works. No work shall take place within the agreed pipeline corridor without prior agreement from INEOS FPS.. 2. *Prior to the use of any existing access tracks or access over the pipeline at any other location by heavy vehicles or plant, INEOS FPS shall be consulted to ensure that suitable and sufficient protection measures are agreed and are in place.* 3. *The developer should ensure the design and routing of the cable circuits do not present unacceptable levels of AC/DC interference to INEOS FPS pipeline & ICCP apparatus.* 4. *To ensure the risk of stray current interference/ electrical interaction between the new HV cable circuits and the pipeline/ ICCP system is understood and managed, INEOS FPS will require the developer to provide a suitable and sufficient technical assessment to determine the potential level of risk to pipeline (under normal and fault conditions), and to identify where any required mitigation measures are required prior to and after development commissioning and during the operational phase of the development*	
Shell	19 August 2026 Pre-Application Advice letter	*"I refer to your correspondence received regarding the above planning enquiry. As the proposal is crossing the Shell Major Accident Hazzard pipeline, Shell offers the following observation: whilst Shell has no*	The Applicant intends to engage with Shell following further site selection, once a refined location of any crossing of the Shell pipeline is known. **Section 19.6.1.4** sets out what procedures are in place to ensure compliance with the relevant legislation regarding pipelines crossings, should any occur.

Consultee	Date/ Document	Comment	How Comment has been Addressed
		objection in principle to the Installation of Onshore Transmission Infrastructure Including Installation of Electrical Cables, Erection of Substation and Associated Enabling and Ancillary Works to Connect the ~~Aspen~~ [Bellrock] Offshore Wind Farm to the National Electricity Transmission System at Bellrock Offshore Wind Farm. 1. *The development does not encroach into the pipeline servitude.* 2. *Potential pipeline crossings during construction.* 3. *The risk of AC and DC induced interference affecting the integrity of our pipeline.* *If the application is to proceed, we would be pleased to meet with the developer to address our concerns and to ensure that any risk to the pipeline is reduced to as low as reasonably practicable."*	
National Gas Transmission	19 August 2026 Pre-Application Advice letter	*'National Gas Transmission exercises its right to place a Holding Objection to the above proposal which will cross our High-Pressure Gas Pipeline – Feeder providing the below conditions are adhered to […] The pipeline has a land easement in operation of either side of the pipeline. No development, construction or landscaping is permitted within the easement without formal written approval from National Gas Transmission […]* *The developer is to engage with National Gas Transmission for further guidance in*	The Applicant intends to engage with National Gas Transmission following further site selection, once a refined location of any crossing of the National Gas Transmission pipeline is known. **Section 19.6.1.4** sets out what procedures are in place to ensure compliance with the relevant legislation regarding pipelines crossings, should any occur.

Consultee	Date/ Document	Comment	How Comment has been Addressed
		the early stages of design to ensure the required integrity assessments are agreed, and consideration has been given to electrical interference, security, crossing points, future access and safe construction methods, all of which must be mutually agreed prior to undertaking any works on site. *The developer shall contact National Gas Transmission to arrange a meeting and to discuss the proposal in more detail. The developer should be familiar with the relevant standards for constructing the proposed installation.'*	

19.4 Existing Environment

19.4.1 Study Area

1349. The major accidents and disasters study area is based on the Bellrock OnTDA Scoping Boundary provided in **Figure 1.1** of **Appendix A (Volume 1)** of the **Bellrock OnTDA Scoping Report**, however, it also takes into account the study areas used in relevant technical chapters of the **Bellrock OnTDA Scoping Report** listed in **Section 19.1** which are relevant to the consideration of effects arising from major accidents and disasters.

1350. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process to form the boundary of the Bellrock OnTDA PPP Application. In the event that effects arising from major accidents are scoped into the Bellrock OnTDA EIA, the major accidents and disasters study area will be updated to reflect this refinement (**Section 1.2.1** in **Chapter 1: Introduction**).

1351. The temporal scope relates to the lifespan of the Bellrock OnTDA, through construction, O&M, and decommissioning, and will be to be up to 40 years.

19.4.2 Data and Information Sources

1352. Information and parameters regarding the design, infrastructure, approach and methods for construction, O&M and decommissioning of the Bellrock Onshore Transmission Infrastructure have been used to inform the scoping of major accidents and disasters within this Chapter. Additionally, data collated for the chapters identified in **Section 19.1** has been used to inform the assessment for this Chapter in the **Bellrock OnTDA Scoping Report**.

1353. It is considered that there is no additional baseline information required to inform the assessment of major accidents and disasters.

19.4.3 Baseline Conditions

1354. The existing environment has been characterised in the relevant chapters of this **Bellrock OnTDA Scoping Report**, as listed in **Section 19.1**.

1355. The receiving environment for major accidents and disasters will vary depending on the type and scale of the event in question. Baseline conditions relating to major accidents and disasters are detailed in the following chapters of the **Bellrock OnTDA Scoping Report**:

- **Chapter 6: Geology and Ground Conditions** – sensitivity of environment to pollution incidents;
- **Chapter 7: Hydrology and Flood Risk** – sensitivity of environment to flood events and pollution incidents;
- **Chapter 8**: **Land Use and Agriculture** – presence of major utilities (Shell and Ineos pipelines and Natural Gas Transmission pipelines) and which have the potential to give rise to pollution incidents;

- **Chapter 9: Onshore Ecology and Nature Conservation** – sensitivity of ecological receptors to flooding, fires or pollution incidents;
- **Chapter 10: Onshore Ornithology** – sensitivity of ornithological receptors to flooding, fires or pollution incidents;
- **Chapter 11: Traffic and Transport** – baseline traffic collision and derailment data;
- **Chapter 17: Climate Change Risk Assessment** – existing risk of extreme weather events; and
- **Chapter 18: Human Health** – vulnerability of population to extreme events/incidents.

1356. The future baseline for the Bellrock OnTDA relevant to major accidents and disasters will evolve relating to several likely factors over the lifecycle of the Bellrock Onshore Transmission Infrastructure. Climate change is likely to lead to changes in rainfall and temperature, increased occurrences of extreme weather, and rising sea levels. Predictions for changes in climate until the end of the 21st century are available from The UK Climate Projections (various dates). The impacts of climate change are set out in more detail in **Chapter 17: Climate Change Risk Assessment**.

1357. There are likely to be advances in technology over the 40 year design life of the Bellrock Onshore Transmission Infrastructure, with potential for further reductions in risks to safety and the environment, or to introduce new hazards with the introduction of novel technology. Novel technologies would be implemented following appropriate risk assessment processes.

19.5 Potential Impacts

1358. The risk types which will be considered within the **Bellrock OnTDA Scoping Report** include:

- Road traffic collisions and derailments;
- Pollution incidents;
- Electricity failure and exposure to high voltage current;
- Fires, explosions and gas release;
- Extreme weather events;
- Flooding; and
- Workplace accidents.

1359. The proposed potential receptors relevant to this Scoping Report are provided with definitions in **Table 19.3**. The level of harm considered to represent a major accident or disaster is also presented. The thresholds have been determined using industry best practice based upon:

- Criteria for notification of a major accident to the European Commission under Article 18(1) of Seveso III Directive and Regulation 26 of the COMAH Regulations 2015 (cited in IEMA, 2020); and
- Department of the Environment, Transport and the Regions (1999).

Table 19.3: Potential Receptors Relevant to Major Accidents and Disasters

Receptor Group	Receptors Included	Major Accident or Disaster Threshold
Population and human health	Construction workers, O&M workers, and members of the public and other users.	For members of the public and other users: ▪ Substantial number (five or more) of people requiring medical attention or any serious/life-changing injuries. Events of this magnitude may also involve some damage to housing, with low numbers of people being displaced. Potential for localised interruption to utilities and damage to infrastructure. For workers: ▪ Multiple life changing injuries or fatalities.
Designated sites (international, national and other)	Special Areas of Conservation, Special Protection Areas, Sites of Special Scientific Interest, Ramsar sites, National Nature Reserves, Local Nature Reserves, Local Nature Conservation Sites.	For National sites the thresholds are: ▪ Greater than 0.5 ha or 5% of the area of the designated site adversely affected (whichever is the lesser), or greater than 5% of an associated linear feature adversely affected; ▪ Greater than 5% of a particular habitat or population of individual species adversely affected; or ▪ Greater than 10 ha of more widespread habitat, including agricultural land. No quantitative thresholds are defined in the guidance for local sites. As local sites vary, they will be assessed individually based on the features present.
Particular species	All species, both flora and fauna, found in the UK and includes common species, Red Data Book species and other protected or priority species, including rare species.	For common species, where reliable estimates of population numbers exist, the threshold is death of, or serious sub-lethal effects within 1% of any species. For common plant species, the threshold is the death of, or serious sub-lethal effects within, 5% of the ground cover. For species listed within the Annexes of the Habitats Directive, the Annexes of the Birds Directive, the Schedules of the Wildlife and Countryside Act 1981 (and amended), Red Data Book species, and UK Biodiversity Action Plan priority species, significance thresholds may be lower than 1% or 5%. The appropriate threshold should be determined in consultation with the relevant statutory nature conservation organisation. Moreover, for all species, where reliable estimates of population numbers do not exist, liaison with the statutory authority will be necessary to determine appropriate thresholds. Any loss of a Red Data Book species (or a Red Data Book species site) is also considered a threshold for a disaster.

Receptor Group	Receptors Included	Major Accident or Disaster Threshold
Water environment	Groundwaters, surface waters, freshwater habitats, drinking water abstractions.	Permanent or long-term damage to: ▪ 10 km or more of river or canal; ▪ 1 ha or more of a lake or pond; or ▪ 1 ha or more of an aquifer or underground water.
Sensitive land uses	Prime agricultural land.	Permanent or long-term damage to: ▪ 10 ha of prime agricultural land.

19.5.1 Embedded Mitigation Measures

1360. Embedded mitigation relevant to major accidents and disasters has been identified, as presented in **Table 19.4** and **Appendix B: Mitigation and Monitoring Register (Volume 1)**, in accordance with the mitigation hierarchy, with the aim of avoiding, preventing, reducing, and where possible, offsetting potential adverse environmental effects. Consistent with the IEMA guidance (IEMA, 2024), primary (inherent design measures) and tertiary (standard good practice) mitigation are embedded within the Project Design Envelope and are, therefore, considered in the assessment of effects. This approach is consistent with the methodology set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessment.** Secondary mitigation measures will be identified where required through the EIA process, informed by the outcomes of the initial impact assessment.

1361. The embedded mitigation measures may be refined as part of the iterative design and EIA process progresses.

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Table 19.4: Embedded Mitigation Measures Relevant to Major Accidents and Disasters

Relevant Development Phase			Embedded Mitigation Measure	Relevance to Assessment	Mitigation Type
Construction	O&M	Decommissioning			
✓	X	X	Development of and adherence to a Construction Environmental Management Plan	Will be prepared and implemented to set out the procedures to avoid, reduce, and manage potential environmental effects arising across the construction of the Bellrock Onshore Transmission Infrastructure, in accordance with relevant international and national legislation and guidance.	Tertiary
✓	X	X	Development of and adherence to a Construction Traffic Management Plan (CTMP)	Sets out measures for the safe management of construction traffic, including designated access routes, traffic controls, delivery scheduling and communication procedures. The CTMP reduces the likelihood of traffic accidents and helps minimise potential risks to construction workers, road users and nearby communities.	Tertiary
X	X	✓	Production of a Decommissioning, Restoration and Aftercare Strategy.	Establishes procedures and control measures for decommissioning activities, including the removal of infrastructure, plant and equipment, and emergency response arrangements. These measures reduce the likelihood of incidents occurring and help minimise the consequences of any major accident or disaster.	Tertiary
✓	✓	✓	Following relevant industry guidance and best practice, whilst ensuring compliance with applicable national and international legislation.	Compliance with relevant international and national legislation, regulations and industry guidance will be maintained throughout construction, O&M, and decommissioning phases of the Bellrock Onshore Transmission Infrastructure. This will ensure that activities are undertaken in accordance with established health, safety and environmental requirements, reducing the likelihood of major accidents and disasters.	Tertiary

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19.6 Scoping of Potential Impacts

19.6.1 Construction, Operation and Maintenance and Decommissioning Phases

1362. Following guidance published by the IEMA on Major Accidents and Disasters in EIA (IEMA, 2020), it is proposed that consideration of major accidents and disasters within the EIA process is considered within this Scoping Report based on assessments conducted within individual technical chapters, where this can be adequately covered by the scope of such chapters. Only where effects from major accidents and disasters are not adequately assessed within a separate relevant chapter of this Scoping Report, are they considered necessary to be scoped in for further assessment in a specific Major Accidents and Disasters Chapter in the Bellrock OnTDA EIA Report.

1363. This section summarises the potential effects which may arise from major accidents and disasters during construction, O&M and decommissioning of the Bellrock Onshore Transmission Infrastructure, and draws conclusions as to whether they need to be scoped into the Bellrock OnTDA EIA Report as part of a dedicated Major Accidents and Disasters Chapter.

19.6.1.1 Road Traffic Collisions and Derailments

1364. Road traffic collisions and derailments have been identified as potential major accident hazards during the construction, O&M and decommissioning phases of the Bellrock OnTDA. Construction traffic associated with the Bellrock Onshore Transmission Infrastructure will be managed through a CTMP (**Table 19.4**), including the use of designated access routes, traffic management measures and controls on abnormal loads. This impact is adequately assessed within **Chapter 12: Traffic and Transport** including details of adherence to relevant transport legislation and industry best practice.

1365. Interaction with the railway network is also considered in detail in **Chapter 12: Traffic and Transport**, with the process for mitigating effects upon railway lines to be discussed in full in the Traffic and Transport Chapter of the Bellrock OnTDA EIA Report**.**

1366. Given the consideration of road traffic collisions and effects upon the railway network are considered within dedicated assessments and the implementation of appropriate mitigation measures, road traffic collisions and derailments are proposed to be **scoped out** of the Bellrock OnTDA EIA as a standalone Major Accidents and Disasters assessment.

19.6.1.2 Pollution Incidents

1367. Pollution incidents have the potential to occur during construction, O&M and decommissioning phases of the Bellrock Onshore Transmission Infrastructure through the accidental release of fuels, oils, chemicals or other contaminants. However, the implementation of embedded mitigation measures such as an EMP, will reduce risks to ALARP levels. Potential effects on receiving environments will also be assessed within the relevant technical chapters: **Chapter 6: Geology and Ground Conditions**, **Chapter 7: Hydrology and Flood Risk**, **Chapter 8: Land Use and Agriculture** and **Chapter 9: Onshore Ecology and Nature Conservation**. Pollution incidents resulting in major accidents are, therefore, proposed to be **scoped out** of the Bellrock OnTDA EIA as a standalone Major Accidents and Disasters assessment.

19.6.1.3 Electricity Failure and Exposure to High Voltage Current

1368. The operation of the Onshore Transmission Infrastructure, including the OnSS, presents the potential for electricity failure and exposure of populations to high voltage current.

1369. Risk will be managed through full compliance with the relevant health and safety legislation, and the Bellrock Onshore Transmission Infrastructure will be designed, installed, operated and maintained in adherence with the following:

- Health and Safety at Work Act 1974;
- The Electricity at Work Regulations 1989;
- The Management of Health and Safety at Work Regulations 1999;
- The Electricity Safety, Quality and Continuity Regulations 1999;
- The Workplace (Health Safety and Welfare Regulations 1992; and
- The Construction (Design and Management) Regulations 2015.

1370. Compliance with the relevant legislation is anticipated to reduce the likelihood of a major accident or disaster arising from electricity failure or exposure to high voltage current to a very low level, and these hazards are proposed to be **scoped out** of the Bellrock OnTDA EIA Report.

19.6.1.4 Fires, Explosions and Gas Release

1371. Potential fires could arise from construction plant and equipment, and Onshore Transmission Infrastructure such as transformers, switchgear and onshore export cables. In the event of a fire, there is potential for damage to infrastructure and the release of contaminants.

1372. Risk of fire will be managed through full compliance with the relevant fire safety legislation, and the Bellrock Onshore Transmission Infrastructure will be designed, installed, operated and maintained in adherence with the following:

- The Electricity at Work Regulations 1989;
- The Electricity Safety, Quality and Continuity Regulations 1999;
- The Fire Safety (Scotland) Regulations 2006;
- The Construction (Design and Management) Regulations 2015; and
- Control of Major Accident Hazards Regulations 2015.

1373. Fire prevention, detection and response measures will be incorporated into the design and operation of the Bellrock Onshore Transmission Infrastructure. In addition, temperature distribution sensors will be included as part of the onshore export cable installation to identify cable faults, and circuit breakers within the OnSS will provide protection of the electrical system during fault events by isolating the fault from the rest of the electrical system.

1374. Compliance with the relevant legislation is anticipated to reduce the likelihood of a major accident or disaster arising from fire to a very low level, and this hazard is proposed to be **scoped out** of the Bellrock OnTDA EIA Report.

1375. The Bellrock OnTDA Scoping Boundary crosses existing pipeline infrastructure (including oil and gas pipelines), and, therefore, avoidance of interaction with these pipelines will be required. Accidental damage to pipelines during construction or maintenance of the Bellrock Onshore Transmission Infrastructure could represent a potential major accident scenario (e.g. gas release, fire or explosion).

1376. Collaboration with pipeline owners and relevant stakeholders will be undertaken to agree appropriate crossing methods and ensure compliance with safe working practices, relevant standards and best practice. Trenchless techniques are likely to be used to cross pipelines where possible, to minimise any risks associated with onshore export cable installation. With appropriate design, construction techniques and stakeholder coordination, these risks can be reduced to ALARP levels.

1377. With the mitigation by design in place, the likelihood of a gas release or explosion incident resulting in a major accident or disaster is considered to be low and this hazard is proposed to be **scoped out** of the Bellrock OnTDA EIA Report.

19.6.1.5 Extreme Weather Events

1378. Extreme temperatures and extreme weather events have been identified as potential external hazards that could affect the Bellrock Onshore Transmission Infrastructure.

1379. Climate resilience and potential climate change effects will be considered within **Chapter 17: Climate Change Risk Assessment**. Extreme weather events resulting in major accidents and disaster are, therefore, proposed to be **scoped out** of the Bellrock OnTDA EIA as a standalone Major Accidents and Disasters assessment.

19.6.1.6 Flooding

1380. Flooding has been identified as a potential natural hazard that could affect the Bellrock Onshore Transmission Infrastructure. Flood risk will be assessed within **Chapter 7: Hydrology and Flood Risk**, and embedded mitigation will be incorporated into the design of the Bellrock Onshore Transmission Infrastructure where required.

1381. Given the consideration of flood risk within dedicated assessments and the implementation of appropriate mitigation measures, flooding events are proposed to be **scoped out** of the Bellrock OnTDA EIA as a standalone Major Accidents and Disasters assessment.

19.6.1.7 Workplace Accidents

1382. Health and safety of construction workers during the construction phase (and relevant maintenance activities) will be subject to relevant legislation, such as the Construction Design Management Regulations (**Section 19.2**), and industry best practice. During operation, it is anticipated that the OnSS will be unmanned, thereby reducing the risk of day-to-day workplace accidents.

1383. Health and safety risks are considered to be managed under relevant legislation as outlined in **Section 19.6.1.3** and do not represent unplanned events requiring assessment within the Bellrock OnTDA EIA, and it is proposed that they are **scoped out** of the Bellrock OnTDA EIA Report.

19.6.2 Bellrock OnTDA Whole Project Assessment

1384. The Bellrock OnTDA Whole Project Assessment will follow the general methodology set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessment** and will consider whether interactions between the Bellrock Onshore Transmission Infrastructure and the Bellrock Offshore Transmission Infrastructure and/or the Bellrock Wind Farm Infrastructure have the potential to alter the magnitude of impacts and significance of effects on air quality receptors identified in the Bellrock OnTDA-alone assessment. Refer to **Plate 4.3 (Chapter 4: Approach to Scoping and Environmental Impact Assessment**) for the approach and methodology that will be followed for the Bellrock OnTDA Whole Project Assessment.

1385. Given the low likelihood of major accidents and disasters and the implementation of embedded mitigation and management measures throughout construction, O&M and decommissioning phases, interactions between the Bellrock OnTDA and other Development Areas of the Bellrock Project are not expected to increase the risk or severity of potential major accidents and disasters, and are proposed to be **scoped out** of the Bellrock OnTDA EIA Report.

19.6.3 Potential Cumulative Effects

1386. The Bellrock OnTDA Cumulative Effects Assessment (CEA) will be undertaken in accordance with the methodology set out in **Section 4.7** of **Chapter 4: Approach to Scoping and Environmental Impact Assessment**. An overview of the Bellrock OnTDA assessment process, including the relationship between the Bellrock OnTDA Whole Project Assessment and the CEA, is provided in **Plate 4.3**.

1387. Overall, the CEA is a two-staged process, with the first stage assessing the impacts as a result of the Bellrock OnTDA Whole Project Assessment (**Section 19.6.2**) together with the Hurlie substation. The second stage will then assess the impacts as a result of the Bellrock OnTDA Whole Project Assessment together with the Hurlie substation plus impacts arising from other reasonably foreseeable plans and projects where there is conceptual, spatial, and/or temporal overlap. This will determine the potential for cumulative impacts and subsequent cumulative effects on arising from major accidents or disasters.

1388. As described above, the risk of major accidents and disasters associated with the Bellrock OnTDA is considered to be very low and will be managed through adherence to relevant legislation, industry standards and embedded mitigation. As such, it is considered unlikely that any significant cumulative impacts would occur with other onshore infrastructure used for any other plans or projects within the area.

1389. It is, therefore, proposed that all cumulative onshore major accidents and disasters are **scoped out** of the Bellrock OnTDA EIA Report.

19.6.4 Potential Transboundary Effects

1390. The transboundary assessment will follow the general methodology set out in **Chapter 4: Approach to Scoping and Environmental Impact Assessment**. However, due to the discrete nature of major accidents and disasters and the nature, scale, and location of the Bellrock OnTDA, no credible major accident and disaster scenarios have been identified that are anticipated to result in significant environmental effects extending beyond the UK.

1391. Therefore, transboundary effects are proposed to be **scoped out** of the Bellrock OnTDA EIA Report.

19.6.5 Summary of Potential Major Accidents and Disasters Impacts Scoped In and Scoped Out

1392. A summary of potential impacts scoped in and scoped out from further assessment in the Bellrock OnTDA EIA Report is provided in **Table 19.5**.

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Table 19.5: Summary of Potential Major Accidents and Disasters Impacts Scoped In (✓) or Scoped Out (X)

Potential Hazard	Receptor(s)	Scoped In (✓) or Scoped Out (X)		
		Construction	O&M	Decommissioning
Road traffic collisions and derailments[1]	Population and human health	X	X	X
Pollution incidents[2]	Population and human health; water environment; soils and geology; designated sites; habitats and species	X	X	X
Electricity failure and exposure to high voltage current	Population and human health	X	X	X
Fires, explosions and gas release	Population and human health; infrastructure	X	X	X
Extreme weather events[3]	Population and human health; infrastructure; water environment; designated sites; habitats and species	X	X	X
Flooding[4]	Population and human health; infrastructure; water environment; designated sites; habitats and species	X	X	X
Workplace accidents	Population and human health	X	X	X
Bellrock OnTDA Whole Project Assessment*	N/A	X	X	X
Cumulative effects	N/A	X	X	X
Transboundary effects	N/A	X	X	X

Notes:

[1] Considered in **Chapter 12: Traffic and Transport**

[2] Considered in **Chapter 6: Geology and Ground Conditions**; **Chapter 7: Hydrology and Flood Risk**; **Chapter 8: Land Use and Agriculture**; and **Chapter 9: Onshore Ecology and Nature Conservation**.

[3] Considered in **Chapter 17: Climate Change Risk Assessment**

[4] Considered in **Chapter 7: Hydrology and Flood Risk**

* see **Section 19.6.2** for further details on the scoping of the Bellrock OnTDA Whole Project Assessment for Major Accidents and Disasters.

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19.7 Proposed Approach to Impact Assessment

1393. As major accidents and disasters are proposed to be scoped out from further assessment in the Bellrock OnTDA EIA Report, no proposed approach to EIA is presented.

19.8 Scoping Questions to Consultees

1394. The following questions are posed to consultees to help them frame and focus their response to the major accidents and disasters scoping exercise, which will in turn inform the EIA:

- Do you agree with the characterisation of the existing environment?
- Have all the major accidents and disasters impacts resulting from the Bellrock OnTDA been identified in this **Bellrock OnTDA Scoping Report**?
- Do you agree that all major accidents and disasters impacts should be scoped out from further consideration of the Bellrock OnTDA EIA Report, and are you content that where further consideration is required within the EIA Report, this can be considered in the following relevant technical chapters: **Chapter 6: Geology and Ground Conditions; Chapter 7: Hydrology and Flood Risk; Chapter 9: Onshore Ecology and Nature Conservation; Chapter 10: Onshore Ornithology; Chapter 11: Traffic and Transport; Chapter 17: Climate Change Risk Assessment; and Chapter 18: Human Health**?

19.9 References

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20 Summary and Next Steps

1395. This **Bellrock Onshore Transmission Development Area (OnTDA) Scoping Report** accompanies a request for a formal Scoping Opinion from Aberdeenshire Council, in relation to the construction, operation and maintenance (O&M) and decommissioning of the Bellrock Onshore Transmission Infrastructure.

1396. The purpose of this **Bellrock OnTDA Scoping Report** is to provide stakeholders with sufficient information on the Bellrock Onshore Transmission Infrastructure and allow for engagement with stakeholders on the key issues to be addressed in the Bellrock OnTDA Environmental Impact Assessment (EIA), as well as the baseline data sources and assessment methodologies to be used. This **Bellrock OnTDA Scoping Report** contains the information required under the Town and Country Planning (Scotland) Act 1997, as set out in **Section 1.5** in **Chapter 1: Introduction**.

1397. For clarity, the Bellrock OnTDA Scoping Boundary has been defined to provide flexibility during the ongoing site selection process. The Bellrock OnTDA Scoping Boundary will be refined on completion of the site selection process to form the Bellrock OnTDA upon which the OnTDA Planning Permission in Principle (PPP) Application will be based (see **Section 1.4** in **Chapter 1: Introduction**). The Bellrock OnTDA EIA will be based on the refined Bellrock OnTDA.

1398. Within this **Bellrock OnTDA Scoping Report**, the potential environmental impacts associated with the Bellrock Onshore Transmission Infrastructure have been identified for each technical topic and have undergone a scoping assessment to determine whether they should be **scoped in** or **scoped out** of further assessment in the Bellrock OnTDA EIA. Impacts have been proposed to be scoped out where there is no source-pathway-receptor relationship, or where the impact is not considered to have the potential to result in likely significant environmental effects. A summary of the scoping assessment and conclusions for each technical topic is provided within each technical chapter:

- **Section 5.6.7** of **Chapter 5: Landscape and Visual Impact;**
- **Section 6.6.7** of **Chapter 6: Geology and Ground Conditions;**
- **Section 7.6.7** of **Chapter 7: Hydrology and Flood Risk;**
- **Section 8.6.7** of **Chapter 8: Land Use and Agriculture;**
- **Section 9.6.7** of **Chapter 9: Onshore Ecology and Nature Conservation;**
- **Section 10.6.7** of **Chapter 10: Onshore Ornithology;**
- **Section 11.6.7** of **Chapter 11: Onshore Archaeology and Cultural Heritage;**
- **Section 12.6.7** of **Chapter 12: Traffic and Transport;**
- **Section 13.6.7** of **Chapter 13: Noise and Vibration;**
- **Section 14.6.7** of **Chapter 14: Air Quality;**
- **Section 15.6.5** of **Chapter 15: Socioeconomics, Tourism and Recreation;**
- **Section 16.5.5** of **Chapter 16: Greenhouse Gas Assessment;**

- **Section 17.7.5** of **Chapter 17: Climate Change Risk Assessment;**
- **Section 18.6.7** of **Chapter 18: Human Health;** and
- **Section 19.6.5** of **Chapter 19: Major Accidents and Disasters.**

1399. The embedded mitigation measures currently proposed for the Bellrock Onshore Transmission Infrastructure are presented in **Appendix B: Mitigation and Monitoring Register (Volume 1)**. These comprise primary mitigation measures, incorporated through project design, and tertiary mitigation measures, reflecting standard industry practice. As the project design evolves and the EIA progresses, embedded mitigation measures may be refined, and additional embedded mitigation measures may be identified where appropriate. Where the preliminary impact assessment identifies the need for further mitigation to reduce the magnitude of potential impacts, secondary mitigation measures will also be developed. The Bellrock OnTDA EIA Report will include an updated Mitigation and Monitoring Register to record all mitigation measures and identify how they will be implemented and, where appropriate, secured through the consenting process.

1400. The Applicant invites consultees to consider the information presented in this **Bellrock OnTDA Scoping Report** and the **Bellrock OnTDA Habitats Regulations Appraisal Screening Report (Volume 2)**, and to provide comments on the proposed approach and scoping conclusions. Responses submitted by statutory and non-statutory consultees to Aberdeenshire Council will inform the Scoping Opinion. The Applicant will have regard to the Scoping Opinion when undertaking the Bellrock OnTDA EIA.

1401. This **Bellrock OnTDA Scoping Report** is available on the Bellrock Project's website: www.bellrockwind.co.uk.

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www.bellrockwind.co.uk