



**MORAY WEST**  
**OFFSHORE WINDFARM**

**Moray West Onshore Transmission Infrastructure**

**Scoping Report**

**June 2017**

Moray Offshore Windfarm (West) Limited

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## Glossary

<b>AA</b>	Appropriate Assessment
<b>AADT</b>	Annual Average Daily Traffic
<b>ABI</b>	Annual Business Inquiry
<b>AC</b>	Aberdeenshire Council
<b>ACAS</b>	Aberdeenshire Council Archaeology Service
<b>AEP</b>	Annual Exceedance Probability
<b>AfL</b>	Agreement for Lease
<b>AOD</b>	Above Ordnance Datum
<b>BAP</b>	Biodiversity Action Plan
<b>BGS</b>	British Geological Society
<b>Birds Directive</b>	Directive 2009/147/EC of 30 November 2009 on the conservation of wild birds
<b>BOWL</b>	Beatrice Offshore Wind Farm Limited
<b>BRES</b>	Business Register Employment Survey
<b>BSBI</b>	Botanical Society of Britain and Ireland
<b>BTO</b>	British Trust for Ornithology
<b>CBC</b>	Common Bird Census
<b>CEMP</b>	Construction Environmental Management Plan
<b>CfD</b>	Contract for Difference
<b>CIEEM</b>	Chartered Institute of Ecology and Environmental Management
<b>CifA</b>	Chartered Institute for Archaeologists
<b>CION</b>	Connection and Infrastructure Options Note
<b>CIRIA</b>	Construction Industry Research and Information Association
<b>CLVIA</b>	Cumulative Landscape and Visual Impact Assessment
<b>CMS</b>	Construction Method Statement
<b>CTMP</b>	Construction Traffic Management Plan
<b>DAS</b>	Design and Access Statement
<b>DMP</b>	Drainage Management Plan
<b>DTM</b>	Digital Terrain Mapping
<b>EclA</b>	Ecological Impact Assessment
<b>ECoW</b>	Ecological Clerk of Works
<b>EDA</b>	Eastern Development Area (now known as Moray East)
<b>EDPR</b>	EDP Renovaveis
<b>EDPR UK</b>	EDP Renewables UK Ltd
<b>EHO</b>	Environmental Health Officer
<b>EIA</b>	Environmental Impact Assessment
<b>EIA Regulations</b>	The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017
<b>EMF</b>	Electromagnetic Field
<b>EMP</b>	Environmental Management Plan
<b>EPS</b>	European Protected Species
<b>ER</b>	Environmental Report (referred to as the Environmental Statement and the EIA Report in different pieces of EIA legislation)
<b>ES</b>	Environmental Statement (referred to as the Environmental Report and the EIA Report in different pieces of EIA legislation)
<b>EU</b>	European Union
<b>EUNIS</b>	European Nature Information System
<b>FEH</b>	Flood Estimation Handbook

<b>FRA</b>	Flood Risk Assessment
<b>FTE</b>	Full Time Equivalent
<b>GDL</b>	Garden and Designed Landscape
<b>GIS</b>	Geographical Information Systems
<b>GPS</b>	Global Positioning System
<b>GVA</b>	Gross Value Added
<b>GW</b>	Gigawatt
<b>GWDTE</b>	Groundwater dependent terrestrial ecosystem
<b>Habitats Directive</b>	Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora
<b>Habitats Regulations</b>	Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)
<b>HDD</b>	Horizontal directional drilling
<b>HES</b>	Historic Environment Scotland
<b>HGV</b>	Heavy Goods Vehicle
<b>HIE</b>	Highland and Islands Enterprise
<b>HMP</b>	Habitat Management Plan
<b>HRA</b>	Habitats Regulations Appraisal
<b>HVAC</b>	High voltage alternating current
<b>HVDC</b>	High voltage direct current
<b>IEEM</b>	Institute of Ecology and Environmental Management
<b>IEMA</b>	Institute for Environmental Management and Assessment
<b>JNCC</b>	Joint Nature Conservation Committee
<b>km</b>	Kilometre
<b>kV</b>	Kilovolt
<b>LBAP</b>	Local Biodiversity Action Plan
<b>LCT</b>	Landscape Character Type
<b>LDP</b>	Local Development Plan
<b>LMP</b>	Landscape Management Plan
<b>LVIA</b>	Landscape and Visual Impact Assessment
<b>MC</b>	Moray Council
<b>MFRAG</b>	Moray Firth Renewables Advisory Group
<b>MHWS</b>	Mean High Water Springs
<b>MLWS</b>	Mean Low Water Springs
<b>MoD</b>	Ministry of Defence
<b>Moray East</b>	Moray Offshore Windfarm (East) Limited
<b>Moray East Offshore Wind Farm</b>	The wind farm to be developed in the Moray East Site
<b>Moray East Site</b>	The area of the Zone in which the Moray East Offshore Wind Farm will be located, previously known as the Eastern Development Area
<b>Moray Firth Zone</b>	UK offshore wind Round 3 Zone 1 area held under a Zone Development Agreement (ZDA) by Moray Offshore Renewable Power Limited which is comprised of the Moray East Site and the Moray West Site
<b>Moray West</b>	Moray Offshore Windfarm (West) Limited
<b>Moray West Offshore Transmission Infrastructure (OfTI)</b>	The Offshore Transmission Infrastructure associated with the Moray West Offshore Wind Farm
<b>Moray West OfTI Site</b>	The area within which the OfTI will be located. It includes the Moray West Site, within which the OSP(s) and a portion of the export cables will be located, and the Offshore Export Cable Corridor within which the remainder of the export cables will be located

<b>Moray West Offshore Wind Farm</b>	The windfarm being proposed by Moray West
<b>Moray West Onshore Transmission Infrastructure (OnTI)</b>	The Onshore Transmission Infrastructure associated with the Moray West Offshore Wind Farm
<b>Moray West Site</b>	The area of the Zone in which the Moray West Offshore Wind Farm and elements of the Moray West OfTI will be located, previously known as the Western Development Area
<b>MORL</b>	Moray Offshore Renewables Limited (now known as Moray East)
<b>MPA</b>	Marine Protected Area
<b>MS-LOT</b>	Marine Scotland Licensing Operations Team
<b>MSS</b>	Marine Scotland Science
<b>MW</b>	Megawatt
<b>NBN</b>	National Biodiversity Network
<b>NCN</b>	National Cycle Network
<b>NESBReC</b>	North East Scotland Biological Records Centre
<b>NESRSG</b>	North East Scotland Raptor Study Group
<b>NETS</b>	National Electricity Transmission System
<b>NGET</b>	National Grid Electricity Transmission plc
<b>nm</b>	Nautical mile
<b>NNR</b>	National Nature Reserve
<b>NO<sub>2</sub></b>	Nitrogen Dioxide
<b>NPF3</b>	National Planning Framework 3
<b>NVC</b>	National Vegetation Classification
<b>Offshore ECC</b>	Offshore Export Cable Corridor
<b>OfTI</b>	Offshore Transmission Infrastructure
<b>OFTO</b>	Offshore Transmission Owner
<b>ONS</b>	Office of National Statistics
<b>Onshore Cable Corridor</b>	A 500 m wide corridor within which the onshore cable circuits will be contained.
<b>OnTI</b>	Onshore Transmission Infrastructure
<b>OS</b>	Ordnance Survey
<b>OSP</b>	Offshore Substation Platform
<b>PAC</b>	Pre-application consultation
<b>PAN</b>	Planning Advice Note
<b>PMF</b>	Priority Marine Feature
<b>Project</b>	The Development (Moray West Offshore Wind Farm and Moray West OfTI) and the Moray West OnTI
<b>PWS</b>	Private water supplies
<b>RBMP</b>	River Basin Management Plan
<b>RIAA</b>	Report to Inform Appropriate Assessment
<b>RSPB</b>	Royal Society for the Protection of Birds
<b>S2K</b>	JNCC Seabird 2000
<b>SAC</b>	Special Area of Conservation
<b>SBL</b>	Scottish Biodiversity List
<b>Scoping Study Area</b>	The area of search for the OnTI that is located landward of MLWS, as illustrated in Figure 1.1.2
<b>SDP</b>	Strategic Development Plan
<b>SEPA</b>	Scottish Environment Protection Agency
<b>SLA</b>	Special Landscape Area

<b>SLVIA</b>	Seascape Landscape and Visual Impact Assessment
<b>SNCBs</b>	Statutory Nature Conservation Bodies
<b>SNH</b>	Scottish Natural Heritage
<b>SPA</b>	Special Protection Area
<b>SPP</b>	Scottish Planning Policy
<b>SSSI</b>	Site of Special Scientific Interest
<b>SuDS</b>	Sustainable Urban Drainage System(s)
<b>SWMP</b>	Site Waste Management Plan
<b>SWT</b>	Scottish Wildlife Trust
<b>TI</b>	Transmission Infrastructure
<b>WeBS</b>	Wetland Bird Survey
<b>WDA</b>	Western Development Area
<b>WFD</b>	Water Framework Directive
<b>Whole Project</b>	The Moray West OfTI, OnTI and Offshore Wind Farm combined together
<b>WSI</b>	Written Scheme of Investigation
<b>WTG</b>	Wind Turbine Generator
<b>Zone</b>	UK offshore wind Round 3 Zone 1 area held under a Zone Development Agreement (ZDA) by Moray Offshore Renewable Power Limited which is comprised of the Moray East site and the Moray West site
<b>ZDA</b>	Zone Development Agreement
<b>ZTV</b>	Zone of Theoretical Visibility

## Executive Summary

This document supports the request by Moray Offshore Windfarm (West) Limited (known as Moray West) for a Scoping Opinion from the local planning authorities for the development of the Moray West Onshore Transmission Infrastructure associated with the proposed Moray West Offshore Wind Farm. The Onshore Transmission Infrastructure will be located landward of Mean Low Water Springs.

The Onshore Transmission Infrastructure will comprise:

- Up to two offshore export cables (between MLWS and the transition joint bays only), with the remainder comprising the Offshore Transmission Infrastructure (which is covered in a separate Scoping Report);
- Transition joint bays (the interface between the offshore export cables and onshore export cable circuits) at the onshore landfall connection point;
- Up to two onshore export cable circuits (between the transition joint bays and onshore substation);
- Onshore substation (required to transform the electricity before feeding it into the National Electricity Transmission System at the existing Blackhillock substation); and
- Onshore cable circuits connecting the new onshore substation to the existing Blackhillock substation, which is located approximately 1.5 km south of Keith in Moray.

Moray West intends to submit a planning application for construction of the Onshore Transmission Infrastructure to both Moray Council and Aberdeenshire Council under the Town and Country Planning (Scotland) Act 1997 as amended by the Planning etc. (Scotland) Act 2006. The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations) will therefore also apply and the planning application will be accompanied by an Environmental Report. The Environmental Report will detail the outcomes of an Environmental Impact Assessment of the Onshore Transmission Infrastructure.

This Scoping Report is intended to support engagement with the local planning authorities and relevant consultees in the Environmental Impact Assessment process, inviting them to provide relevant information and to comment on the proposed approach to the Environmental Impact Assessment, to ensure that a robust Environmental Report is prepared and ultimately inform the development of the Onshore Transmission Infrastructure. In that regard, the main elements of the onshore physical, biological and human environments that have potential to be significantly affected by the construction, operation and decommissioning of the proposed Onshore Transmission Infrastructure have been identified. This document also outlines the extent of relevant environmental studies to be undertaken as part of the Environmental Impact Assessment.

Environmental effects associated with Hydrology, Hydrogeology and Geology, Terrestrial Ecology, Landscape and Visual Amenity, Historic Environment, Traffic and Transport, Noise and Vibration, Air Quality, Land Use, Population and Human Health and Socio Economics, Tourism and Recreation are considered within this Scoping Report. The identification of effects within this Scoping Report has been based upon an understanding of the environmental conditions likely to be encountered within the Onshore Transmission Infrastructure Site, utilising information that has been gathered to inform appraisal of the Moray Firth Zone and Environmental Impact Assessment for development of the Moray East Site and its associated Onshore Transmission Infrastructure, and other publicly available desktop data sources. For several identified potential effects, further data collection and technical studies will be required to allow determination of the significance of the effect. These effects have been scoped into the

Environmental Impact Assessment and the Environmental Report. For other potential effects, where no significant effect is identified, it is proposed that they be scoped out of the Environmental Impact Assessment.

This Scoping Report proposes that Air Quality and Population and Human Health are scoped out from the future Environmental Impact Assessment and that Hydrology, Hydrogeology and Geology, Land Use, Terrestrial Ecology, Landscape and Visual Amenity, Historic Environment, Traffic and Transport, Noise and Vibration and Socio Economics, Tourism and Recreation are scoped into the future Environmental Impact Assessment.

Consultees are invited to consider the information provided in this Scoping Report and to advise on whether they agree with the conclusions. Several broad questions are presented to encourage reflection on the contents of this Scoping Report:

Are there any additional baseline data sources available that could be used to inform the Environmental Impact Assessment?
Have all potential effects resulting from the Onshore Transmission Infrastructure been identified for each of the Environmental Impact Assessment topics within this Scoping Report?
Does the reader agree with the effects to be scoped in, and out, of the Environmental Impact Assessment?
For those effects scoped in, does the reader agree that the methods described are sufficient to inform a robust impact assessment?

Following receipt of the Scoping Opinion from the local planning authority, Environmental Impact Assessment will be undertaken and an Environmental Report will be prepared over the remainder of 2017. Moray West will continue to engage with consultees and the public during this period to discuss the detail of approaches to impact assessment, assessment outcomes and proposed design and mitigation scenarios. The Environmental Report will accompany the planning application, which is due to be submitted early in 2018.

The Moray West Offshore Wind Farm (offshore wind turbines, foundations and substructures, and inter-array cables) and Offshore Transmission Infrastructure (offshore substation platforms and offshore export cables) have already been subject to separate scoping exercises, undertaken in May 2016 and May 2017 respectively. A Scoping Opinion for the Moray West Offshore Wind Farm was received in August 2016. It is currently the intention that an Environmental Report will be produced to capture the outcomes of the Environmental Impact Assessment for the Moray West Onshore Transmission Infrastructure. A planning application for planning permission in principle for the Onshore Transmission Infrastructure will be submitted, with the application supported by the Environmental Report.

## Acknowledgements

GoBe Consultants Ltd (GoBe) has produced this report on behalf of Moray West.

GoBe would like to thank the following people / organisations for their assistance and contributions to the preparations of this Scoping Report:

- Moray (West) Offshore Windfarm Ltd;
- Amec Foster Wheeler Environment and Infrastructure UK Limited;
- Optimised Environments Ltd; and
- Regeneris Consulting Ltd.

## 1 Introduction

### 1.1 Background

Moray Offshore Windfarm (West) Limited (known as Moray West) is promoting the development of the Moray West Offshore Wind Farm. The windfarm will be located in the outer Moray Firth (see Figure 1.1.1), approximately 31.5 km north of the Moray coastline at its nearest point. It will comprise an offshore array of wind turbine generators (WTGs), connected to one another by subsea inter-array cables, which will in turn connect the WTGs to the Offshore Transmission Infrastructure (OfTI).

The OfTI will comprise one or two Offshore Substation Platform(s) (OSP[s]) (potentially joined by an interconnector cable if two OSPs are required) and the High Voltage Alternating Current (HVAC) offshore export cables that carry the power to an onshore landfall location. Up to two HVAC onshore cable circuits will then transmit the power inland to a new onshore substation where it will be transformed before being fed (via buried circuits) into the National Electricity Transmission System (NETS) at the existing Blackhillock substation approximately 1.5 km south of Keith in Moray.

This Scoping Report considers only the Moray West Onshore Transmission Infrastructure (Moray West OnTI) associated with the Moray West Offshore Wind Farm that will be located landward of Mean Low Water Springs (MLWS). More details of the OnTI are provided in Section 2 of this Scoping Report and the area of search for its proposed location (Scoping Study Area) is shown on Figure 1.1.2.

Moray West intends to submit a planning application for planning permission in principle for construction of the OnTI to both Moray Council (MC) and Aberdeenshire Council (AC) under the Town and Country Planning (Scotland) Act 1997 as amended by the Planning etc. (Scotland) Act 2006. The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations) will therefore also apply and the planning application will be accompanied by an Environmental Report (ER). The ER will detail the outcomes of an Environmental Impact Assessment (EIA) of the OnTI.

This Scoping Report forms a written request for a formal Scoping Opinion from the local planning authority under Part 4, Regulation 17 of the EIA Regulations, this being confirmation of the scope of the EIA and the information that should be contained within the ER.

It should be noted that under the Marine (Scotland) Act 2010 and Marine and Coastal Access Act 2009, the Moray West Offshore Wind Farm and the Moray West OfTI will require Marine Licences, granted by the Scottish Ministers. A consent under Section 36 of the Electricity Act 1989 will also be required. Moray West Offshore Wind Farm (offshore wind turbines, foundations and substructures, and inter-array cables) has already been subject to a scoping exercise. This was undertaken in May 2016, and a Scoping Opinion was received from the Scottish Ministers in August 2016. A separate Scoping exercise for the Moray West OfTI (OSP[s] and offshore export cable corridor) commenced in May 2017.

Where relevant, and to the extent that the components and location of the Moray West Offshore Wind Farm and OfTI are defined at the time, the EIA for the OnTI will consider the potential effects of the 'whole Project'. This will ensure that the potential significant effects of all infrastructure associated with the Moray West Offshore Wind Farm and OfTI are considered and that the ER contains sufficient information to fully inform determination of the planning application.

## 1.2 The Developer

### 1.2.1 *Moray Offshore Windfarm (West) Limited*

Moray West is owned 100 % by Moray Offshore Renewable Power Limited (known as Moray Offshore). Moray Offshore holds the Zone Development Agreement (ZDA) under which it has exclusive rights to investigate and develop offshore wind farms in the Moray Firth Zone. EDPR UK Limited (EDPR UK) in turn owns 100 % of Moray Offshore. Moray West will develop, consent, finance, construct, operate and maintain the Moray West Offshore Wind Farm. Moray West will likely develop, consent, finance, construct and initially operate and maintain the OfTI and OnTI, however, it will not own, operate or maintain these in the long term (see Section 1.2.2 below).

EDP Renovaveis (EDPR) owns 100 % of EDPR UK Limited. It is a leading global renewable energy company, headquartered in Madrid, operating in markets around the globe and is continuously expanding its business to new regions making the commitment to lead in each market as well as create value for its stakeholders and shareholders. As of December 2016, EDPR manages a global portfolio of 10.4 gigawatts (GW) of power generation projects spread over 11 countries, of which 5.1 GW are in Europe (2.4 GW in Spain, 1.3 GW in Portugal and 1.5 GW in the rest of Europe). Beyond Europe, EDPR manages a portfolio of 5.0 GW in North America, and the balance in Brazil. As of December 2016, EDPR had 248 megawatts (MW) of onshore wind developments in construction. EDPR entered the offshore wind market in 2009, when it located its global headquarters for offshore wind development in Edinburgh.

### 1.2.2 *The UK Offshore Transmission Regulatory Regime*

Due to European legislation, it is not permissible for a developer to hold both a generation licence and a transmission licence. Consequently, the owner of a windfarm cannot retain operational control of any associated transmission infrastructure. However, it is permissible for a wind farm owner to develop, construct and install transmission infrastructure assets which are then transferred to an Offshore Transmission Owner (OFTO) through a process regulated by Ofgem.

Moray West may choose a process known as the OFTO ‘generator build’ option which involves the generator developing and constructing the transmission infrastructure before transferring all relevant agreements, rights and consents to the OFTO prior to operation. The other option is an ‘OFTO–build’ strategy where agreements, rights and consents will be transferred to the OFTO prior to construction of the transmission assets. At present it is Moray West’s intention to proceed by way of the ‘generator build’ option whereby they will undertake all works necessary to obtain planning permission for the OnTI.

The OFTO infrastructure will include the OnTI, as introduced above in Section 1.1 and described in detail in Section 2, as well as the OfTI.

## 1.3 Moray Firth Round 3 Zone

In 2009, Moray Offshore Renewables Limited (MORL), which has now changed its name to Moray Offshore Windfarm (East) Limited (known as Moray East), was established as a joint venture company which was awarded offshore wind development rights for Zone 1 (the Moray Firth) of the Crown Estate’s third offshore wind licensing round (EDPR UK was the lead partner in the venture and is now the sole owner). Zone 1 is located on the Smith Bank in the outer Moray Firth and covers 520 km<sup>2</sup> (281 nm<sup>2</sup>). An initial appraisal found that, at the time, due to other human activities, more constraints existed in the west of the Zone than in the east. Such activities were expected to change over time, and consequently the decision was taken to divide the Zone into eastern and a western development areas, and to develop the eastern area first. These areas are now referred to as the Moray East and Moray West sites respectively.

## 1.4 Definitions

The definitions listed below have been applied throughout this Scoping Report. They provide an update to the definitions used in the Moray West Offshore Wind Farm Infrastructure EIA Scoping Report (May 2016) and reflect the recent establishment of Moray West, distinct from Moray East.

- **Moray Firth Zone** - UK offshore wind Round 3 Zone 1 area held under a ZDA by Moray Offshore Renewable Power Limited which is comprised of the Moray East Site and the Moray West Site.
- **Moray West** - Moray Offshore Windfarm (West) Limited.
- **Moray West Site** - The area of the Moray Firth Zone in which the Moray West Offshore Wind Farm will be located, previously known as the Western Development Area.
- **Moray West Offshore Wind Farm** - The wind farm to be developed in the Moray West Site.
- **Moray West Offshore Transmission Infrastructure (OfTI)** - The Offshore Transmission Infrastructure associated with the Moray West Offshore Wind Farm.
- **Moray West OfTI Site** - The area within which the OfTI will be located. It includes the Moray West Site, within which the OSP(s) and a portion of the export cables will be located, and the Offshore Export Cable Corridor within which the remainder of the export cables will be located.
- **Moray West Onshore Transmission Infrastructure (OnTI)** - The Onshore Transmission Infrastructure associated with the Moray West Offshore Wind Farm.
- **The Project** - Moray West Offshore Wind Farm, Moray West OfTI and the Moray West OnTI.
- **Moray East** - Moray Offshore Windfarm (East) Limited, formerly known as MORL.
- **Moray East Site** - The area of the Moray Firth Zone in which the Moray East Offshore Wind Farm will be located, previously known as the Eastern Development Area.
- **Moray East Offshore Wind Farm** - The wind farm to be developed in the Moray East Site
- **Moray East Modified Transmission Infrastructure (TI)** - Offshore and onshore electricity transmission infrastructure associated with the Moray East Offshore Wind Farm
- **Onshore Cable Corridor** - A 500 m wide corridor within which the onshore cable circuits will be contained.
- **Telford, Stevenson and MacColl offshore wind farms** - The three consented offshore wind farms proposed to be located within the Moray East Site.

## 1.5 Policy and Legislative Context

### 1.5.1 General Policy Context

The OnTI will not be developed in isolation; it will only be developed in conjunction with and to realise the benefits of the Moray West Offshore Wind Farm. The key policy drivers underpinning the need for the Moray West Offshore Wind Farm, and therefore the associated OnTI are as follows:

- Reduction of greenhouse gas emissions, including increasing energy generation from low carbon sources to replace high carbon energy sources such as burning coal and oil; and
- Delivery of energy security, including:
  - Safe, affordable, reliable and preferably local energy generation for the UK market;
  - Replacement of existing old energy generation infrastructure;

- Supporting expected electricity demand whilst meeting climate change commitments; and
- Securing economic opportunities from energy infrastructure.

### *1.5.2 Relevant Policy and Legislation*

The following sections describe the policy context and legislative requirements relevant to the consenting and development of the Moray West Offshore Wind Farm, and therefore the associated OnTI.

#### *1.5.2.1 Policy Context*

The key policy drivers specific to renewable energy development in Scotland, and directly relevant to the Moray West Offshore Wind Farm and consequently the OnTI, are summarised below. These sit within and reflect broader global, European Union (EU) and UK Government Directives, regulations, plans and policies aimed at tackling climate change and delivering energy security.

##### *2020 Route Map for Renewable Energy in Scotland*

At a local level, the 2020 Route Map for Renewable Energy in Scotland (Scottish Government, 2011) sets out how Scotland will achieve its target to meet an equivalent of 100 % demand for electricity from renewable energy by 2020, as well as its target of 11 % renewable heat. The 2020 Route Map is an update and extension to the Scottish Renewables Action Plan 2009.

Further updates to the Route Map were published in September 2015 (Scottish Government, 2015a). This update reports on progress on development across the renewables sector and towards reaching the 2020 targets, highlighting that provisional figures showed renewable sources generated a record 49.8 % of Scotland's gross electricity consumption in 2014. The 2015 update also identifies further collective actions needed to unlock Scotland's full renewable energy potential. In particular, it identifies challenges faced by developers with the Government's move from the system of Renewable Obligations to Contracts for Difference (CfDs).

##### *Scotland's Offshore Wind Route Map*

Scotland's Offshore Wind Route Map: Developing Scotland's Offshore Wind Industry to 2020 and Beyond (Scottish Government, 2010 updated 2013a), recognises that, with 25 % of Europe's offshore wind potential, the large scale development of offshore wind represents the biggest opportunity for sustainable economic growth in Scotland.

##### *Blue Seas - Green Energy A Sectoral Marine Plan for Offshore Wind Energy in Scottish Territorial Waters*

This plan, produced in 2011 sets out proposals for the development of offshore wind in territorial waters (Scottish Government, 2011b). The plan identifies medium term areas of search, one of which was located in the Moray Firth. It was proposed in the plan that the medium term areas of search will be subject to further review as part of the ongoing bi-annual review of the overall plan (Scottish Government, 2011b). The Moray Firth Zone is acknowledged, though not included, in the plan, since it sits outwith territorial waters.

##### *Scotland's National Marine Plan*

The Scottish Government adopted its National Marine Plan in early 2015 (Scottish Government, 2015b). The purpose of the plan is to provide an overarching framework for marine activity in Scottish waters, in an aim to enable the sustainable development and use of the marine area in a way that protects and enhances the marine environment whilst promoting both existing and emerging industries. This is

underpinned by a set of core general policies which apply across all existing and future development and use of the marine environment and sectoral specific policies.

With respect to offshore wind, the plan emphasises the growth of the global wind industry and Scotland's contribution to this industry by becoming a key hub for the design, development and deployment of the next generation of offshore wind technologies. The plan emphasises the importance of offshore wind in achieving Scotland's targets for generating the equivalent of 100 % of Scotland's own electricity demand from renewable resources by 2020 and to deliver an 80 % reduction in greenhouse gas emissions by 2050. (Scottish Government, 2015b). The plan also highlights that within the Scottish marine area, there are a number of planned development sites for offshore wind. These include The Crown Estate 'Round 3' offshore wind zones including the Moray Firth Zone (Scottish Government, 2015b).

The core objectives and marine planning policies seek to:

- Ensure sustainable development of offshore wind in the most suitable locations;
- Maximise economic benefits from offshore wind by securing a competitive local supply chain in Scotland;
- Align marine and terrestrial planning and efficient consenting and licensing processes including, but not limited to, data sharing, engagement and timings, where possible;
- Align marine and terrestrial transmission grid planning and development in Scottish waters;
- Contribute to achieving the renewables target to generate electricity equivalent to 100 % of Scotland's gross annual electricity consumption from renewable sources by 2020;
- Contribute to achieving the decarbonisation target of 50 gCO<sub>2</sub> / kWh by 2030 (to cut carbon emissions from electricity generation by more than four-fifths);
- Encourage sustainable development and expansion of test and demonstration facilities for offshore wind and marine renewable energy devices; and
- Ensure co-ordinated government and industry-wide monitoring.

*Planning Scotland's Seas: Draft Sectoral Marine Plans for Offshore Renewable Energy in Scottish Waters: Consultation Paper*

In 2013, the Scottish Government published a consultation paper for the preparation of a draft Sectoral Marine Plan for Offshore Renewable Energy in Scottish Waters. This paper sets out proposals for adopting a marine planning approach to the development of draft Sectoral Marine Plans for Offshore Wind, Wave and Tidal Energy in Scottish Waters (Scottish Government, 2013b). The approach involves giving consideration to resources and key constraints before applying social, economic and environmental assessments to inform the development of options contained within the Draft Sectoral Marine Plans. The Moray Firth Zone is acknowledged in the draft plan.

The Draft Plan for Offshore Wind Energy uses the medium term areas of search identified in the Blue Seas – Green Energy plan as the starting point for identifying options for future commercial scale offshore wind development (over 100 MW) in Scottish Waters. Following more detailed appraisal and a scoping study, the initial 25 areas of search were reduced to ten. These include an area of search of the north coast of Aberdeenshire (southern Moray Firth) and an area of search of the east coast of Aberdeenshire.

Results from consultation on the proposed options presented in this consultation paper were published in a Consultation Analysis Report (Scottish Government, 2014). This report summarises the key responses received from consultation on the proposed options for future commercial scale offshore wind development. The Final Plan for Offshore Wind Energy, taking the responses from consultation into account, is yet to be published.

### *Draft Scottish Energy Strategy: The Future of Energy in Scotland*

In January 2017, the Scottish Government issued, for consultation, its Draft Energy Strategy for Scotland. This sets out Scotland's 2050 vision for energy which encompasses the development of a strong low carbon economy, building on the 2020 Route Map, and development of a modern, integrated clean energy system for Scotland. The focus of the strategy is on continued growth of the economy through secure, reliable and affordable energy supplies. The strategy examines Scotland's current energy mix and provides a framework for the future growth of technologies and fuels that will be required to supply Scotland's energy needs over the coming decades (Scottish Government, 2017).

#### 1.5.2.2 Legislative Requirements

##### *Town and Country Planning (Scotland) Act 1997 (as amended)*

The OnTI will be determined under the Town and Country Planning (Scotland) Act 1997 (as amended). This is the legislation regulating land use planning matters in Scotland. All applications for planning permission must be determined in accordance with the provisions of this legislation. Under section 25 of the Act, the determination of all planning applications must be made in accordance with the statutory development plan, unless material considerations indicate otherwise. This requirement is reinforced by section 37(2) of the Act.

##### *The Requirement for EIA*

EIA is a systematic procedure that must be followed for certain categories of development before they can be granted planning permission or, where applicable or authorised through other consenting processes. Its purpose is to assess a development's potential significant environmental effects (positive or negative) and determine how these can be reduced or enhanced depending upon their nature. This helps to ensure that the predicted effects of a development are properly understood by statutory consultees, other interested parties including the public, and the relevant determining authority before a decision is made on the planning application.

Directive 2014/52/EU was enacted on 14 April 2014 and amends all previous Directives on EIA. For planning applications submitted under the Town and Country Planning (Scotland) Act 1997 (as amended), Directive 2014/52/EU was transposed into Scottish law by the EIA Regulations on 16 May 2017. The EIA for the OnTI will meet the requirements of the EIA Regulations.

The main stages in the EIA process are:

- Scoping to determine those matters to be addressed by the EIA and the contents of the ER (as proposed in this Scoping Report);
- Data review, involving compiling and reviewing available data and/or undertaking of baseline surveys to generate site-specific data;
- Assessment and design iteration, whereby the potential significant effects of the OnTI during its construction, operation and decommissioning are assessed and the conclusions fed back into the design in order to avoid, prevent, reduce and, where possible, offset any significant adverse effects on the environment;
- Assessment of the construction methodology for, and final design of the OnTI;
- Identifying any residual effects and any further mitigation requirements; and
- Preparing the ER documenting the EIA process and its conclusions.

### 1.5.2.3 Development Planning Policy

#### *National Planning Framework 3 (2014)*

The National Planning Policy Framework 3 (NPF3) provides the statutory basis for orientation of Scotland's long-term spatial development. The NPF3 highlights the spatial planning implications of multiple national policy documents and commitments, including the binding decarbonisation targets enshrined within the Climate Change (Scotland) Act 2009.

Overall the NPF3 emphasises the Scottish Government's commitment to increasing sustainable economic growth across all areas of Scotland and therefore orientates the efforts of Scotland's planning system towards this purpose. In its introduction, the NPF3 notes the importance of maintaining economically active and vibrant rural areas whilst "*safeguarding our natural and cultural assets and making innovative and sustainable use of our resources*". The national spatial strategy of the NPF3 is structured around four key themes, namely:

- A successful, sustainable place;
- A low carbon place;
- A natural, resilient place; and
- A connected place.

Annex A of the NPF3 sets out the statements of need and technical descriptions for 'national developments', as defined within The Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009 (as amended). Within statement of need and technical description 4 (High Voltage Electricity Transmission Network), it is considered that the OnTI will fall under development class C and D, described as "*new and/or upgraded onshore converter stations directly linked to onshore and/or offshore electricity transmission cable(s) of or in excess of 132 kilovolts and new and/or upgraded offshore electricity cabling of or exceeding 132 kilovolts*".

Consequently, the planning application must be subject to a statutory pre-application consultation (PAC) process under the Town and Country Planning (Scotland) Act 1997 and the planning application submission should be accompanied by a PAC report and a design and access statement (DAS). The PAC process requires consultation with the community on all 'national developments' at least 12 weeks before submission of a formal planning application. At least one consultation event must be held to allow local communities and other interested parties to comment on the OnTI prior to the finalisation of its design and submission of the planning application. A pre-application consultation report must be submitted with the planning application. In addition, as a National Development, a pre-determination hearing must be held to allow those who have made representations to be heard by the relevant committee.

#### *Scottish Planning Policy (2014)*

Scottish Planning Policy (SPP) sets out the Scottish Government's expectations regarding specific issues within development planning and development management. The document aims to contribute to the Scottish Government's overarching purpose of achieving sustainable economic growth.

The SPP's Principal Policy on Sustainability (paragraphs 24 to 35) includes a presumption in favour of development that contributes to sustainability, based on identifying the need for, and acceptability of a proposal. To implement this, the SPP (paragraph 29) identifies 13 sustainable development principles which should guide planning policies and decisions.

Policies specific to renewable energy development are set out within the SPP at paragraphs 152 to 174. It is noted that taken together, the NPF3 and the SPP should "*facilitate the development of generation technologies that will help to reduce greenhouse gas emissions from the energy sector...efficient supply of low carbon and low cost heat and generation of heat and electricity from renewable energy sources are*

*vital to reducing greenhouse gas emissions and can create significant opportunities for communities”* (paragraphs 152 to 153).

#### *The Statutory Development Plan*

Depending upon preferred landfall location and the final route for the onshore cable circuits, the OnTI may be located within the areas of both MC and AC. The statutory development plan that will be applicable to any elements of the OnTI within the MC area will be the Moray Local Development Plan (LDP), and associated statutory Supplementary Guidance of relevance. The Moray LDP was formally adopted by on 31 July 2015. The statutory development plan for Aberdeenshire comprises both the Aberdeenshire LDP (formally adopted on 17 April 2017) and the approved Aberdeen City and Shire Strategic Development Plan (SDP) (2014).

#### 1.5.2.4 Other Legislation, Policies and Guidance

In addition to the national planning and energy policy documents listed above, all relevant subject specific legislation, policies and guidance (e.g. Scottish Environment Protection Agency [SEPA], Scottish Natural Heritage [SNH]) will be considered within relevant technical assessments conducted throughout the EIA process. These are summarised under the relevant topic headings set out within section 5 of this Scoping Report.

## 1.6 Purpose of the Scoping Report

An EIA and its conclusions must be detailed in an ER for submission with a planning application. Schedule 4, Part 4 of the EIA Regulations specifies that an EIA Report should describe those aspects of the environment likely to be significantly affected by a development, including: *“population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape”*.

The process of establishing which aspects of the environment are likely to be significantly affected by a development, and thus need to be considered by an EIA, is referred to as ‘Scoping’. The Scoping process for the OnTI will allow Moray West to engage the relevant local planning authorities, statutory and non-statutory consultees in the EIA process, inviting them to provide relevant information and to comment on the proposed approach to the EIA. This will ensure that a robust ER is submitted in support of the planning application. This Scoping Report therefore identifies:

- The main aspects of the physical, biological and human environment likely to be significantly affected by the construction, operation and decommissioning of the OnTI; and
- The survey and data gathering requirements for the EIA and suitable assessment methods.

The identification and subsequent assessment of potentially significant effects will be based upon an understanding of the environmental conditions likely to be encountered in the proposed location of the OnTI and the surrounding area. Publicly available desktop data sources will be used to establish the environmental conditions, alongside primary data gathered during site surveys.

A number of potential environmental effects are considered in this Scoping Report. For some of those identified, further data collection and / or assessment may be required to determine the significance of any effects. Those impacts that are unlikely to have a significant effect, based on an understanding of the nature of the OnTI (including the mitigation and control measures adopted), will be ‘scoped out’ of further consideration in the EIA.

## 1.7 Structure of the Scoping Report

This Scoping Report is structured as set out in Table 1.6.1 below.

Within this Scoping Report, designated sites (such as Natura 2000 sites and other relevant international and national designations) are discussed under topic headings in Section 5. Figures 5.2.1 to 5.2.5 illustrate the nature conservation designations in the vicinity of the OnTI and the Scoping Study Area.

**Table 1.6.1 – Scoping Report Structure**

Section	Content
Section 1: Introduction	Introduces the Moray West Offshore Wind Farm and associated OnTI. Provides information on Moray West. Sets out the overarching policy basis for the Moray West Offshore Wind Farm and associated OnTI. Provides an overview of the policy and legislation most relevant to the planning application and EIA of the OnTI. States the purpose of this Scoping Report.
Section 2: Description of the OnTI	Provides an overview of the OnTI, including its key components and the context of its proposed location. Also outlines approaches to construction, operation and maintenance and decommissioning.
Section 3: The EIA Process	Describes the stages in the assessment process and provides a general assessment methodology.
Section 4: Consultation Process	Outlines the stakeholder and public engagement that will be undertaken throughout the EIA and during preparation of the planning application.
Section 5: Proposed Scope of the EIA	Identifies the environmental aspects that may be impacted by the OnTI and presents proposals for how they will be considered by the EIA.
Section 6: Summary of the Proposed Scope of the EIA	Summarises the outcomes of the Scoping process, clearly identifying which topics and effects will be considered in detail by the EIA and which will be 'scoped out' of further assessment.
Section 7: Proposed Contents of the EIA Report	Presents the intended structure and content of the EIA Report, which will be submitted with the planning application for the OnTI.

## 2 Description of the OnTI

The purpose of the OnTI will be to supply the power being generated by the Moray West Offshore Wind Farm to the NETS onshore. To achieve this, Moray West is proposing to route underground cables from a location along the south coast of the Moray Firth to the site of a new onshore substation in the vicinity of the existing Blackhillock substation, approximately 20 km inland.

### 2.1 Site Description

The Scoping Study Area is shown on Figure 1.1.2. At the north, the Scoping Study Area extends for approximately 14 km along the south coast of the Moray Firth between Portessie in Moray and Portsoy in Aberdeenshire. From here the Scoping Study Area extends approximately 23 km inland to incorporate a 3 km radius around the existing Blackhillock substation located around 1.5 km south of Keith in Moray. At its narrowest point, near Grange Crossroads on the B9018, the Scoping Study Area measures approximately 5 km from east to west.

There are various coastal settlements, including Findochty, Portknockie and Cullen, with associated recreational facilities, such as golf courses and caravan sites. There are numerous isolated dwellings, hamlets and small villages located inland, with the main commercial centre being Keith located in the south of the Scoping Study Area. Several roads traverse the Scoping Study Area. Key routes include the A98 running east / west to the north; the A95 running east / west via the A96 through Keith; and the A96 running south-east / north-west through Keith. The B9018 runs north / south through the western half of the Scoping Study Area between the A98 and A95. In addition to roads, the Aberdeen to Inverness rail line runs east / west with trains stopping at Keith station.

The coastline largely comprises rocky outcrops and cliffs interspersed with sandy bays. Inland from the coast much of the Scoping Study Area comprises agricultural land, supporting both arable and livestock farming, with blocks of commercial forestry of various sizes. There are also pockets of broadleaf woodland, particularly along riparian corridors. Immediately south of the coastline, the topography is generally level. The land becomes more undulating in the centre of the Scoping Study Area, before levelling again in the south. Around 4 km from the coast, Bin of Cullen is the highest point in the north Scoping Study Area at 320 m Above Ordnance Datum (AOD). To the south, the brow of Meikle Balloch Hill reaches 325m AOD.

The main watercourse in the Scoping Study Area is the River Isla (Figure 5.1.1), which flows north and then east around Keith. Numerous minor watercourses cross the Scoping Study Area. These include, but are not limited to Scatterry Burn, Burn of Fordyce, Glen Burn, Broxy Burn, Burn of Letterfourie, Burn of Whitefield, Moss-side Burn and Burn of Deskford, which has several tributaries.

## 2.2 OnTI Components

It is currently proposed that power generated by the Moray West Offshore Wind Farm will be transmitted as a HVAC. To enable this, the main components of the OnTI will comprise the following:

- Up to two offshore cable circuits (between MLWS and the transition joint bays only) with the remained comprising the Offshore Transmission Infrastructure (and subject to a separate Scoping Report);
- Transition joint bays (the interface between the offshore export cables and onshore cable circuits) at the onshore landfall connection point;
- Up to two onshore underground cable circuits (between the transition joint bays and onshore substation);
- Onshore substation (required to transform the electricity before feeding it into the NETS at the existing Blackhillock substation); and
- Buried onshore cable circuits connecting the new onshore substation to the existing Blackhillock substation (which is located approximately 1.5 km south of Keith in Moray).

Worst case design parameters will be developed for assessment and a full description will be presented in the ER. For the purpose of this Scoping Report, the indicative parameters presented within the following sub-sections are assumed.

### 2.2.1 Offshore Export Cables

Electricity generated by the Moray West Offshore Wind Farm will be transmitted to shore by two offshore export cable circuits. Each circuit is likely to comprise three core cables in a trefoil arrangement with a typical voltage of 132 to 400 kilovolts (kV) and may also include a fibre optic communication link either embedded within the cables or as separate, smaller cables running alongside in the same trench. Each

circuit will be installed in a separate trench and buried to a depth that would provide a suitable level of protection (target depth being 1 m below mean seabed level).

As mentioned above, the OnTI includes these offshore export cables only where they will be located between MLWS and the transition joint bays.

Depending upon the location and nature of the cable landfall point, burial of the offshore export cables in the nearshore area will either be by direct installation in a trench or routing below the surface using a technique such as horizontal directional drilling (HDD), or a combination of methods.

#### *2.2.2 Transition Joint Bays at Landfall*

The offshore export cables and the onshore cables will be connected using transition joint bays. There will be two transition joint bays installed inland of mean high water springs (MHWS) as close to the landfall location as practicable. It is likely that they will be concrete lined excavations containing the cable joints and cable circuits.

Adjacent to each transition joint bay there will be a link box. These are required at cable joints and terminations to provide easy access for cable testing and fault location purposes. The link boxes will require several surface level access covers near the transition joint bays; these will measure approximately 1.5 m x 4 m.

#### *2.2.3 Onshore Cable Circuits*

On exiting the transition joint bays, the onshore cable circuits will be routed inland towards the onshore substation. A typical voltage for these cables will be 132 to 400 kV. It is likely that there will be two onshore cable circuits, with each circuit comprising principally of three separate power cables in trefoil formation. Each circuit will be buried in an individual trench and there will be a separation distance between trenches of up to 10 m. Depending upon ground conditions, the target burial depth will be 1m and the circuits may be contained within ducts. If required, imported burial materials may be used, e.g. sand. The cables will be installed with marker tape and protective tiles to warn of their presence below the ground in case of excavation taking place in close proximity.

The onshore cable circuits will be installed in 750 m to 1,000 m lengths which will be connected in joint bays. These will be installations similar to the transition joint bays with surface level access covers. The cable circuits may include fibre optic communication links, either embedded within the onshore cables or as separate, smaller cables running alongside within the same trench.

The main burial method for the onshore cable circuits will be open trench. However, trenchless burial methods will be employed in certain circumstances, such as installing the onshore cable circuits beneath sensitive watercourses or parts of the road network. These methods may include HDD or auger boring, which will limit construction disturbance.

#### *2.2.4 Onshore Substation*

Before connecting to the NETS at the existing Blackhillock substation, it will be necessary to transform the electricity generated by the Moray West Offshore Wind Farm. A new onshore substation will be required for this purpose.

It is likely that the onshore substation will require a site of up to 7 ha in size, which will ideally be located in the vicinity of Blackhillock substation. Much of the equipment installed will be outdoors, although permanent buildings will also be required. The number and size of buildings will depend upon whether the chosen switchgear is gas or air insulated; should gas insulated switchgear be selected it is likely that

more equipment will be housed within buildings. Equipment likely to be installed at the onshore substation site includes:

- Gas or air insulated switchgear;
- Super grid transformers;
- Reactive compensation equipment;
- Dynamic reactive compensation equipment;
- Harmonic filters;
- Supervisory control and data acquisition equipment;
- Metering equipment;
- Control room and welfare facilities; and
- Ancillary equipment and services.

A perimeter fence will be erected around the site and external lighting will be installed, although this will only be used during maintenance visits. Up to two buried cable circuits will then connect the new onshore substation to the existing Blackhillock substation.

#### *2.2.5 Transmission Interface Point*

The transmission interface point, i.e. the location where the OnTI will connect to the NETS, is Blackhillock substation. The works required at Blackhillock substation to facilitate the connection of the OnTI will be completed by Scottish Hydro Electric Transmission Limited (the Onshore Transmission Owner). It is expected that the works will be completed under the Onshore Transmission Owner's permitted development rights and be located within the existing footprint of Blackhillock substation.

### **2.3 Construction of the OnTI**

It is expected that construction of the OnTI will take approximately 24 months. It is likely that construction of the onshore substation and installation of the onshore cable circuits will occur in parallel. Construction activities at the site of the onshore substation may continue throughout the 24 month construction programme. However, installation of the onshore cable circuits will be transient in that it will progress along the chosen route, with construction activities occurring in any one location for a short period only. An indicative construction programme will be presented within the ER.

A temporary working corridor of approximately 30 m in width will be required to install the onshore cable circuits. Within this corridor there will be two trenches around 4 m in width (one trench per cable circuit), a construction vehicle access route and strips alongside each trench to allow for cable installation and the storage of construction and excavation materials. Temporary access tracks will be required linking the working corridor with the local road network. Efforts will be made to limit the footprint of works and disturbed areas will be suitably reinstated once the onshore cable circuits have been installed.

The creation of temporary construction compounds will be required. It is likely that there will be a main compound at the site of the onshore substation, a second associated with the onshore cable circuits and a third located at the transition joint bays at the landfall. There will also be smaller, satellite compounds at certain locations along the onshore cable route.

The approach to installation of the onshore cable circuits will remain under review and be informed by data gathered as part of the EIA process, as well as detailed engineering studies.

### 2.3.1 Environmental Management

A Construction Environmental Management Plan (CEMP) will ensure that the construction mitigation and control measures proposed within the ER are appropriately implemented. The CEMP is considered the best approach to capturing what is likely to be a diverse range of measures. Examples of the measures proposed and expected to be incorporated into the CEMP include:

- The adoption of best practice guidance;
- The appointment of an Ecological Clerk of Works (ECoW) to oversee the correct implementation of agreed commitments;
- Details of all staff training and attendance at tool box talks;
- Completion and implementation of a Construction Method Statement (CMS);
- Completion of a Construction Traffic Management Plan (CTMP) presenting detailed access routes and delivery timings, car parking arrangements, temporary signage etc.;
- Completion and implementation of a Drainage Management Plan (DMP);
- Completion and implementation of a Habitat Management Plan (HMP);
- Completion and implementation of a Site Waste Management Plan (SWMP);
- Completion and implementation of other control measures such as dust management, noise management and a Landscape Management Plan (LMP);
- Demarcation of working areas following any micro-siting exercise with temporary fencing as required along with location specific method statements if habitat sensitivity is high;
- Development of an infrastructure monitoring programme to identify any requirement for remedial work; and
- Exclusion of equipment from watercourses and, as far as possible from immediate riparian zones during watercourse crossing construction along with measures to minimise change in in-stream substrates.

### 2.4 Operation and Maintenance of the OnTI

During operation, the OnTI will not be permanently staffed. It is expected that the presence of staff onsite will be limited to maintenance visits.

The onshore cable circuits will be installed with protection such that their operation will largely be maintenance free. Non-intrusive routine testing will be undertaken. Should damage or a fault occur, testing will identify its specific location so that any excavations or infrastructure replacement can be targeted and isolated.

During operation, it is likely that the onshore substation will be visited fortnightly for routine inspection. Each visit will generally involve one or two service engineers undertaking standard maintenance activities, e.g. the testing of equipment and replenishment of oils.

### 2.5 Decommissioning of the OnTI

Although individual pieces of equipment will be replaced as and when required, no major refurbishment works are currently envisaged during the design life. In the event of decommissioning, it is likely that all underground equipment and the onshore substation foundations will remain *in-situ*. Above ground equipment at the onshore substation site will be cleared and the site reinstated. It is considered that the

environmental effects of this approach to decommissioning will be less than those arising from the break up and removal of infrastructure.

A decommissioning plan will be submitted and agreed with the relevant authorities close to the OnTI's end of life. Any applicable new legislation or guidelines published prior to decommissioning will be considered and taken into account in relation to any design of mitigation prior to decommissioning taking place.

## 2.6 Consideration of Alternatives

In early 2017, Moray West submitted a grid connection application to National Grid Electricity Transmission plc (NGET) for the Moray West Offshore Wind Farm. The grid connection application process, otherwise referred to as the Connection and Infrastructure Options Note (or CIION) process initially considered five potential grid connections, which was subsequently reduced to two favoured locations. The process resulted in the identification of the existing Blackhillock substation as the most suitable location at which electricity generated by the wind farm could be connected to the onshore NETS, i.e. the grid connection agreement defines Blackhillock as the transmission interface point.

Moray West has commenced a process of identifying an onshore cable route and suitable site for the onshore substation. This is being undertaken through the desk based analysis of constraints data and a series of site visits and detailed studies to 'ground truth' the findings. Site surveys undertaken as part of the EIA process will also feed data into the design process. It is intended that a refined onshore cable route corridor of approximately 500 m wide will be identified for the EIA, along with an onshore substation site of approximately 7 ha.

### 3 The EIA Process

This Section presents an outline of the approach to EIA for the OnTI. It summarises the methodology for the identification and evaluation of potential significant environmental effects.

#### 3.1 Regulations and Guidance

The impact assessment methodology presented here draws upon a number of EIA principles, regulations and guidance documents, including:

- Relevant EIA Regulations (see Section 1.4);
- Relevant guidance issued by other government and non-governmental organisations (e.g. EIA SNH, 2013); and
- Receptor specific guidance documents (e.g. Chartered Institute of Ecology and Environmental Management [CIEEM], 2016).

#### 3.2 Characterisation of the Existing Environment

In order to assess the effects of the OnTI, it will be necessary to understand the existing state of the receiving environment. Characterisation of the existing environment will be undertaken in order to determine the baseline conditions. This will involve the following steps:

- Define a study area for each receptor based on their relevant characteristics (e.g. mobility, range and connectivity);
- Review the available baseline data and information;
- Consider the potential effects that might be expected to arise from the OnTI;
- Determine if there is sufficient baseline data to make robust judgements about the significance of the potential effects;
- If required, ensure the gathering of further baseline data is targeted and directed at answering the key question and filling key data gaps; and
- Review the baseline data gathered to ensure the environment can be characterised in sufficient detail.

Specific approaches to establishing a robust environmental baseline (upon which effects can be assessed) is set out under each topic within this Scoping Report (Sections 5 to 7).

#### 3.3 Assessment of Potential Significant Effects

To ensure balance, the assessment of potential effects will be guided by both EIA specialists and technical specialists using available data, new data (where required), experience and expert judgement. In order to provide a consistent framework and system of common tools and terms, where appropriate, a matrix approach will be used to frame and present the judgements made. However, it should be noted that for each topic considered in the EIA, the latest guidance or best practice will be used and therefore definitions of sensitivity and magnitude of impact will be tailored to each receptor. The assessments presented in the ER will consider the potential for effects during the construction, operation and decommissioning of the OnTI.

##### 3.3.1 Identification of Potential Significant Effects

This Scoping Report sets out the potential environmental effects of the OnTI and identifies those that are proposed to be scoped in, or scoped out of the EIA. The final list of issues to be considered by the EIA will

be confirmed following receipt of the Scoping Opinion and through further discussions with relevant consultees.

For the purposes of the EIA, 'impact' is used to define a change that is caused by an action. For example, the use of certain construction plant (action) will result in increased levels of airborne noise (impact). Impacts can be defined as direct, indirect, secondary, cumulative and inter-related. They can also be positive or negative, although the relationship between them is not always straightforward. The duration of an impact is also taken into consideration. In addition, for certain impacts, reversibility is relevant to its overall effect. An irreversible (permanent) impact may occur when recovery is not possible, or not possible within a reasonable timescale. In contrast, a reversible (temporary) impact is one where natural recovery is possible over a short time period, or where mitigation measures can be effective at reversing the impact. The term 'effect' will be used in the EIA to express the consequence of an impact. Using the construction plant example again, operation of the plant (action) results in increased levels of airborne noise (impact), with the potential to disturb local residents (effect).

### 3.3.2 Defining Magnitude and Sensitivity

To determine the significance of an effect, the EIA will consider the potential magnitude of an impact in relation to the sensitivity of the receiving environment, or receptor.

Categorisation of impact magnitude will vary for specific topics, but will broadly follow the principles set out in Table 3.3.1 below in so far as it is relevant.

**Table 3.3.1 – Magnitude of Impacts**

Impact Magnitude	Description
High	Total loss or major alteration to key elements / features of the baseline conditions.
Moderate	Partial loss or alteration to one or more key elements / features of the baseline conditions.
Low	Minor shift away from the baseline conditions.
Negligible	Very slight change from baseline conditions.

Depending upon the specific topic, sensitivity will generally be defined in terms of the quality, value, rarity or importance of the receptor being considered. The ability of a receptor to adapt to change, tolerate, and / or recover from potential impacts will be key in assessing its sensitivity. Guidance will also be taken from the values attributed through designations or protection under law.

The scale of sensitivity will also depend upon the specific topic. Sensitivity is classed herein as 'Low', 'Moderate' or 'High'. However, a more specific scale of increasing sensitivity will be defined in the ER where this is appropriate. This definition of sensitivity scale will vary per environmental topic and will be defined within specific environmental sections in accordance with requirements and current guidance.

### 3.3.3 Evaluation of Significance

The consideration of impact magnitude in relation to the sensitivity of a receptor will determine an expression, which may be quantitative or qualitative and often informed by expert judgement, for the significance of the negative or positive effects. Table 3.3.2 below sets out how the interaction between impact magnitude and receptor sensitivity can provide a judgment of significance of effect.

**Table 3.3.2 - Significance of Effects**

Magnitude of Impact	Sensitivity of Receptor		
	Low	Moderate	High
Negligible	Negligible / Minor	Minor	Minor / Moderate
Low	Minor	Minor / Moderate	Moderate
Moderate	Minor / Moderate	Moderate	Moderate / Major
High	Moderate	Moderate / Major	Major

A description of the approach to impact assessment and the interpretation of significance levels will be provided by each technical assessment within the ER. This approach will ensure that the definition of effects is transparent and relevant to each topic under consideration.

#### 3.3.4 Mitigation

For the purposes of the EIA, two types of mitigation have been defined and these will be identified for each topic in the ER:

- Embedded mitigation: Consisting of measures that are identified and adopted as part of the design evolution, or measures otherwise incorporated as controls on the construction or operation of the OnTI. These will be included as considerations in assessing significance; and
- Additional mitigation: Consisting of measures that the EIA has identified as being necessary to reduce or eliminate any effects that are predicted to be significant. These will subsequently be adopted as commitments in delivering the OnTI.

#### 3.3.5 Assessing Residual Effects

Following the identification of any necessary additional mitigation measures, effects will be re-assessed and all residual significance will be described. Where no mitigation measure is proposed, a discussion will explain why the significance cannot be reduced.

### 3.4 Cumulative Effects Assessment

In isolation, a proposed development's effects may be negligible or of minor significance. However, when considered in the context of other proposed developments located in the surrounding area the significance of these effects can increase cumulatively.

As part of the EIA process, consultation will be undertaken with the relevant local planning authorities to identify other developments proposed that may lead to significant cumulative effects with the OnTI. Examples of cumulative effects that may arise include where there is intervisibility of the OnTI and another energy transmission development, or where the construction programme of another notable development overlaps with that of the OnTI, e.g. resulting in increased road traffic.

### 3.5 Inter-related Effects

Some effects of the OnTI may be relevant to more than one aspect of the environment and careful attention will be paid to interrelationships to avoid overlap or duplication between assessments. For example, the assessment of indirect effects upon the setting of publicly accessible cultural heritage

features will be aided by the considerations given to visual effects upon visitors to those features in the landscape and visual impact assessment. Similarly, hydrological changes can result in secondary effects on ecological resources. Each topic specific chapter will therefore, have due regard to the inter-related effects with other topic specific receptors considered within the ER.

## 4 Consultation Process

### 4.1 Stakeholder Engagement

The Scoping process is the prime mechanism by which EIA data gathering requirements and assessment methods are agreed with decision makers. However, Moray West is committed to regular consultation with the relevant statutory bodies and key consultees. It is considered that such consultation will ensure:

- The early identification of concerns and potential agreement of resolutions pre-application, thus streamlining the determination of the planning application;
- Any data gathering efforts are proportionate to the potential effects of the OnTI; and
- Sufficient and appropriate information is provided with the OnTI planning application.

The level of consultation requirements will be approved as part of the statutory pre-application consultations with MC and AC under the PAC process. The consultation plans are therefore subject to the outcome of these consultations/approvals.

### 4.2 Public Engagement

Moray West is committed to informing and engaging with members of the public interested in development of both the Moray West Offshore Wind Farm, the OfTI and the OnTI. In addition, in line with the requirements of the Town and Country Planning (Scotland) Act 1997, Moray West will undertake pre-application public engagement.

The aim of this engagement is to allow local communities and other interested parties to comment on the OnTI prior to the finalisation of its design and submission of the planning application.

#### 4.2.1 Approach to Engagement

Moray West intends to hold several public exhibitions and engage community stakeholders in a variety of other ways.

##### 4.2.1.1 Public Exhibitions

Public exhibitions will be held at suitable venues in locations specific to the Moray West Offshore Wind Farm, the OfTI and the OnTI. They will be advertised through the local press and through local Community Councils and notice boards etc. The exhibitions will provide a range of means of disseminating information and obtaining feedback including:

- A 'story board' display about the Moray West Offshore Wind Farm, the OfTI and the OnTI;
- General information on offshore wind and energy transmission;
- Project briefing notes;
- Visual displays;
- Face to face discussion with representatives of Moray West; and
- Feedback and opinion forms.

It is hoped that the exhibitions will encourage the participation of people who may be discouraged from contributing feedback in the forum of a conventional public meeting. Each exhibition will be held over the course of a day and an evening, and thus will be accessible to more people than a public meeting held at a given time.

#### 4.2.1.2 Moray West Website

Moray West will establish a dedicated website to provide updates on the Moray West Offshore Wind Farm, the OfTI and the OnTI, access to key documents and contact information. This will be found at [www.moraywest.com](http://www.moraywest.com).

The website will provide interested stakeholders the opportunity to register for e-mail updates, and a dedicated public email address will allow stakeholders an easy means of providing comment and feedback.

#### 4.2.1.3 Moray West Newsletters

Briefing notes and newsletters, offering the opportunity to comment on the Moray West Offshore Wind Farm, the OfTI and the OnTI will be made available and distributed directly to stakeholders. Different stakeholders will have interests in different aspects of the developments, and materials will be drafted to suit both sectoral and geographic interests.

#### 4.2.1.4 Media Updates

At key stages, information will be disseminated to the local press via news releases. The local press will also be used to advise of public events, such as the exhibitions, to enable broad public access.

## 5 Proposed Scope of the EIA

### 5.1 Hydrology, Hydrogeology and Geology

This section considers the OnTI's potential effects upon the hydrological, hydrogeological and geological environment, including surface and groundwater bodies (and activities and habitats dependent upon them), flood risk, contaminated land and peat resource.

The following guidance has informed characterisation of the baseline, the identification of potential effects and the proposed approach to the EIA:

- SEPA (2015) WAT-PS-06-02, Culverting of Watercourses – Position Statement and Supporting Guidance;
- SEPA (2010) WAT-SG-25, Engineering in the Water Environment Good Practice Guide, River Crossings;
- SEPA (2014) Guidance Note 31 Guidance on Assessing the Impacts of Development Proposals on Groundwater Abstractions and Groundwater Dependant Terrestrial Ecosystems;
- SEPA Pollution Prevention Guidelines (PPGs);
- CIRIA (2001) Report C532 Control of water pollution from construction sites; and
- CIRIA (2006) Report C648 Control of water pollution from linear construction projects – technical guidance.

At this stage, characterisation of the baseline has been desk-based. The most up to date information on publicly accessible websites and mapping has been used. This has allowed the identification of sensitive receptors, in both the surface water and groundwater environments, which will need consideration during the design of the OnTI.

The primary sources of the data and information collected are listed in Table 5.1.1 below.

**Table 5.1.1 – Primary Sources of Data and Information**

Topic	Source of Information
Topography, elevation, relief	1:10,000 OS mapping 1:25,000 OS mapping
Climate	Met Office website (Met Office, 2017)
Surface waters	1:10,000 OS mapping
Water quality	SEPA (2017a) Water Environment Hub The River Deveron District Fishery Management Plan Summary Report 2008-2012 Scottish Government (2015) River Basin Management Plan for the Scotland River Basin District
Flood risk	SEPA (2017b) Flood Risk Management Maps
Geology	BGS (2017a) British Geological Survey Website (1:50,000 Scale) BGS (2017b) British Geological Survey Website (1:625,000 Scale) SNH (2016) Carbon and Peatland Map

Topic	Source of Information
Hydrogeology	BGS (2017b) British Geological Survey Website (1:625,000 Scale)
Groundwater vulnerability	British Geological Survey (2011) User Guide: Groundwater Vulnerability (Scotland) GIS dataset, Groundwater Science Programme, Version 2
Conservation sites	SNH (2017) Site Link Scottish Geology (2017) website

### 5.1.1 Baseline Characteristics

The hydrological and hydrogeological study area for the ER will be delineated by the extents of the Water Framework Directive (2000/06/EC) (WFD) surface water catchments, which are described in Table 5.1.2 below. Downstream, the extents will include the River Isla confluence with the River Deveron, as well as the outlets of the various Banff Coastal Catchments into the Moray Firth. It is assumed that the groundwater is confined to the same topographical boundaries as the surface water, and that they therefore share the same catchment areas.

#### 5.1.1.1 Topography and Climate

The Scoping Study Area ranges in elevation from 0m Above Ordnance Datum (AOD) at Mean Low Water Springs (MLWS) to around 325m AOD along the brow of Meikle Balloch Hill to the south-east. In general, the topography undulates along a series of low lying hills.

The average annual rainfall recorded between 1981 and 2010 within the Scoping Study Area ranged between 705.1mm at Banff Climate Station and 883.6mm at Keith Climate Station.

#### 5.1.1.2 Surface Watercourses and Other Water Features

The Scoping Study Area is situated within the River Isla Catchment and Banff Coastal Catchment. The River Isla is a tributary of the River Deveron, which drains the southern part of the Scoping Study Area before discharging into the River Deveron to the south-east at Woodside. The River Isla is fed by headwater tributaries including the Burn of Aultmore, Burn of Paithnick, Burn of Crooksmill and Burn of Haughs.

The Banff Coastal Catchment comprises individual watercourses which drain the central and northern parts of the Scoping Study Area flowing in a northerly direction towards the Moray Firth. The watercourses include Fordyce Burn, Deskford Burn, Rathven Burn and Buckie Burn.

The Ordnance Survey (OS) mapping indicates that there are several reservoirs situated within these tributary catchments. There are also a range of other small water features including ponds and artificial agricultural and forestry plantation drainage ditches.

#### 5.1.1.3 Water Quality

Under the WFD, SEPA has produced a River Basin Management Plan (RBMP) for the Scotland River Basin District (updated in 2015) (Scottish Government, 2015) to manage water quality targets and river basin planning. The aim of the WFD is for all the waterbodies to achieve 'Good Status' by 2027 and to ensure no deterioration from current status. The Scoping Study Area is located within the Scotland River Basin District.

There are ten surface water bodies within, or connected to the Scoping Study Area that have been assigned a WFD Classification. According to the SEPA Water Environment Hub (2017), only one of these has Good Status, with the other nine having an impacted condition from a range of pressures resulting in their overall status being less than Good. SEPA has identified that Good Status will be achieved through the implementation of mitigation measures. Table 5.1.2 below presents the ten water bodies along with a breakdown of their overall status, impacted condition and responsible pressures. These waterbodies are also shown on Figure 5.1.1.

**Table 5.1.2 – Baseline Information on WFD Waterbodies**

Water Body	2015 Overall Status	Impacted Condition – Pressures Responsible for Water Body not Reaching Good Status	Overall Objective
River Isla Source to Keith (23181)	Poor	Physical condition - modifications to bed and banks.	Good Status by 2027
Burn of Aultmore (23176)	Poor	Physical condition - modifications to bed / banks.	Good Status by 2027
(River Isla) Keith to Shiel Burn (23179)	Bad	Physical condition - modifications to bed / banks.	Good Status by 2027
Crooksmill Burn/ Haughs Burn (23180)	Bad	Physical condition – modifications to bed / banks. Water Flows and levels – abstraction and storage due to business use.	Good Status by 2027
Burn of Paithnick (23175)	Bad	Physical condition – modification to bed / banks.	Good Status by 2027
River Isla d/s Shiel Burn (23171)	Good	Water body already attaining Good Status.	Water body already attaining Good Status
Fordyce Burn (23052)	Moderate	Water flows and levels – water abstraction for agricultural irrigation. Water Quality – diffuse pollution from rural sources and point source discharge pollution from waste water (sewage) disposal.	Good Status by 2027
Deskford Burn (23050)	Moderate	Ecological condition – unknown pressure on water animals and plants, still to be determined.	Good Status by 2021
Rathven Burn (23049)	Moderate	Ecological condition – unknown pressure on water animals and plants, still to be determined.	Good Status by 2021
Buckie Burn (23048)	Poor	Water flows and levels – water abstraction for business water use.	Good Status by 2027

Table 5.1.2 indicates that there are a range of existing pressures on water quality and watercourse morphology across the Scoping Study Area. The WFD information also suggests that there are surface water abstractions which are dependent upon sources of reliable water quality, such as Buckie Burn and Crooksmill Burn / Haughs Burn water bodies.

The River Deveron is identified as being an important salmon, sea trout and brown trout fishery. The River Deveron District Salmon Fishery Board and the Deveron, Bogie and Isla Rivers Charitable Trust have produced a Fisheries Management Plan for 2014 to 2018, which identifies the key strategies for conserving and protecting the valuable fishery resources.

#### 5.1.1.4 Conservation Sites

The Scottish Geology website (Scottish Geology, 2017) lists one Local Geodiversity Site in the Scoping Study Area (Bow Fiddle Rock at Portknockie) which was formed by erosion of Cullen Quartzite Formation deposits (a metamorphic rock derived from sandstone) at the coast of the Moray Firth.

Two Sites of Special Scientific Interest (SSSI) of relevance to hydrology, hydrogeology and geology have been identified from SNH Site Link (SNH, 2017) within the Scoping Study Area; Cullen to Stake Ness and Mill Wood. Cullen to Stake Ness SSSI comprises 344ha coastal area extending from Cullen to Stake Ness (Figure 5.2.4). The geological SSSI has been defined on the basis of the presence of exposed Dalradian (structural and metamorphic geology) and Quaternary (Quaternary geology and geomorphology) deposits. The SSSI is an important part of the longest continuous section across the strike of the Dalradian succession in Scotland, providing important information on the formation, stratigraphy and subsequent tectonic history and metamorphism of the succession underlying much of North East Scotland.

Mill Wood SSSI is situated within the Scoping Study Area and can be found 2 km to the east of Keith along the Mill of Wood tributary. This woodland SSSI supports a rich assemblage of flora in places where the vegetation is associated with outcrops of base-rich rocks, including limestone.

#### 5.1.1.5 Geology

The British Geological Society (BGS) Online Digital 1:50,000 scale Geology mapping (BGS, 2017a) viewer shows that the Scoping Study Area is underlain by a variable thickness of superficial deposits (locally absent at topographic highs and the coastal region). The superficial deposits primarily comprise Diamicton Till, although very localised linear alluvial deposits and undifferentiated River Terrace deposits (undifferentiated sand, gravel, silt and clay) are shown along the approximate courses of the Burn of Deskford and the River Isla. Along the coastline are very localised deposits of Glen Dye Silts Formation deposits, raised marine deposits of Flandrian age. Close to the coastline at Cullen are localised alluvial fan deposits, associated with river floodplain areas, and glaciofluvial sheet and ice contact deposits. The mapping also shows the presence of isolated pockets of peat, typically at topographic low points, the majority of which is shown in the vicinity of the Glen of Newmill and Aultmore. SNH's Carbon and Peatland Map (SNH, 2016) also indicates that there are limited isolated pockets of peat (classes 1 and 2) situated across the centre of the Scoping Study Area.

The BGS Online Digital 1:50,000 scale Geology mapping viewer (BGS, 2017a) shows the Scoping Study Area to comprise, from approximately north-west to south-east, a series of metamorphic deposits including Grampian Group quartzite deposits, Appin Group Graphitic Pelite, Calcareous Pelite, Calcisilicate-rock and Psammite deposits, Argyll Group Psammite, Semipelite and Pelite deposits, and localised Appin Group Metalimestone deposits. The metamorphic bedrock is locally intruded by igneous deposits including Neoproterozoic – Felsic rock, Ordovician to Silurian Ultramafite and Mafic rock. These deposits are overlain by localised deposits of Devonian Middle Old Red Sandstone (undifferentiated) deposits, comprising conglomerate, sandstone, siltstone and mudstone. These deposits are variably faulted, with

an extensive fault extending from the coast at Cullen towards a fault cluster to the north of Crossroads, predominantly trending north-west to south-east.

The Scotland's Environment website lists Geological Conservation Review sites along the coastal region of the Scoping Study Area extending from Cullen towards Portsoy.

#### 5.1.1.6 Hydrogeology and Groundwater Vulnerability

The BGS Online Digital 1:625,000 scale Hydrogeology viewer (BGS, 2017c) indicates that most of the Scoping Study Area is associated with the Appin Group Unit which typically has a limited groundwater yield apart from near surface weathered zones, and within secondary fractures. The emergence of groundwater is evident at a wetland underlain by a limestone formation adjacent to the Mill Wood SSSI. There is also evidence of rare springs and wells shown on hillslopes and flushes within each catchment.

The BGS Hydrogeology viewer (BGS, 2017c) also indicates that within the Burn of Deskford catchment there is an area with local yields of moderately productive groundwater sources associated with the Middle Old Red Sandstone Formation. In this location there is a higher concentration of wells and springs shown on the OS mapping.

There are also likely to be areas of localised groundwater contained within the relatively permeable superficial deposits of alluvium, sand and gravel along river terrace corridors, and within the isolated pockets of peat situated upon shallow topography including Flangy Moss and Black Hill.

Groundwater vulnerability is the tendency and likelihood for general contaminants to move vertically through the unsaturated zone and reach the water table after the introduction at the ground surface. The Groundwater (Scotland) Vulnerability dataset (BGS, 2011) accounts for properties of the vertical pathway above the water table whether it is above an aquifer or not. This indicates that the Scoping Study Area is largely classified as Zone 4a, which is defined as being vulnerable to those pollutants not readily absorbed or transformed. There is also a narrow band within the centre of the Scoping Study Area associated with the area of Middle Old Red Sandstone, classified as Zone 5 which is defined as being vulnerable to most pollutants with rapid impact in many scenarios. The above information indicates that there may be localised sources of groundwater present, including abstractions, which are vulnerable to changes in groundwater quality.

#### 5.1.1.7 Flood Risk

SEPA online flood risk mapping shows that within the Scoping Study Area the Medium and High Fluvial Flood Risk Zones are confined to narrow corridors within steep sided river channel headwaters, before spreading across wider floodplains within the lower parts of each catchment. There are a number of locations across the Scoping Study Area where vulnerable land use as defined by SPP falls within flood zones. In the vicinity of the Mill of Towie settlement there are several properties falling within the Burn of Deskford High Risk Flood Zone (10% Annual Exceedance Probability [AEP] of flooding). In the Drybridge and Rathven settlements there are also a number of properties situated within the Buckie Burn and Rathven Burn Medium Risk Flood Zones (0.5% AEP of flooding) respectively.

The SEPA flood risk map also indicates that areas of Surface Water Flood Risk are largely coincident with fluvial flood risk zones or adjacent to watercourses. There are also small isolated pockets of Surface Water Flood Risk situated within localised depressions across the Scoping Study Area. The SEPA flood risk mapping (SEPA, 2017b) indicates that the Scoping Study Area is not at risk of groundwater flooding. Given the limited presence of groundwater in the vicinity, it is anticipated that groundwater flooding will be restricted to localised relatively permeable areas, e.g. across alluvium, and sand and gravel deposits within river terraces, and localised areas of peat.

There is a high likelihood of coastal flooding extending along the shoreline between Portsoy and Buckie.

The above information indicates that a number of locations within lower catchment areas could be sensitive to changes in surface water flow patterns and watercourse conveyance should they be exposed to development.

#### 5.1.1.8 Data Gaps

Data on public and private water supplies have not yet been obtained from Scottish Water and MC and AC. It is considered likely that there will be a range of surface water and groundwater (wells and springs) abstractions present across the Scoping Study Area.

An appraisal of groundwater dependent terrestrial ecosystems (GWDTEs) remains to be undertaken pending a Phase 1 habitat survey, as described in Section 5.2 Ecology and Nature Conservation of this Scoping Report. Should this survey identify potential GWDTE likely to be impacted by the OnTI, these will be subjected to a National Vegetation Classification (NVC) survey and a review of the available data will determine whether they can be considered 'true' GWDTEs.

An appraisal of the potential for land contamination to be present is still to be carried out following confirmation of the onshore cable route and preferred onshore substation site.

#### 5.1.2 Potential Effects

The potential effects that may arise from construction, operation, maintenance and decommissioning of the OnTI, and their proposed treatment within the EIA, are summarised in Table 5.1.3 and outlined in more detail in the subsequent sections.

**Table 5.1.3 – Potential Effects on Hydrology, Hydrogeology and Geology Features during each Phase of the OnTI**

Potential Effect	Construction	Operation & Maintenance	Decommissioning	Scoped Out
Effects on water quality of surface watercourses and dependent abstractions from mobilised sediment and contaminated runoff.	Yes	Yes	Yes	No
Effects on water quality of local groundwater and any dependent abstractions from infiltration of mobilised sediment and contaminated runoff.	Yes	Yes	Yes	No
Changes in river baseflow and groundwater availability for	Yes	Yes	No	No

Potential Effect	Construction	Operation & Maintenance	Decommissioning	Scoped Out
GWDTEs due to dewatering.				
Changes in patterns and rates of infiltration and runoff from ground disturbance / installation of substation foundations.	Yes	Yes	Yes	No
Volumetric displacement of surface floodwaters from soil stockpiles and landtake.	Yes	Yes	Yes	No
Changes in watercourse conveyance from watercourse crossings.	Yes	No	No	No
Effects on watercourse morphology from watercourse crossings and development in close proximity to watercourses.	Yes	No	No	No
Loss of carbon rich peat soils.	Yes	No	No	No
Loss or damage to sensitive geological sites.	Yes	No	No	No
Loss of or damage to agriculturally valuable soils.	Yes	No	No	No

#### 5.1.2.1 Construction Effects

It is likely that many of the OnTI's potential effects will occur during its construction, largely due to the level of ground disturbance and potentially polluting activities onsite. The principal effects that will be investigated during the EIA are considered to include the following:

- Ground clearance and excavation works will result in ground disturbance, which during periods of rainfall could lead to silt laden runoff entering watercourses. There is also potential for silty runoff being mobilised and entrained from areas of topsoil storage. Infiltration into the local groundwater could also occur within near surface weathered zones and fractures, resulting in effects upon groundwater abstraction water quality;
- The use of HDD to install onshore cable circuits at the landfall location could lead to break out risks associated with drilling muds, which in turn could cause pollution and increased siltation.
- Depending upon the final location of the OnTI, excavations and other infrastructure requirements such as compounds and laydown areas could mobilise contaminants in the ground if present, which could affect the water quality of nearby watercourses and any dependant abstractions. Infiltration into the local groundwater could also occur within near surface weathered zones and fractures, resulting in effects upon groundwater abstraction water quality;
- Depending on the final location of the OnTI, excavations may disturb carbon rich peat soils.
- Should piling be required at the onshore substation site, there is potential for the creation of contamination pathways to the groundwater resource;
- Pollution could enter the water environment via accidental contamination associated with the spillage or leakage of fuels, lubricants and other chemicals from construction plant and vehicles;
- Where dewatering is required this could lead to changes in river baseflow and groundwater availability for abstraction or dependent habitats. Ground disturbance could also lead to potential changes in patterns and rates of infiltration and runoff;
- The installation of onshore substation foundations could lead to changes in patterns and rates of groundwater infiltration and surface water runoff;
- Depending upon the final location of the OnTI, there may be the potential for volumetric displacement of surface flood water associated with the presence of soil stockpiles during construction; and
- It is envisaged that the onshore cable circuits will largely be installed by open trenching, with some trenchless techniques being applied where construction disturbance is to be limited, e.g. when passing the onshore cable circuits beneath sensitive watercourses and with the potential for HDD at the landfall location. Where trenchless techniques are not feasible when crossing watercourses, there could be potential changes in watercourse conveyance. There could also be changes in watercourse morphology due to alteration to erosion and sediment deposition associated with the works in or near watercourses, including trenchless crossings.

#### 5.1.2.2 Operational Effects

The onshore cable circuits will be installed with protection and it is considered that their operation will largely be maintenance free. The onshore substation will not be permanently staffed. The frequency and duration of maintenance visits will be dependent on the manufacturer's recommendations relating to the equipment installed. Testing will ensure that faults can be located and so any ground disturbance in carrying out repairs is likely to be isolated. Should repairs be necessary, there could be potential for sediment laden runoff from ground disturbance or potential for accidental contamination from vehicles or machinery. The mobilised sediment and contaminated runoff could impact upon the surface water quality of nearby watercourses and any dependent abstractions. Infiltration into the local groundwater could also take place within near surface weathered zones and fractures, resulting in impacts upon

groundwater abstraction water quality. It is envisaged that any effects will be similar, but lesser than those during construction, though they will be investigated and assessed as part of the EIA.

Operation of the onshore substation is only likely to include minimal maintenance visits by a small workforce, with limited refurbishments within the bounds of the site if required. No notable ground disturbance is anticipated. It is proposed that maintenance activities in relation to the onshore substation are scoped out of detailed assessment in the EIA.

Following construction, the presence of below ground foundations may alter groundwater flow patterns. Additionally, the increase in the impermeable area at the onshore substation site may increase surface water runoff. Such potential effects will be investigated and assessed as part of the EIA.

#### 5.1.2.3 Decommissioning Effects

As it is currently proposed that decommissioning will entail leaving below ground infrastructure *in-situ*, there will be no significant effects in relation to the onshore cable circuits. It is proposed that decommissioning effects of cable removal is not expected to be worse than installation and is scoped out of detailed assessment in the EIA.

At the onshore substation site, there will be potential for pollution effects to arise from the spillage or leakage of fuels, lubricants and other chemicals from plant and vehicles as equipment is removed. It is also expected that there will be some earth movements during reinstatement of the site. It is envisaged that any effects will be the same, but lesser than those during construction, though they will be investigated and assessed as part of the EIA.

#### 5.1.3 Potential Mitigation Measures

The impact assessment will make reference to published guidance from SEPA, including relevant PPGs with emphasis on PPG5: Works and maintenance in or near water. It will also take into account CIRIA guidance including C532: Control of Water Pollution from Construction Sites (CIRIA, 2001) and C648: Control of Water Pollution from Linear Construction Projects (CIRIA, 2006). These documents identify a range of precautionary measures, for instance the requirement for 10m minimum stand-off distances of any concrete plant washings in hard standing areas from any watercourse or surface water drain. It is envisaged that a comprehensive suite of these construction good practice measures will be incorporated into a CEMP for the OnTI.

The assessment will also refer to the environmental requirements set out in the relevant Local Development Plans (LDPs), including the need to maintain a 6m buffer between new developments and watercourses and the facilitation of sustainable drainage to help treat water and control flow where water is being discharged into watercourses, both contained within MCand AC LDPs. Key design principles outlined in the Sustainable Drainage Systems (SuDS) Manual C753 (CIRIA, 2015), including the incorporation of climate change scenarios, will be referenced within the assessment.

It is envisaged that any specific mitigation measures for the protection of receptors from any increase in flood risk will also be identified and incorporated into the final design of the OnTI. The Flood Risk Assessment (FRA) will be carried out in accordance with SPP, in order to ensure that the OnTI does not increase the probability of flooding elsewhere from the range of sources (fluvial, surface water, groundwater, coastal and culverts). It is proposed that infrastructure will only be located on functional flood plains in medium and high flood zones (> 0.5% AEP of flooding) where it does not affect the ability of the floodplain to store and convey flooding.

It is envisaged that river engineering activities will be designed in accordance with the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended). Proposals will adhere to the guidance

set out in the SEPA position statement on culverting of watercourses (WAT-PS-06-02). This states that closed culverts will normally only be justified for single track roads over small watercourses (<2m in width), and for all other crossings, the use of span bridges and bottomless arch structures should be prioritised. It is envisaged that the design of watercourse crossings will follow SEPA supporting guidance WAT -SG-25.

#### 5.1.4 Approach to EIA

##### 5.1.4.1 Baseline Assessment

At the detailed assessment stage, the hydrological and hydrogeological study area will be determined by the WFD surface water catchments within which the OnTI will be located. The baseline hydrogeological information indicates that the groundwater flows are localised and of limited yield. It is therefore assumed that the groundwater is confined to the same topographical boundaries as the surface water, and that both are considered to share the same catchment areas.

The geological study area will comprise the onshore cable route and onshore substation site only, while geo-environmental studies will consider all land out to 250 m either side of the onshore cable route and onshore substation site (500 m being the buffer study area being applied to the onshore cable circuit).

Data collection will be carried out through a combination of consultation, desk based assessment and site walkovers.

##### 5.1.4.2 Desk Based Study

It is anticipated that baseline data and information will be gathered by the following means:

- Collation of published geological, hydrological and hydrogeological information, including hydrometric data;
- Use of topographical maps, aerial photography and the Flood Estimation Handbook (FEH) CD-ROM to identify catchments, water bodies and springs;
- Collation of published historic hydrological and flooding information;
- Collation of data on any public and private water abstractions, ground water and surface water fed (supplied by Scottish Water, SEPA, MC and AC);
- Collation and review of BGS borehole logs;
- Review of data in relation to current and historical mineral extraction held on the Coal Authority's website;
- Review of historic site investigation reporting (if available);
- Collation of data provided by SEPA, MC and AC with respect to any designated contaminated land and licenced petroleum storage sites, current and historic landfill sites, detail of sites where remediation has been undertaken and licenced discharges;
- Use of historic OS mapping showing development history, including potential for current and historic on and off-site sources of contamination;
- Collation and review of historic aerial photography, if available, from Historic Environment Scotland;
- Collation and review of publicly available data from themed maps (Land, Water, People and the Environment) on Scotland's Environment website;
- Review of the Soil Map of Scotland on the Scotland's Soils website (Scotland's Soils, 2017);

- Review of radon mapping (Indicative Atlas of Radon in Scotland (UK Government, 2017)); and
- Review of Phase 1 habitat survey data gathered for the OnTI EIA, as well as NVC surveys data (as described in Section 5.2 Ecology and Nature Conservation) if available.

Using the information from desk based assessment, key site sensitivities will be identified for further investigation. These might include localised areas of peat, freshwater dependant designated features, private water supplies and the locations of watercourse crossings where untrenched crossings are not feasible.

#### 5.1.4.3 Site Walkover

The site-specific walkover will be conducted in order to:

- Verify the information collected during the desk based study, gaining a robust understanding of the topography and hydrological and hydrogeological regime in the study area;
- Undertake an evaluation of potentially significant sources of contamination, potentially sensitive human health and environmental receptors, evidence of likely ground conditions and geological features;
- Identify drainage patterns, areas vulnerable to erosion or sediment deposition and any pollution risks;
- Visit the locations of the identified watercourse crossings to inform construction methods; and
- Identify the likely presence and distribution of peat deposits. Where potential peat deposits are identified, a limited probing exercise will be undertaken at selected locations to determine the thickness of such deposits. This will be performed in areas where the potential for peat to be present is evident, determined by a review of geological mapping and observations of vegetation typically indicative of the presence of peat, at regular intervals (tentatively at 100m intervals) along the applicable areas of the OnTI route, and will support an indicative assessment of likely peat distribution and characteristics.

#### 5.1.4.4 Impact Assessment

Due to the likely footprint of the OnTI (>1ha) and the potential for watercourse crossings, it is considered that a Flood Risk Assessment (FRA) will need to be prepared to satisfy SPP. When more details on the proposed location of the OnTI are available, the scope of the FRA will be discussed in consultation with SEPA.

The Phase 1 habitat survey data and NVC survey data will be reviewed to appraise potential GWDTes. If there are any 'true' GWDTes or groundwater abstractions likely to be within 100m of excavations <1m in depth, or within 250m of excavations >1m in depth, a risk assessment will be undertaken in accordance with SEPA Guidance Note 31 (SEPA, 2014).

A review of the geological setting of the onshore cable corridor and preferred onshore substation site, and the potential for land contamination constraints to be present is anticipated to be required. A Phase 1 Geo-environmental Desk Study will be undertaken to support the establishment of baseline characteristics, and to support the impact assessment.

The above standalone assessment, combined with information gathered during the desk study and site walkover, will provide a basis for the production of an assessment for inclusion in the ER. A qualitative assessment methodology will be used to assess the magnitude of the potential impacts. The significance of the potential effects will be defined by taking into account the sensitivity of the hydrological,

hydrogeological or geological (including land quality) features and the potential effect should that impact occur.

#### 5.1.4.5 Cumulative Effects

It is intended that consultation with MC and AC will identify any potential proposed developments in the area likely to result in cumulative effects with the OnTI. If available, information on the potential effects of these developments will be used to facilitate a cumulative effects assessment. Details of any cumulative effects and appropriate mitigation, if required, will be discussed in the ER. Cumulative hydrology, hydrogeology and geology effects could include an increase in impermeable, or semi-impermeable surfaces.

Scoping Question 5.1.1: Is the proposed approach and method of assessment for hydrology, hydrogeology and geology acceptable?

## 5.2 Ecology and Nature Conservation

This section provides a high level overview of the ecology and nature conservation features that are potentially present within the Scoping Study Area as shown on Figure 1.1.2. It identifies the potential effects upon these features from construction, operation, maintenance and decommissioning of the OnTI, based upon which an approach to the EIA is proposed. As the Scoping Study Area extends to MLWS, the ecology and nature conservation features considered include protected and notable terrestrial and intertidal flora and fauna, including ornithology, as well as designated sites.

The following guidance has informed the proposed approach to assessment:

- Guidelines for Ecological Impact Assessment in the UK and Ireland. (CIEEM, 2016);
- Guidelines for Ecological Impact Assessment in Britain and Ireland. Marine and Coastal. Final Document (Institute of Ecology and Environmental Management [IEEM; now CIEEM], 2010);
- Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016);
- UK Biodiversity Action Plan (BAP) Mammals: Interim Guidelines for Survey Methodologies, Impact Assessment & Mitigation (Cresswell *et al.*, 2012);
- Bird Monitoring Methods (Gilbert *et al.*, 1998);
- Practical Techniques for Surveying and Monitoring Squirrels (Gurnell *et al.*, 2009);
- Surveying Badgers (Harris *et al.*, 1989);
- Handbook for Phase 1 habitat survey - a technique for environmental audit (Joint Nature Conservation Committee [JNCC], 2010);
- Otters and Development (SNH undated online survey guidance);
- Water Vole Conservation Handbook (Strachan *et al.*, 2011); and
- Wyn, G. and Brazier, P. (2001). Procedural Guideline No. 3-1 - *In-situ* intertidal biotope recording. In Davies J., Baxter J., Bradley M., Connor D., Khan J., Murray E., Sanderson W., Turnbull C. & Vincent M. 2001. Marine Monitoring Handbook, 405 pp.

The following sources of data have been reviewed in preparing this Chapter:

- National Biodiversity Network (NBN) Atlas (<https://nbnatlas.org/>);

- Marine Scotland Science (MSS) Interactive mapping / Scotland's Marine Atlas (<http://www.gov.scot/Topics/marine/science/MSInteractive/>);
- Predictive European Nature Information System (EUNIS) seabed habitats (<http://www.emodnet-seabedhabitats.eu/>);
- SNH Sitelink (<http://www.snh.gov.uk/publications-data-and-research/snhi-information-service/sitelink/>);
- OS mapping; and
- Google Earth Pro 7.1.2.2041.

### 5.2.1 Baseline Characteristics

#### 5.2.1.1 Habitats and Species Overview

The Scoping Study Area, as shown on Figure 1.1.2, largely comprises low-lying land which has been heavily modified by human activity through agricultural practices. Within this largely agricultural landscape are a number of small settlements connected by a network of minor roads. Woodland habitats are scattered throughout and are a mix of semi-natural and coniferous plantation woodland. The River Isla is the main watercourse in the Scoping Study Area and flows east just north of Keith; however there are also numerous smaller watercourses.

The intertidal zone within the Scoping Study Area comprises a section of Moray / Aberdeenshire coastline (extending from MLWS to MHWS) that stretches from Portknockie to Portsoy (Figure 1.1.2). This includes beach areas at Cullen Bay, Sunnyside Beach and Sandend Bay. The remainder of the coastline primarily comprises exposed rocky shores and sea cliffs.

With the exception of parts of Cullen Bay as well as Sandend Bay, the coastline is nationally designated (Cullen to Stake Ness Coast SSSI; Table 5.2.2) with qualifying features of geology and habitats (saltmarsh, shingle, springs and lowland dry heath). An area offshore, referred to as the Southern Trench, is currently proposed as a Marine Protected Area (MPA), for which the MPA would cover an area roughly between Buckie and Fraserburgh, following the coastline round and extending out to approximately the 12 nm limit. Although the Southern Trench MPA, if adopted, may border the MLWS, as this is a proposed offshore designated site where the boundaries are not yet established (they are currently under consideration by the Scottish Government), the Southern Trench MPA is considered within the OfTI Scoping Report.

The scoping report for the Moray East Modified Transmission Infrastructure (Moray East, 2014a) presents a high level summary of intertidal conditions at a landfall site at either Sandend and Inverboynzie but no further detailed information is currently available regarding intertidal biotopes or species presence / composition.

A search of the NBN Atlas has returned records of the following notable and protected species within, or within range of, the Scoping Study Area:

- Carnivores: Wildcat, otter, pine marten, badger and polecat;
- Bats: Daubenton's bat, Natterer's bat, common pipistrelle, soprano pipistrelle and brown long-eared bat;
- Hares: Brown hare and mountain hare;
- Rodents: Red squirrel and water vole;
- Reptiles: Slow-worm, adder and common lizard;
- Fish: Atlantic salmon, brown trout, sea trout and European eel; and
- Freshwater pearl mussel.

Agricultural habitats have the potential to support good assemblages of farmland passerines, waders, geese and badgers, while the network of watercourses may support otter, freshwater pearl mussel and water vole.

Where settlements occur, artificial structures have potential to house bat roosts. Wooded areas may also be used by roosting bats where there are trees with suitable cracks and crevices.

Red squirrel and pine marten may be found within the Scoping Study Area where mature, well-connected woodland is present.

Wildcat generally prefer marginal agricultural areas with moorland and woodland, and have been recorded within the area. Recent unconfirmed sightings of wildcat were noted by SNH during a pre-scoping consultation meeting on 27 March 2017.

Great crested newts are considered unlikely to be present given the general absence of records across Moray and Aberdeenshire. This correlates with information provided by SNH during a meeting on 27 March 2017.

#### 5.2.1.2 Designated Sites

Scotland's suite of designated conservation sites, which provide statutory protection for flora and fauna, include:

- Ramsar sites which are wetland sites designated of international importance under The Convention on Wetlands (the Ramsar Convention);
- Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), which are designated under European legislation; and
- SSSIs and National Nature Reserves (NNRs), which are designated under national legislation.

There are no international and European designated conservation sites of ecological interest located within the Scoping Study Area. However, ten sites are located within 20 km of the Scoping Study Area. These are summarised in Table 5.2.1 below and shown on Figures 5.2.1, 5.2.2 and 5.2.3.

**Table 5.2.1 – International or European Sites Designated for Ecology within 20 km**

Site	Minimum Distance from Scoping Study Area	Relevant Qualifying Feature
Mortlach Moss SAC	4.5 km south-east	Alkaline fens
Tips of Corsemaul and Tom Mor SPA	5.9 km south	Breeding common gull
Reidside Moss SAC	6.4 km east	Active raised bogs Degraded raised bogs still capable of natural regeneration
Lower River Spey – Spey Bay SAC	7.5 km west	Perennial vegetation of stony banks Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )
River Spey SAC	7.7 km west	Freshwater pearl mussel Sea lamprey Atlantic salmon

Site	Minimum Distance from Scoping Study Area	Relevant Qualifying Feature
		Otter
Moray and Nairn Coast SPA	7.7 km west	Non-breeding greylag goose Non-breeding pink-footed goose Non-breeding redshank Breeding osprey Non-breeding waterfowl assemblage
Moray and Nairn Coast Ramsar	7.7 km west	Non-breeding greylag goose Non-breeding pink-footed goose Non-breeding redshank Non-breeding waterfowl assemblage
Hill of Towanreef SAC	17.9 km south	Calaminarian grasslands of the <i>Violetalia calaminariae</i> European dry heaths Alpine and Boreal heaths <i>Juniperus communis</i> formations on heaths or calcareous grasslands Blanket bogs (*if active bog) Marsh saxifrage
Loch Spynie SPA and Loch Spynie Ramsar	18.8 km west	Non-breeding greylag goose

There are 13 nationally designated conservation sites of ecological interest within 10 km of the Scoping Study Area (two of which are within the Scoping Study Area). These are summarised in Table 5.2.2 and shown on Figures 5.2.4 and 5.2.5.

**Table 5.2.2 – National Sites Designated for Ecology within 10 km**

Site	Minimum Distance from Scoping Study Area	Relevant Notified Feature (biological only)
Cullen to Stake Ness Coast SSSI	Within Scoping Study Area	Coastlands Saltmarsh Shingle Fens Springs (including flushes) Lowland heathland Lowland dry heath
Mill Wood SSSI	Within Scoping Study Area	Upland birch woodland

Site	Minimum Distance from Scoping Study Area	Relevant Notified Feature (biological only)
Den of Pitlurg SSSI	0.2 km south	Upland birch woodland. Valley fen
Spey Bay SSSI	3.9 km west	Dingy skipper Hydromorphological mire range Saltmarsh Coast Shingle Coast Small blue Vascular plant assemblage Wet woodland
Shiel Wood Pastures SSSI	3.7 km east	Fen meadow Lowland acid grassland Lowland calcareous grassland Lowland neutral grassland
Mortlach Moss SSSI	4.5 km south-east	Basin fen
Whitehill SSSI	4.7 km south-east	Fen meadow Lowland acid grassland Lowland calcareous grassland Lowland neutral grassland Valley fen
Tips of Corsemaul and Tom Mor SSSI	5.9 km south	Breeding common gull
Reidside Moss SSSI	7 km east	Raised bog
Moss of Crombie SSSI	7.2 km east	Intermediate bog (blanket)
Lower River Spey SSSI	7.7 km west	River shingle / sand Wet woodland
River Spey SSSI	7.7 km west	Atlantic salmon Freshwater pearl mussel Otter Sea lamprey
Craigs of Succoth SSSI	8 km south	Calaminarian grassland and serpentine heath Subalpine flushes

In addition to the designated sites set out in Tables 5.2.1 and 5.2.2 above, several of the woodlands within the Scoping Study Area are included on the Ancient Woodland Inventory, these being woodlands that have been established since at least 1750 and that consequently have important biodiversity and cultural values. Sites on the Ancient Woodland Inventory are shown on Figure 5.2.5.

### 5.2.2 Potential Effects

The potential effects that may arise from construction, operation, maintenance and decommissioning of the OnTI, and their proposed treatment within the Ecological Impact Assessment (EclA), are summarised in Table 5.2.3 and outlined in more detail in the subsequent sections.

**Table 5.2.3 – Potential Effects on Ecological Features during each Phase of the OnTI**

Potential Effect	Construction	Operation & Maintenance	Decommissioning	Scoped Out
Potential direct loss of ecological features (habitats and/or fauna) on statutory designated sites.	Yes	No	No	No
Potential direct loss of ecological features (habitats and/or fauna) on non-statutory designated sites.	Yes	No	No	No
Direct terrestrial habitat loss / disturbance.	Yes	No	No	No
Indirect terrestrial habitat loss / disturbance (e.g. from disruption or changes to hydrology).	Yes	Yes	Yes	No
Loss of, or disturbance to, intertidal habitat and species.	Yes	Yes	Yes	No
Increased suspended sediments / sediment deposition within the intertidal area.	Yes	Yes	Yes	No
Spread of invasive non-native	Yes	Yes	Yes	No

Potential Effect	Construction	Operation & Maintenance	Decommissioning	Scoped Out
terrestrial and/or freshwater species.				
Potential injury or death of terrestrial and/or freshwater fauna (direct effect).	Yes	Yes	Yes	No
Noise disturbance leading to the displacement of terrestrial fauna (indirect effect).	Yes	Yes	Yes	No
Pollution leading to loss of or damage to ecological features (direct and/or indirect effect).	Yes	Yes	Yes	No
Biosecurity.	Yes	Yes	Yes	No

#### 5.2.2.1 Construction Effects

Most of the OnTI's potential ecology and nature conservation effects are likely to arise during its construction, since this is when the main ground disturbance will take place, along with the associated direct and indirect effects on designated sites, flora and fauna. The principal potential effects are considered to include the following:

- Depending on the final location of the OnTI, its construction may result in negative effects on the qualifying or notified features of statutory and/or non-statutory designated sites;
- Potential injury or death of fauna if construction directly impacts their places of shelter;
- Loss of terrestrial habitat, and associated potential loss of breeding and foraging habitat. There is potential for direct or indirect, permanent or temporary negative effects to occur as a result of sensitive habitat removal, e.g. woodland or bog;
- Loss of, or disturbance to, intertidal habitat and species;
- Increased suspended sediments / sediment deposition within the intertidal area resulting from subsea cable / landfall. Sensitive receptors will include Annex 1 and Priority Marine Feature (PMF) habitats and species as well as other species that are reliant on good quality water;
- Invasive non-native species may be spread and/or introduced during construction, maintenance operations and/or decommissioning;
- Terrestrial and/or freshwater fauna may be killed or injured during any of the phases due to vehicle activity, pollution incidents etc.

- Disturbance leading to the displacement of fauna. For example, if construction noise indirectly impacts their places of shelter or foraging areas, or if pollution enters aquatic habitats;
- Potential release of pollutants, to the ground, air or water, during general construction activities, e.g. from accidental spillages or leakages of chemicals, oils or cementitious materials; and
- Potential spread of disease between landholdings.

#### 5.2.2.2 Operational Effects

Following construction, it is envisaged that much of the disturbed ground and intertidal area will be reinstated, with the exception of the onshore substation site. The onshore cable circuits will be installed with protection against accidental contact/damage and it is considered that their operation will largely be maintenance free. Testing will ensure that faults can be located and in turn, any excavations or infrastructure replacement will be isolated.

It is therefore envisaged that no major refurbishment works will be required during operation of the OnTI. It is likely that any excavations or infrastructure replacement will be isolated to areas of ground previously disturbed during construction. It is envisaged that vehicular access routes required for maintenance will follow established tracks, or follow routes taken during construction. Therefore, it is unlikely that there will be any direct or indirect effects on designated sites or habitats. It is proposed that the following potential effects be scoped into the operational assessment:

- Indirect terrestrial habitat loss / disturbance (e.g. from disruption or changes to hydrology);
- Loss of, or disturbance to, intertidal habitat and species;
- Increased suspended sediments / sediment deposition within the intertidal area;
- Spread of invasive non-native terrestrial and/or freshwater species;
- Potential injury or death of terrestrial and/or freshwater fauna (direct effect);
- Noise disturbance leading to the displacement of terrestrial fauna (indirect effect);
- Pollution leading to loss of or damage to ecological features (direct and/or indirect effect); and
- Biosecurity.

It is proposed that the following effects be scoped out of the operational assessment:

- Potential direct loss of ecological features (habitats and/or fauna) on statutory designated sites;
- Potential direct loss of ecological features (habitats and/or fauna) on non-statutory designated sites; and
- Direct terrestrial habitat loss / disturbance.

#### 5.2.2.3 Decommissioning Effects

The current decommissioning proposals include all underground infrastructure, the foundations of the onshore substation and the intertidal export cables remaining *in-situ*. Decommissioning activities associated with the onshore substation are likely to be localised and short term. Therefore it is unlikely that there will be any direct or indirect effects on designated sites or habitats. It is proposed that the following potential effects be scoped into the decommissioning assessment:

- Indirect terrestrial habitat loss / disturbance (e.g. from disruption or changes to hydrology);
- Loss of, or disturbance to, intertidal habitat and species;

- Increased suspended sediments / sediment deposition within the intertidal area;
- Spread of invasive non-native terrestrial and/or freshwater species;
- Potential injury or death of terrestrial and/or freshwater fauna (direct effect);
- Noise disturbance leading to the displacement of terrestrial fauna (indirect effect);
- Pollution leading to loss of or damage to ecological features (direct and/or indirect effect); and
- Biosecurity.

It is proposed that the following effects be scoped out of the decommissioning assessment:

- Potential direct loss of ecological features (habitats and/or fauna) on statutory designated sites;
- Potential direct loss of ecological features (habitats and/or fauna) on non-statutory designated sites;
- Direct terrestrial habitat loss / disturbance; and
- Increased suspended sediments / sediment deposition within the intertidal area.

### 5.2.3 *Potential Mitigation Measures*

Potential mitigation measures for ecology and nature conservation effects that may be incorporated into the design of the OnTI, or considered within the EIA where appropriate, include:

- Micrositing of infrastructure in order to avoid protected or the most sensitive habitats or species that may be present, including potential, or actual GWDTEs, Annex I or PMF species and habitats;
- During the breeding season, pre-construction surveys for breeding birds will be carried out in advance of any works commencing and any necessary site-specific mitigation will be developed and implemented;
- Pre-construction surveys for other protected and notable species will be undertaken a minimum of eight weeks in advance of any works commencing and any necessary site specific mitigation will be developed and implemented. Should it not be possible to avoid potential effects through design, species specific mitigation plans will be developed and disturbance licence applications made to SNH;
- A comprehensive CEMP will be put in place in consultation with SNH, which will set out the measures to be implemented during construction, such as hydrological mitigation measures and reinstatement of areas subject to temporary disturbance in accordance with method statements. Monitoring will be included with remedial actions required to address any failures;
- Biosecurity measures will be put in place during all of the phases of works to minimise the potential spread of disease between landholdings; and
- To minimise the extent of any unnecessary intertidal habitat disturbance, material displaced as a result of any cable burial activities will be back filled, where possible, in order to promote recovery.

### 5.2.4 *Approach to EIA*

The EIA will follow an assessment methodology adapted from CIEEM guidance on Ecological Impact Assessment (CIEEM, 2010 and 2016). The ER will detail the findings of a desk study together with the

results of a suite of ecological surveys. These will form the baseline against which the potential effects of the OnTI will be assessed, based on both the 'value' of the receptor and the nature and magnitude of the impact that the OnTI will have upon it.

A range of mitigation measures will be incorporated where appropriate, to avoid significant effects. These measures are anticipated to include ecological input to the design process and construction control measures. Enhancement measures will also be proposed where appropriate. The ER will report the significance of predicted residual effects on valued ecological receptors following the application of these measures.

In addition to EclA, any potential effects on European designated sites (SACs, SPAs and/or Ramsar sites) will also need a Habitats Regulations Appraisal (HRA) as required by Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). A standalone Report to Inform Appropriate Assessment (RIAA) will be undertaken and submitted alongside the ER and will contain sufficient information to allow the Competent Authority to carry out a HRA in accordance with best practice guidance (David Tyldesley and Associates, undated website).

#### 5.2.4.1 Desk Study on Protected Species and Species of Conservation Concern

A detailed desk study will be undertaken to appraise the presence of:

- European Protected Species (EPS), protected under Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland) (Habitats Regulations);
- Bird species listed on Annex 1 of Directive 2009/147/EC of 30 November 2009 on the conservation of wild birds (the Birds Directive);
- UK protected species, protected under the Wildlife and Countryside Act 1981 (as amended in Scotland);
- Species of national conservation concern listed on the Scottish Biodiversity List (SBL);
- Species of local conservation concern, listed on the North East Scotland Local BAP (LBAP);
- Species and Habitats listed as PMF's in Scotland's seas; and
- Bird species with a noteworthy conservation status, specifically those on the UK Red List for Birds (<https://britishbirds.co.uk/wp-content/uploads/2014/07/BoCC4.pdf>).

Data will be sought from the following organisations:

- Royal Society for the Protection of Birds (RSPB);
- British Trust for Ornithology (BTO);
- North East Scotland Raptor Study Group (NESRSG);
- District Salmon Fisheries Boards;
- Deveron, Bogie and Isla Rivers Charitable Trust;
- Botanical Society of Britain and Ireland (BSBI);
- North East Scotland Biological Records Centre (NESBReC);
- SNH;
- Scottish Wildlife Trust (SWT);
- JNCC;

- MSS; and
- NBN Atlas.

#### 5.2.4.2 Breeding Birds Survey

A programme of surveys commenced at the beginning of May 2017 based on the Scoping Study Area. During pre-scoping consultation with SNH (meeting on 27 March 2017) it was agreed that, given the likely zone of influence, the transitory nature of the construction works and the likely breeding bird assemblage typical of mixed farmland in northern Scotland, it will be impractical and unnecessary to survey the entire Scoping Study Area. The following approach was therefore agreed:

- Scope out high priority bird areas (determined through a desk based review of RSPB and NESRSG data, plus any additional info from county bird clubs) on the assumption that these will be avoided by the OnTI; and
- Scope out any areas with other existing identified constraints to installation of the OnTI, e.g. built up areas and dense commercial forestry.

However, at the time that surveys commenced, data from both the RSPB and NESRSG were not available, and so built up areas and blocks of commercial forestry only were excluded.

In addition to the exclusion of certain locations, it was further agreed with SNH that approximately 25% of the remainder of the Scoping Study Area (approximately 135 km<sup>2</sup>) will be acceptable for survey purposes as this will provide an appropriate overview of the ornithological interest. The selection of areas to be surveyed was based on a random sample approach of 1 km squares. Where there are built up areas or commercial forestry within selected 1 km squares, these will not be surveyed. In total, approximately 34 km<sup>2</sup> have been identified for survey, covering 39 separate 1 km squares across the Scoping Study Area.

Surveys are following a breeding bird territory mapping approach, using an abridged three visit version of the Common Bird Census (CBC) methodology detailed in Gilbert *et al.* (1998) between dawn and midday. One of each of the three visits is occurring in May, June and July 2017. Surveys are being carried out in good visibility, avoiding persistent rain or fog, excessive cold or heat and wind exceeding Beaufort force 4.

Data will be recorded using standard BTO notation directly onto zoomed-in maps of individual 1 km square tiles, on OS 1:10,000 basemaps, provided to surveyors on A3 sheets.

The data generated will allow estimation of the numbers and locations of breeding territories, which will be used, in conjunction with habitat data, to provide context of species and assemblages likely to be found in the final location of the OnTI.

The field records will be digitised using Geographical Information Systems (GIS) software, and the resulting output from the three visits analysed to identify breeding bird territories.

#### 5.2.4.3 Coastal Bird Desk Study

A desk study will be undertaken to identify any coastal bird assemblages of note which may occur within the proposed location of infrastructure at the landfall location plus a 250 m buffer. This will firstly consist of a review of the Wetland Bird Survey (WeBS) data that cover the wintering species and are held by the BTO. A review of specific count sector data for the last five years will be undertaken, if applicable. Breeding season data will also be extracted from the JNCC Seabird 2000 (S2K) database (available at: <http://jncc.defra.gov.uk/page-3176>). These should provide a clear picture of the suitability of the proposed landfall location for breeding seabirds.

#### 5.2.4.4 Phase 1 Habitat Survey

It is envisaged that the onshore substation site (plus a surrounding area of at least 250 m) and at least a 500 m wide onshore cable route corridor (plus a surrounding area of at least 250 m) will be surveyed according to the Phase 1 habitat survey methodology, which is a standardised system for classifying and

mapping British habitats developed by the JNCC (2010). The survey will be 'extended' to identify the presence, or potential presence of species of importance for biodiversity conservation (including SBL and LBAP species) and / or species that are afforded legal protection. Areas of vegetation characteristic of peat soils will be highlighted and the need for any detailed investigation identified. The requirement for detailed botanical surveys will also be determined, e.g. National Vegetation Classification (NVC) surveys in respect of notable habitats, wetlands, or potential GWDTs. The output of this survey will be a map with 'target notes' that include information about specific habitat features and species.

The survey will be extended to identify the presence or potential presence of a variety of legally protected and / or conservation notable species, and inform recommendations for further species-specific surveys (if required).

This survey will form the general baseline required to inform the design of the OnTI and the impact assessment.

#### 5.2.4.5 Protected Species Survey

Based on the information gathered during the Phase 1 habitat survey, suitable habitats within the final onshore substation site (plus the appropriate buffer as detailed below) and at least a 500 m wide onshore cable route corridor (plus the appropriate buffer) will be surveyed for field evidence of the following protected species:

- Bats: Identification of potential roost sites and the most suitable foraging and commuting habitat within at least 50 m of the proposed location of the OnTI following Collins (2016). Searches for suitable habitat over a wider area (over 50 m) will be undertaken using aerial images and used to inform design, as well as any requirement for further survey effort. Bat activity surveys are not anticipated to be necessary, subject to the avoidance of habitats through sensitive design;
- Otter: Searches for signs of otter within at least 100 m upstream and downstream of proposed watercourse crossings following SNH guidance (undated). Monitoring (using sand traps and / or camera traps), or repeated visits are not proposed;
- Water vole: Searches for signs of water vole within at least 100 m upstream and downstream of proposed watercourse crossings following Strachan *et al.* (2011);
- Pine marten: Searches for signs of pine marten and suitable den sites within at least 50 m of the proposed location of the OnTI following Cresswell *et al.* (2012). Searches for suitable habitat over a wider area will be undertaken using aerial images. Monitoring (using sand traps and / or camera traps), scat analysis, or repeated visits are not proposed;
- Red squirrel: Searches for signs of red squirrels and dreys within at least 50 m of the proposed location of the OnTI following Gurnell *et al.* (2009). Monitoring (using hair tubes and / or camera traps), or repeated visits are not proposed;
- Wildcat: Searches for suitable habitat and den sites within at least 100 m of the proposed location of the OnTI (location of suitable habitat only following Cresswell *et al.* (2012). Searches for suitable habitat over a wider area will be undertaken using aerial images. Monitoring (using camera traps) or repeated visits are not proposed; and
- Badger: Searches for signs of badger within at least 100 m of the proposed location of the OnTI following Harris *et al.* (1989). Monitoring (using sand traps and / or camera traps), or repeated visits are not proposed.

During pre-scoping consultation with SNH (meeting on 27 March 2017) it was agreed that great crested newts will not require specific consideration, due to their general absence from the Scoping Study Area. Accordingly, it is proposed that great crested newt surveys are scoped out of the EIA. In addition, it was

agreed that, although there is some suitable habitat for freshwater pearl mussels in the wider area, a recent study identified many of the smaller watercourses in the area as sub-optimal. There will not therefore be any need for freshwater pearl mussel surveys provided that trenchless methods are employed for installing the onshore cable circuits beneath any watercourses that support habitat that is potentially suitable for freshwater pearl mussels.

Sightings or field evidence of protected species will be recorded using target notes, photographs and global positioning system (GPS) coordinates. Field signs recorded will include prints, mammal paths, droppings, resting sites (including holts, couches, dreys, burrows, setts, and dens) and feeding remains.

The need for more detailed surveys to inform the impact assessment for selected species will be informed by the initial consultation process and findings of the survey suite outlined above, e.g. detailed monitoring of otter holts or potential pine marten habitat if required for the impact assessment.

#### 5.2.4.6 Phase 1 Intertidal Survey

Once the landfall site has been identified, a Phase 1 intertidal habitat survey will be completed (covering a 500 m wide corridor within which the cable circuit will be located) to map the intertidal biotopes present as well as identify any Annex I habitats or species, PMFs or qualifying features of the SSSI designated site. This will follow standard methodology such as JNCC Procedural Guidelines 3-1 (Wyn and Brazier, 2001) and a biotope map will be produced, which can then be used to microsite the cable at landfall if required once exact installation methods have been agreed. Intertidal surveying will take place during the correct seasonal period to produce optimal results (e.g. timing will depend upon the type of habitat present, so will potentially differ for sandy beaches, rocky shores or where features such as *Sabellaria* reefs are present). The area to be surveyed and scope of works will be discussed with SNH and MSS.

#### 5.2.4.7 National Vegetation Classification Survey

It may be necessary to undertake a degree of NVC survey, particularly if the Phase 1 habitat survey identifies potential GWDTEs that may be affected by the OnTI. NVC provides a comprehensive classification and description of the plant communities of Britain, each systematically named and arranged and with standardised descriptions. The general approach is phytosociological and depends upon the rigorous recording of floristic data, as well as consideration of supporting information about a site, such as topography, management, soils and climate. The aim of the NVC survey will be to record vegetation information in areas with high floristic diversity (as determined during the Phase 1 habitat survey). The information gathered will inform the design of the OnTI, the impact assessment, mitigation and any potential enhancement or monitoring requirements.

#### 5.2.5 Cumulative Effects

Consultation will be undertaken with MC and AC to identify any potential developments in the area likely to result in cumulative effects. It is thought that cumulative ecology and nature conservation effects may arise if there are other large scale proposed developments within 5 km of the OnTI. The type of large scale developments that could give rise to cumulative effects in combination with the OnTI may include other transmission developments, wind farms and mineral proposals.

For the intertidal area, the Beatrice Offshore Wind Farm and Moray East projects use different landfall locations to those proposed for the Moray West OnTI, so there is no pathway for potential cumulative effects upon habitats and benthic species. The potential cumulative effects for these projects, and any others such as the Caithness to Moray Interconnector, will therefore, be limited to ornithological receptors that may use this wider coastline.

It is anticipated that the planning applications for any other large scale proposed developments will include information on their potential ecology and nature conservation effects. Where available, the outputs of these assessments will be utilised to undertake an assessment of cumulative effects. Details of any cumulative effects and appropriate mitigation, if required, will be discussed in the ER.

Scoping Question 5.2.1: Are MC, AC, and Statutory Nature Conservation Organisations in agreement with the proposed suite of protected species and habitat surveys?

### 5.3 Landscape and Visual Amenity

#### 5.3.1 Introduction

The following section presents the proposed approach to the assessment of potential impacts of the OnTI with respect to landscape character and visual receptors.

In developing the proposed approach, consideration has been given to the work completed for the Moray East Environmental Statement (ES) (2012) and the Moray East Modified TI ES (2014).

The Seascope Landscape and Visual Impact Assessment (SLVIA) of the consented Telford, Stevenson and MacColl wind farms and their associated TI (including the Modified TI) was carried out by Optimised Environments Limited (OPEN). OPEN has been commissioned to undertake the SLVIA for the Moray West Offshore Wind Farm and the associated OfTI as well as the Landscape and Visual Impact Assessment (LVIA) for the Moray West OnTI.

In developing the proposed approach, consideration has been given to the work completed for the Moray East Environmental Statement (ES) (2012) and the Moray East Modified TI ES (2014).

For the purposes of this scoping report, search areas for the onshore cable corridor and substation are being considered initially as shown on Figure 1.1.2. These will be narrowed down to a proposed cable route corridor, approximately 500 m wide and a preferred substation location through an iterative feasibility and assessment process which includes consideration of landscape and visual matters. The onshore substation LVIA Study Area is proposed to cover a 6 km radius from the onshore substation site, which is likely to be in the vicinity of the existing Blackhillock substation. This is considered to cover the area within which significant landscape and visual impacts may occur in relation to the substation. A study area that includes a 1 km buffer from the onshore cable route corridor will be used in the assessment of the landscape and visual impact of the cable route, which will in the main be temporary, during construction only. This is consistent with the approach agreed for the Moray East Modified TI ES (2014).

The LVIA will be based on a Design Envelope approach with a worst case scenario for the extent of the cable routing works and the onshore substation, which will be agreed with SNH, MC and AC.

#### 5.3.1 Baseline Data

Table 5.3.1 below details the data sources and technical reports that will be used to inform the impact assessment.

**Table 5.3.1 – Sources of data and technical reports**

Dataset / technical report	Main content	Geographical coverage	Source	Date
Moray East ES (2012) Chapters 5, 8 and 11 plus SLVIA Figures	SLVIA baseline of consented Telford, Stevenson and	50 km radius study area around Moray East site	Moray East	2012

Dataset / technical report	Main content	Geographical coverage	Source	Date
	MacColl wind farms			
Moray East Modified TI ES (2014)	SLVIA of consented Telford, Stevenson and MacColl wind farms and modified transmission infrastructure	50 km radius study area around Moray East site Onshore transmission infrastructure study area.	Moray East	2014
Coastal character area assessment and data. Moray East ES (2012) Chapter 5, Section 5.4-4 and in Table 8.4-7 of Chapter 8.	Definition and descriptions of Coastal Character Areas	Consented Telford, Stevenson and MacColl wind farms SLVIA Study Area	Moray East (OPEN)	2012
Beatrice Offshore Wind Farm ES	SLVIA impacts of BOWL	50 km radius study area around BOWL	BOWL	2012
Beatrice Onshore Transmission Works ES Landscape and Visual Chapter 8	LVIA impacts of onshore transmission infrastructure	Study Area 5 km radius from Beatrice onshore substation and within 500 m of onshore cable route.	BOWL	2015
BOWL substation design and underground cable route	Details of proposed works	Cable route corridor and substation site	BOWL	TBC
The MC and AC LDPs	Landscape Planning Designations and policy protection	Planning Authority boundaries	MC and AC	2015 and 2012 respectively
Historic Environment Scotland (HES) Inventory of Gardens and Designed Landscapes	List, plans and descriptions of gardens and designed landscapes included in the Inventory	Scotland	HES	various
SNH Landscape character data set and Landscape Character Assessments for Moray and Aberdeenshire	Definition and description of landscape character areas, types and units	Moray and Nairn and Banff and Buchan	SNH	1998 and 1997 respectively
Moray Wind Energy Landscape Capacity Study	Landscape character information	Moray	Alison Grant and Carol Anderson, Landscape Architects	2012

Dataset / technical report	Main content	Geographical coverage	Source	Date
Strategic Landscape Capacity Assessment for Wind Energy in Aberdeenshire	Landscape character information	Aberdeenshire	Ironside Farrar	2014
An Assessment of the Sensitivity and Capacity of the Scottish Seascape in Relation to Wind Farms	Identification and analysis of Seascape Units at a strategic scale	Scotland	SNH	2005
Raster and Digital Terrain Mapping (DTM) and SeaZone Bathymetry Data	Mapping of surface features, landform and sea depths	UK	OS	various

New photography relevant to the impacts of the OnTI will be taken in Summer/Autumn 2017.

### 5.3.2 Baseline Characteristics

#### 5.3.2.1 Landscape and coastal character

The search area covers a broad swathe of land which includes a section of the north facing Moray and Aberdeenshire coast. The coastline is generally rural in character with a predominantly agricultural landuse and a strong association with the sea. There are numerous settlements along the coastline and these are connected by roads, rail and other routes that generally run close to or on the coast.

The landfall for the export cables will be located on this coast between Buckie and Portsoy with the onshore cable circuits extending southwards, away from the coast, to the onshore substation. This coastline is within the North Aberdeenshire / Morayshire Coast National Seascape Unit 5. This coastline is defined mainly by National Seascape Character Type 2: Rocky Coastline with Open Sea Views, Type 3: Deposition Coastline with Open Sea Views and Type 4: Outer Firths.

Coastal Character Areas that correspond with the coastlines of the Study Area were defined and described within the Moray East ES (2012) Chapter 5.4 SLVIA.

Inland, the landscape is defined within the SNH (1998) Moray and Nairn Landscape Character Assessment as being within the Coast Lowlands Landscape Character Type (LCT) within Moray. Within Aberdeenshire the SNH (1997) Banff and Buchan Landscape Character Assessment defines the coastal landscape as lying within an area of the Lowland Mixed Coasts with Sand, Rocks and Cliffs in the North East LCT.

Further south, within Moray, the landscape is defined as being part of the Upland Farmland LCT whilst inland from the Aberdeenshire coastal landscape lies an area of Coastal Farmland LCT.

Further sub-division and descriptions of landscape character within both Moray and Aberdeenshire have been undertaken as part of capacity studies for wind farm development. These studies will be considered as part of the baseline review of landscape character, which will include desk and field based studies.

#### 5.3.2.2 Landscape planning designations

Within the Scoping Study Area there are two landscape planning designations that heighten the sensitivity of the landscape and visual environment and receptors as listed in Table 5.3.2.

**Table 5.3.2 – Landscape planning designations in the Study Areas**

Designating Authority	Designation
HES	Cullen House Garden and Designed Landscape (GDL)
AC	North Aberdeenshire Coast Special Landscape Area (SLA)

### 5.3.2.3 Visual receptors

There are a number of visual receptors located within the search area that may be affected by the OnTI. Those to be included within the LVIA will be dependent on the finalised substation and the onshore cable corridor locations and their associated study areas. Individual residential properties may also be considered where they lie in close proximity to the onshore substation. Visual impact on historic environment receptors is addressed in Section 5.4 of this scoping report. The key visual receptors are identified as follows:

- Settlements
  - Findochty
  - Portnockie
  - Cullen
  - Sandend
  - Fordyce
  - Newmill
  - Keith
  - Fife Keith
- Roads
  - A95
  - A96
  - A98
  - A942
  - B9014
  - B9017
  - B9115
  - B9018
- Railways
  - Aberdeen to Inverness Railway Line
- Long Distance Routes
  - Moray Coast Trail
  - National Cycle Route 1
- Attractions and Visitor Facilities
  - Meikle Balloch Hill
  - Bin of Cullen
  - Findlater Castle

### Viewpoints

The viewpoints and the visualisations needed to illustrate the substation will be located within the 6 km radius study area and discussed with SNH and MC.

A viewpoint will also be located to illustrate the location of the transition joint bays at the landfall. Photographs illustrating the route of the onshore cable circuits, where there may be direct effects on landscape features, will also be included.

### 5.3.3 Potential Effects

The location of the landfall is likely to be on the coast between Buckie and Portsoy. There are some sensitivities along this section of coast such as designated areas and visual receptors such as settlements and tourist attractions which require to be considered. In general, however, the landscape and visual effects of the transition joint bays and onshore cable route will be limited to the temporary, short term effects of the construction processes and the effects of the processes will be localised.

The onshore substation will have landscape character and visual effects during its construction, operation and decommissioning. The effect of this will be more widespread due to the potential large scale of the development. Night time effects as well as daytime effects may need to be considered.

**Table 5.3.3 – Potential Effects on Landscape and Visual Receptors**

Potential Effect	Construction	Operation	Decommissioning	Scoped Out
Physical changes to the landscape elements and features within the site boundary	Yes	Yes	Yes	No
Landscape character effects on the Coastal Character Area, landscape planning designations and landscape character types/units	Yes	Yes	Yes	No
Visual effects on views from visual receptors and viewpoints	Yes	Yes	Yes	No
Night-time visual effects on views from visual receptors and viewpoints	Yes	Yes	Yes	No

#### 5.3.3.1 Construction Effects

The key impacts on the landscape and visual resource of the OnTI that will occur during the construction phase of the OnTI are as follows:

- Short term, localised effects on the physical landscape of the Coastal Character Area, landscape planning designations, landscape character types/units and views from coastal visual and character receptors of the below ground laying of the onshore cable circuits. This will occur due to views of HDD drilling/trenching above the MHWS on the coast and through the landscape. This will involve removal of vegetation, construction of temporary access and haul roads (and their associated junctions with trafficked routes), laydown areas, construction compounds, signage and fencing along the onshore cable route corridor, which may last for several months;
- Short to medium term effects on landscape character in the vicinity of the substation; and
- Short to medium term day and night-time effects on views from visual receptors in the area around the substation. These may include settlements, individual properties, walking/cycling routes, roads, passenger rail routes and visitor attractions.

It is proposed that the construction effects of the cable route, landfall and onshore substation are scoped in.

#### 5.3.3.2 Operational Effects

The key impacts on the landscape and visual resource of the OnTI that will occur during the operational phase of the onshore development are as follows:

- In relation to the onshore cable route some longer-term effects such as where vegetation has been removed and reinstated may occur during the establishment period however, other indicators of where the underground cable is located will be limited to marker signage and surface level access covers, which will have limited effects. It is proposed that operational landscape and visual effects of the transition joint bays at the landfall and the underground onshore cable circuits are scoped out of the LVIA;
- Long term effects on landscape character in the vicinity of the substation through physical changes to the pattern of landscape elements and views of these changes; and
- Long term day and night-time effects on views from visual receptors in the area around the substation. These may include settlements, individual properties, walking/cycling routes, roads, passenger rail routes and visitor attractions.

It is proposed that the operational effects of the cable route and landfall are scoped out, but the onshore substation is scoped in.

#### 5.3.3.3 Decommissioning Effects

The impacts on the landscape and visual resource of the OnTI that will occur during the decommissioning phase are as follows:

- Short to medium term effects on landscape character in the vicinity of the substation; and
- Short to medium term day and night-time effects on views from visual receptors in the area around the substation. These may include settlements, individual properties, walking/cycling routes, roads, passenger rail routes and visitor attractions.

It is proposed that the decommissioning effects of the cable route and landfall are scoped out, but the onshore substation is scoped in.

#### 5.3.4 Approach to EIA

The following section describes the approach that will be used to assess the potential impacts of the OnTI and their significance. The LVIA will be based on a Design Envelope approach with worst case scenarios for the different elements of the OnTI being discussed with SNH, MC and AC as necessary.

##### 5.3.4.1 Relevant guidance

The following guidance will be used to inform the LVIA for the OnTI:

- Landscape Institute and IEMA. (2013). Guidelines for Landscape and Visual Impact Assessment: Third Edition.
- Landscape Institute. (2011) Use of Photography and Photomontage in Landscape and Visual Impact Assessment, Note 01/11.
- SNH. (2017). Visual Representation of Wind Farms (Version 2.2).
- Landscape Character Assessment Guidance for England and Scotland (SNH and TCA, 2002).

#### 5.3.4.2 Assessment criteria

The significance of effects will be assessed through a combination of two considerations; (i) the sensitivity of the landscape element, landscape character receptor, view or visual receptor, and (ii) the magnitude of change that will result from the introduction of the OnTI.

Sensitivity is an expression of the ability of a landscape element, landscape character receptor, view or visual receptor to accommodate the proposed development, and is dependent on baseline characteristics including its susceptibility to change, value, quality, importance, the nature of the viewer, and existing character.

Magnitude of change is an expression of the scale of the change on landscape elements, landscape character receptors and visual receptors that will result from the proposed development. Geographical extent and duration/reversibility will also be taken into account.

#### 5.3.4.3 Assessment method

The LVIA for the OnTI will utilise the coastal character areas identified in Moray East ES (2012) (Table 5.4-7) as follows:

- Coastal Character Area: Portgordon to Portnockie Coast
- Coastal Character Area: Cullen Bay
- Coastal Character Area: Sandend Bay

The baseline coastal character areas will be described following the methodology set out in the Moray East ES (2012) updated as necessary to take into account of revised guidance, definition of valued landscapes or new developments that have arisen. This and additional baseline landscape character and visual information will be gathered through desk study and fieldwork with the different extents of the LVIA Study Areas being taken into account.

Potentially sensitive receptors to be considered in the LVIA may include the following where they are located within the study areas (yet to be defined):

- Aberdeenshire SLA;
- Cullen House GDL;
- Landscape character types (identified by MC and AC in their Wind Farm Capacity Studies) in the vicinity of the substation;
- Settlements such as Keith and Sandend;
- Road and rail routes;
- Public rights of way/Core Paths; and
- Popular attractions such as Meikle Balloch Hill.

A Zone of Theoretical Visibility (ZTV) analysis plan will be prepared to illustrate the theoretical (bare ground) visibility of the onshore substation within the 6 km radius study area.

Visualisations illustrating the onshore substation will be prepared to inform the assessment. These will illustrate the worst-case scenario three dimensional envelope of the substation along with any associated mitigation planting. Photomontage visualisations will be presented in formats that accord with SNH (2017) Visual Representation of Wind Farms, Version 2.2, i.e., 53.5 degree field of view panoramas on A1 length sheets folded to A3. This format is similar to that used for the visualisations submitted by BOWL (BOWL, (2015). Beatrice Onshore Transmission Works ES). These may include, baseline panoramic photography, model views of the three dimensional envelope of the substation set within the landform and any mitigation planting (at 1 year and 15 years) and in some cases, photomontages to illustrate how the three dimensional envelope of the substation will relate to the existing view.

The baseline views and visualisations will be used to inform the assessment of the effects of the OnTI on landscape and visual resource. This will be undertaken through desk and field work.

### 5.3.5 Cumulative & In-combination Impacts

A cumulative LVIA will be undertaken in relation to other large scale energy related development within the LVIA study area to be agreed with SNH, AC and MC.

Cumulative energy related developments that are under construction, consented, in-application or at EIA scoping stage will be mapped within the CLVIA study area. This will include wind turbines of greater than 25 m to tip, commercial scale solar farms and overhead / underground electrical transmission infrastructure as relevant.

Existing and under construction development will be considered as part of the baseline to which the substation will be added. Scenarios which include cumulative developments at the consented or application stage will also be considered in the CLVIA. Scoping stage developments may only be included at the particular request of SNH, AC or MC and where sufficient information to inform the assessment is publicly available.

The following is assumed in relation to current and proposed developments in the vicinity of the Blackhillock substation:

- The Beaulay-Blackhillock-Kintore reinforcement is not to proceed as previously planned (Scottish and Southern Electricity Networks March 2017 <https://www.ssen-transmission.co.uk/news-views/articles/2017/3/ssen-commit-to-review-options-for-beaulay-blackhillock-kintore-reinforcement-if-project-returns-in-future-years>);
- The under construction expanded substation and a High Voltage Direct Current (HVDC) Converter Station (accommodating the Caithness to Moray Converter Station) at Blackhillock will be operational; and
- The construction of the BOWL substation and onshore grid connection will also be complete (cable installation by end of 2017 and substation due to be commissioned by mid- 2018).

The progress of the potential connection of the Dorenell Wind Farm to Blackhillock substation will also be kept under review. It is currently the preferred option for the connection point (<https://www.ssen-transmission.co.uk/projects/dorenell-wind-farm-connection>).

### 5.3.6 Potential Mitigation Measures

Alongside the assessment, options for mitigation of the identified potential significant effects which are predicted to arise from the OnTI will be considered, and practical measures agreed to avoid, reduce or off-set these effects. The LVIA will identify measures for avoiding or reducing the level of significance of potential effects. These measures will potentially include:

- measures embedded into the design; and
- measures additional to these which will further reduce long term landscape and visual effects.

Potential embedded mitigation measures for effects on the landscape and visual resource include the site selection for development, e.g. siting substation at a distance from sensitive landscape and visual receptors and the realisation of design objectives for the development such a screen planting and landscaping around the substation and reinstatement of vegetation in the vicinity of the onshore cable route.

Scoping Question 5.3.1: Are SNH, MC and AC in agreement with the proposed LVIA Study Area radius for the LVIA and the proposed format for the visualisations?

## 5.4 Historic Environment

The historic environment is represented by features, or assets, resulting from past use of the landscape, including buildings, archaeological remains and artefact scatters. Some heritage assets have been afforded statutory designations, such as world heritage sites, scheduled monuments, listed buildings or conservation areas, gardens and designed landscapes and inventory battlefields. These and non-designated assets are managed through the planning process in accordance with national and local policy and guidance.

This section presents a high level overview of the historic environment baseline characteristics within the Scoping Study Area. Baseline characteristics have been identified using the PastMap online spatial database (Historic Environment Scotland [HES], 2017a) and HES spatial datasets of designated heritage assets (HES, 2017b). The desk based assessment and ER will be prepared in line with national policy as well as in accordance with published advice on the historic environment, including:

- Historic Environment Scotland Act 2014;
- HES Policy Statement (HES, 2016a);
- HES (2016b) Managing Change in the Historic Environment – Setting; and
- Best-practice guidance issued by the Chartered Institute for Archaeologists (CIfA):
  - CIfA (2017) Standard and guidance for historic environment desk-based assessment.
  - CIfA (2014) Code of Conduct.

### 5.4.1 Baseline Characteristics

The Scoping Study Area (see Figure 1.1.2) has a wide geographical coverage. The coastline largely comprises rocky outcrops and cliffs interspersed with sandy bays and coastal settlements. Inland from the coast much of the land is currently used for agriculture (both arable and livestock) and commercial forestry. The main settlement is Keith, which is located within the southern part of the Scoping Study Area.

#### 5.4.1.1 Designated Heritage Assets

Designated heritage assets within the Scoping Study Area are illustrated on Figures 5.4.1 to 5.4.9.

There are no world heritage sites or inventory battlefields within the Scoping Study Area. There are 17 scheduled monuments, largely located in the Scoping Study Area's northern half. There is one GDL, this being Cullen House located immediately south-east of Cullen.

The Scoping Study Area contains a total of 804 listed buildings. There are 20 listed buildings at Category A and a further 290 at Category B, with the remainder at Category C. One listed building (Deskford) is also a Property in the Care of the Scottish Ministers. Many of the listed buildings lie within a total of nine conservation areas.

#### 5.4.1.2 Background Historic Environment

A review of PastMap indicates a rich variety of heritage assets within the Scoping Study Area covering a wide span of historical activity.

Many of the known heritage assets relate to medieval and post medieval agriculture, industry and settlement. These include farmsteads, mills, distilleries, harbours and boundary stones. There are also records of earlier activity, including numerous enclosure cropmarks possibly representing features such as elongated oval enclosures and mortuary enclosures.

Evidence of prehistoric activity includes the remains of a fort (Davies Castle, fort SM11042). A Roman temporary marching camp, Auchinhove, lies north-east of Keith. Medieval remains, including Inaltry Castle and Findlater Castle, are known within the Scoping Study Area. There are also several churches

dating to the medieval period, such as those at Fordyce and Deskford. Heritage assets relating to the defence of the coast are also present including rifle ranges and Second World War antitank blocks, such as those at Sandend Bay.

#### 5.4.2 Potential Effects

Effects on the historic environment can be both direct and indirect.

Direct effects can arise from the material disturbance of heritage assets. They primarily occur during the construction phase of a development and are permanent and irreversible, although restricted to the footprint of any works. The EIA will therefore consider direct effects on known heritage assets only where they are located within the footprint of the OnTI. The EIA will also consider the potential for direct effects upon as yet unknown heritage assets within the footprint of the OnTI.

Indirect effects arise where a development harms heritage assets without causing direct disturbance; primarily arising from changes in their settings. Changes to setting are caused when there is visibility of a development in views of and from a heritage asset. Such effects are more likely to occur during the operational phase of a development and can be reversible on decommissioning.

The potential effects of the OnTI as they are proposed to be considered in the ER are set out in Table 5.4.1.

**Table 5.4.1 – Summary of Potential Effects**

Potential Effect	Construction	Operation & Maintenance	Decommissioning	Scoped Out
Direct disturbance of designated and non-designated archaeological remains where they are located within the footprint of the OnTI.	Yes	No	No	No
Indirect effects on the settings of designated assets resulting from below ground infrastructure.	No	No	No	Yes
Indirect effects on the settings of designated assets resulting from above ground infrastructure.	No	Yes	No	No

##### 5.4.2.1 Construction Effects

There are known archaeological features within the Scoping Study Area and, depending upon the final location of the OnTI, these could be materially disturbed during construction. There is also the potential for as yet unknown heritage assets to be present, which could similarly be exposed to direct effects.

Depending upon the final location of the OnTI, indirect effects on heritage assets may arise through changes to their setting caused by the construction of underground infrastructure, e.g. the erection of fencing or presence of construction equipment. However, these effects will be relatively localised, short

term and reversible. Subject to agreement with the relevant consultees, it is proposed that the detailed assessment of indirect effects during the construction of underground infrastructure be excluded from the EIA.

It is proposed that, due to the localised, short term and reversible nature of construction activities, any change to setting that may arise from the onshore substation is most appropriately considered as an operational effect.

#### 5.4.2.2 Operational Effects

It is envisaged that no major refurbishment works will be required during operation of the OnTI and therefore it is unlikely that there will be any direct effects on known, or as yet unknown archaeological remains. It is likely that any excavations or infrastructure replacement will be isolated to areas of ground previously disturbed during construction. It is envisaged that vehicular access routes required for maintenance will follow established tracks, or follow routes taken during construction. Subject to agreement with the relevant consultees, it is proposed that the detailed assessment of direct effects during operation be excluded from the EIA.

As the onshore cable circuits will be below ground, they will not result in any indirect effects on the setting of heritage assets and therefore no detailed assessment is proposed for the EIA.

During operation, the onshore substation has potential to give rise to indirect effects on heritage assets through changes to their setting. These effects will be ascertained further during the EIA process and through liaison with the project Landscape Architect and HES to ensure they are appropriately assessed.

#### 5.4.2.3 Decommissioning Effects

The current decommissioning proposals include all underground infrastructure and the foundations of the onshore substation remaining *in-situ*. It is therefore proposed that a detailed assessment of direct effects from decommissioning be excluded from the EIA.

As with construction activities, any changes to setting that may arise from decommissioning activities associated with the onshore substation are likely to be localised, short term and reversible. It is proposed that such effects during decommissioning will not be significant and can therefore be excluded from detailed assessment during the EIA.

#### 5.4.3 Potential Mitigation Measures

The mitigation of any negative effects will include measures that allow detailed design of the OnTI to account for the protection of assets, thus minimising their harm and ensuring they can be appropriately recorded.

If the assessment identifies a need for further archaeological investigation and recording to mitigate any adverse effects of the OnTI, an appropriate programme of archaeological work will be implemented through a Written Scheme of Investigation (WSI) prepared in consultation with Aberdeenshire Council Archaeology Service (ACAS), (which currently provides the service for MC in addition to AC). HES will also be consulted if designated assets are likely to be affected. On completion of any archaeological fieldwork, a programme of post excavation assessment and publication of results will be implemented, again in consultation with ACAS.

#### 5.4.4 Approach to EIA

##### 5.4.4.1 Baseline Characterisation

A historic environment desk based assessment will be undertaken, including a description of known heritage assets and a discussion of the potential for further, as yet unknown, heritage assets. For direct effects the study area will extend to 500 m from the onshore cable corridor and onshore substation site

to allow a robust characterisation of the potential presence of currently unrecorded heritage assets. For indirect effects the study area will extend to 2.5 km from the onshore cable corridor and onshore substation site. A site visit to support the desk based assessment will also be undertaken. This will involve walking the onshore cable route corridor and onshore substation site, as well as visiting key assets that may experience indirect effects as a result of the OnTI.

For the purpose of establishing the historic environment baseline characteristics, the following sources will be consulted:

- National and county based registers of known archaeological and historical sites;
- Cartographic and historic documents;
- Aerial photographs;
- Historic Landuse Assessment mapping;
- Published sources;
- Internet sources; and
- Previous archaeological assessments of the area.

These will be obtained from the following organisations:

- Moray Sites and Monuments Record
- Aberdeenshire Sites and Monuments Record;
- HES;
- The National Archives of Scotland; and
- National Library of Scotland Map Library.

Following the desk based assessment and accompanying walkover survey, further archaeological survey may be required to support the assessment of effects on specific areas of sensitivity or identified heritage assets.

#### 5.4.4.2 Assessment of Effects

In order to understand the significance of direct effects, the presence of any assets that are known to be, or could potentially be, within the footprint of the OnTI will be assessed. Comparison of the distribution of known and potential archaeological assets within the 500m study area will allow the potential extent and nature of any direct disturbance to as yet unknown heritage assets to be characterised.

The methodology adopted for the assessment of effects arising through change to setting will follow the staged approach set out in HES (2016) Managing Change in the Historic Environment – Setting. This establishes a range of factors which might form part of the setting of a historic structure. A list of heritage assets which may be subject to indirect effects as a result of the OnTI, in particular the onshore substation, will be ascertained further as the EIA progresses. Due to its size and visibility within the landscape, it is unlikely that there will be significant indirect effects arising from the onshore substation at a distance greater than 2.5 km, but this distance may be substantially reduced dependent on location and terrain. A final list of assets will be established with reference to calculated ZTVs, wireframe and photomontage visualisations as appropriate. Consultation will be held with HES to ensure that potential receptors and effects are appropriately assessed.

The ER will include a description of the research undertaken and results obtained, as well as an assessment of the nature and significance of the potential effects of the OnTI. As the proposed details and location of the OnTI are further refined through the EIA process, the selection of assets to be considered by any detailed assessment will be discussed and agreed with the relevant consultees.

The magnitude of impacts and the significance of effects upon the identified heritage assets will be assessed. Consideration will be given to any necessary mitigation, in consultation with Moray West's design engineers and relevant statutory consultees.

#### 5.4.4.3 Cumulative Effects

Consultation will be undertaken with ACAS and HES to identify any potential developments likely to result in cumulative effects. The search area for developments which could give rise to cumulative indirect effects associated with the onshore substation will be 5 km. Consideration will be given to cumulative and in-combination effects particularly with regard to the indirect effects on heritage assets arising from the onshore substation during operation.

Scoping Question 5.4.1: Is HES in agreement with the proposed method of assessment and the approach to the selection of assets?

Scoping Question 5.4.2: Is ACAS in agreement with the approach proposed for the assessment of direct effects on known and as yet unknown assets?

## 5.5 Traffic and Transport

### 5.5.1 Introduction

This section outlines the proposed approach to predicting and assessing the traffic and transport effects likely to be associated with the OnTI. The need for the assessment arises from the potential effects of traffic generated by the OnTI on the local and sub-regional transport network.

The following documents contain policies, legislation or guidance which are of importance in establishing a reference point for the consideration of traffic and transport effects associated with the OnTI:

- National Planning Framework (NPF) 3 (2014) and Scottish Planning Policy (SPP) (2014), which sets out plans and strategies for transport to provide a long-term vision for development and investment across Scotland over the next 20 to 30 years;
- Transport Scotland's National Transport Strategy (2016);
- Planning Advice Note (PAN) 75: Planning for Transport;
- The Second Moray Local Transport Strategy, which sets out the road authority's aspirations for transport;
- Aberdeenshire City and Shire Local Transport Strategy 2012;
- The Institute of Environmental Management and Assessment (IEMA, formerly the Institute of Environmental Assessment) (1993) GN 1 Guidelines for the Environmental Assessment of Road Traffic (IEMA Guidelines); and
- The Design Manual for Roads and Bridges (The Highways Agency *et al.*, various dates).

The principal sources of data which have informed this section, and which will be drawn upon for the EIA are:

- Moray bus times<sup>1</sup>;

<sup>1</sup> Available at: [http://www.moray.gov.uk/moray\\_standard/page\\_1679.html](http://www.moray.gov.uk/moray_standard/page_1679.html)

- Moray Core Paths plan maps<sup>2</sup>;
- Aberdeenshire Core Paths plan maps<sup>3</sup>;
- National rail times<sup>4</sup>;
- The National Cycle Network map<sup>5</sup>;
- Department for Transport traffic count data<sup>6</sup> at the following locations;
  - A95 near Knock.
  - A96 near Blackhillock.
  - A98 near Kilnhillock.
  - A98 near Rathven.

### 5.5.2 Baseline Characteristics

The study area for the Environmental Report (ER) will be formally defined with MC and AC. The study area will cover elements of the local road network which are proposed to be used by OnTI related traffic.

#### 5.5.2.1 Local Road Network

The A roads within the Scoping Study Area (see Figure 1.1.2) include:

- A98: The A98 is two way single carriageway road and in the vicinity of the Scoping Study Area it provides an east / west coastal link route. The sections of road within residential areas are provided with street lights, have footways and are subject to either a 30mph or a 40mph speed limit. The rest of the A98 is subject to the national speed limit (in this case 60mph) and does not have streetlights or footways. To the west, south of Rathven, the A98 has a 24hr Annual Average Daily Traffic (AADT) flow of 5,602 vehicles. To the east near Kilnhillock, it has an AADT of 4,793 vehicles.
- A942: The A942 is two way single carriageway road that runs from the A98, just west of Cullen along the coast to Buckie where it re-joins the A98. The sections of road within residential areas are provided with street lights, have footways and are subject to either a 30mph or a 40mph speed limit. The rest of the A942 is subject to the national speed limit (in this case 60mph) and has occasional sections of footway but does not have streetlights. Between Findochty and Portknockie, the road has an AADT of 1,345 vehicles.
- A96: The A96 is the key link between Inverness and Aberdeen. It is a two way single carriageway road that passes through Keith. The sections of the A96 within residential areas are subject to either a 30mph or a 40mph speed limit, while the rest of the road is subject to the national speed limit (in this case 60mph). The sections of road within residential areas have streetlights and footways, all other sections do not. The A96 has an AADT of 7,544 vehicles just south of the junction with Denwell Road where Blackhillock substation is located.
- A95: The A95 is two way single carriageway road and runs between Keith and the A98 south-west of Boyndie. The speed limit of this road varies within the residential areas. Outside the residential areas it is subject to the national speed limit (in this case 60mph). The sections of

<sup>2</sup> Available at: [http://www.moray.gov.uk/moray\\_standard/page\\_52370.html](http://www.moray.gov.uk/moray_standard/page_52370.html)

<sup>3</sup> Available at: <https://www.aberdeenshire.gov.uk/paths-and-outdoor-access/core-paths-plan/core-paths-plan-maps/>

<sup>4</sup> Available at: <http://www.nationalrail.co.uk/>

<sup>5</sup> Available at: <http://www.sustrans.org.uk/ncn/map>

<sup>6</sup> Available at: <https://www.dft.gov.uk/traffic-counts/area.php?region=Scotland&la=Moray>, and <https://www.dft.gov.uk/traffic-counts/cp.php?la=Aberdeenshire>

this road within residential areas have streetlights and footways, while all other sections do not. A national count site near Knock, shows an AADT of 1,068 vehicles.

There are also many B roads, C roads and unclassified roads within Scoping Study Area, some of which may require to be used by OnTI related traffic.

#### 5.5.2.2 Walking and Cycling

There are several Core Paths within the Scoping Study Area, some of which may be affected by the OnTI depending upon its final location. However, many of the paths are concentrated in and around settlements.

Within MC jurisdiction, the Core Paths identified within the Scoping Study Area are listed in Table 5.5.1. In addition to these named paths, the Core Paths plan maps also identify some unnamed promoted paths.

**Table 5.5.1 – MC Core Paths within the Scoping Study Area**

Keith	Cullen	Buckie	Others
KT01, KT03, KT04, KT05, KT06, KT07, KT08, KT09, KT10, KT11, KT12, KT13, KT14, KT15, KT16, KT17, KT18, KT19, KT20, KT21, KT22	CU01, CU02, CU03, CU04, CU05, CU06, CU07, CU08, CU09	BK03, BK04, BK20	MCT15, MCT16, MCT17, MCT18, MCT19, MCT20

In Aberdeenshire, four Core Paths have been identified within the Scoping Study Area:

- A coastal path that runs between Portsoy and the eastern end of Sandend Bay;
- A path connecting Fordyce and Sandend;
- A coastal path that runs between Sandend and Bilkie’s Goat; and
- An extension to MC Core Path CU05.

In addition to these, the National Cycle Route 1 from Dover to the Shetland Islands passes through the Scoping Study Area at the north. This is described by Sustrans as:

*“The most northerly sections of the National Cycle Network are on the Aberdeen to the Shetlands cycle route passing through wild mountains and along rugged coastlines via Banff, Inverness, Lairg, Tongue and Thurso. Aberdeen to Inverness (150 miles) also forms part of EuroVelo 1”.*

Between Portsoy and Portknockie the National Cycle Route 1 runs roughly parallel to the A98. However, via Fordyce and Lintmill, using both on-road and off-road cycleways, a short section of this route also runs on the A98.

#### 5.5.2.3 Public Transport

The regular scheduled bus services passing through the Scoping Study Area are as follows:

- The bus service 35 runs every 30 minutes between Elgin and Aberdeen;
- The bus service 10 runs once an hour between Inverness and Aberdeen;
- The bus service 405 runs twice a day between Cullen and Macduff; and
- The bus service 365 runs on Tuesdays, Thursday and Friday between Tomintoul and Keith.

There are additional bus services operating in the Scoping Study Area. There is the demand based service ‘Dial M for Moray’ for the Keith and Buckie areas, school buses on various routes, and bus services with frequencies of once a week.

The railway station at Keith is served Mondays to Saturdays with trains running approximately every two hours in each direction, westbound to Inverness and eastbound to Inverurie and Aberdeen. There is a single early morning through service to Dundee and Edinburgh Waverley eastbound, which returns in the evening. Five trains each way run on Sundays. One of the Aberdeen bound trains continues to Glasgow Queen Street.

### 5.5.3 Potential Effects

The potential effects of the OnTI as they are proposed to be considered in the ER are set out in Table 5.5.2.

**Table 5.5.2 – Summary of Potential Effects**

Potential Effect	Construction	Operation & Maintenance	Decommissioning	Scoped Out
Disruption and delay to vehicle travellers	Yes	No	Yes	No
Disruption to pedestrian amenity and pedestrian severance	Yes	No	Yes	No
Disruption to the use of Core Paths	Yes	No	Yes	No
Potential to cause accidents and reduce road safety	Yes	No	Yes	No
Disruption and delay to public transport services	Yes	No	Yes	No

The types of effect that could be expected during the construction, operational and decommissioning of the OnTI are also taken from the IEMA Guidelines and are set out in the following sections.

#### 5.5.3.1 Construction Effects

During construction it will be necessary to transport materials, plant and the workforce to and from site. It will also be necessary to deliver the equipment for installation to site. Depending upon installation methods for the onshore cable circuits, some road closures may also be required.

At this stage, no information is available regarding the likely construction traffic generation of the OnTI. Additionally, no detailed information regarding installation requirements, e.g. the number of road crossings and access points along the road network, for the onshore cable circuits will be available until a final route is selected. However, it is envisaged that the construction phase may result in the following:

- Daily traffic demand may be significant, with a component being HGV movements. There may also be a requirement for abnormal loads to be delivered to site;
- The provision of temporary haul roads, construction compounds and access tracks may have an effect on accident and safety, by introducing new temporary infrastructure and concentrations of vehicular activity, where they did not exist previously;
- Temporary severance may occur if roads or core paths are closed or diverted during the construction works; and
- Delays and diversions to road users as a result of installation of the onshore cable circuits.

#### 5.5.3.2 Operational Effects

The onshore substation will not be permanently staffed. However, a small number of staff will make regular visits to carry out routine checks and maintenance. Occasional access will also be required at joint bays along the onshore cable route.

It is considered likely that operational effects will not be significant and so it is proposed that they are scoped out of any detailed assessment as part of the EIA.

#### 5.5.3.3 Decommissioning Effects

Decommissioning effects are anticipated to be less than the construction effects as it is currently proposed that all underground equipment and foundations will remain *in-situ*. In addition, as suggested by the Department for Transport (2015), background traffic levels (possibly 40 years hence) are likely to be higher and therefore, any percentage based analysis will result in a lower percentage outcome.

Regarding the onshore substation, no information is available on the likely quantity of materials that may need to be imported to site for reinstatement of the land, workforce numbers or equipment removal methods. However, it is envisaged that:

- Daily traffic demand may be significant with a component being HGV movements. There may also be a requirement for abnormal load movements; and
- Temporary severance may occur if roads or core paths are closed or diverted.

#### 5.5.4 Potential Mitigation Measures

The EIA will determine the requirement for the implementation of mitigation measures to reduce the significance of the effects to transport receptors. Where possible, mitigation measures will be embedded into the design of the OnTI. Measures may include the following:

- Identifying suitable access points, appropriate construction compound locations and optimum routes and times for construction traffic movements;
- Reducing disruption to traffic in built up areas and along key pinch points through the use of temporary haul roads within the onshore cable corridor and the use of horizontal directional drilling (HDD) or augur boring to install the onshore cable circuits beneath roads;
- Consolidating HGV and employee movements at a consolidation area close to a main road (such as at the onshore substation and other construction compounds) to reduce vehicle movements along more sensitive local routes;
- Committing to the development of a Construction Traffic Management Plan (CTMP) to manage road works, employee and HGV movements. The plan will also set out sensitive times to be avoided, which routes to use and strategies to continually monitor and enforce;
- Management and mitigation measures to limit the impacts on Core Paths and cycle routes; and

- Committing to repair or make good any damage caused to existing roads due to construction traffic movements.

### 5.5.5 Approach to EIA

#### 5.5.5.1 Estimating Future Traffic Flows

Traffic demand for the OnTI will be derived using a first principles approach whereby traffic generation is calculated from an understanding of likely equipment, materials and plant demand and workforce requirements.

The OnTI traffic demand will be assigned to those suitable road links within the study area as defined for the ER and the increase in traffic flows to baseline conditions determined. This will facilitate an assessment of the impact magnitude.

Where baseline data need to be supplemented, this will be sourced through MC and AC as appropriate or other road authorities as required or commissioned traffic surveys.

TEMPRO Version 7.2 will be used to determine traffic growth factors from the base year to the year of assessment.

#### 5.5.5.2 Accident Analysis

A review of the five year collision data for key links and junctions will be undertaken. A summary of the number of fatal, serious and slight injury accidents and a brief description of their location and causation will be provided in the ER.

This analysis will help to identify points of concern for road safety on those parts of the local road network that may be used by the OnTI, helping to identify the need for mitigation or management.

#### 5.5.5.3 Receptors

Sensitive receptors, e.g. schools or hospitals located within proximity to the roads being considered, will be identified through a site visit, consultation with MC and AC as appropriate and interrogation of OS mapping.

#### 5.5.5.4 Assessment Methodology

The principal approach to assessing the environmental impacts of road traffic associated with new developments are set out within the IEMA Guidelines. The guidelines provide a framework for the assessment of traffic borne environmental impacts, such as pedestrian severance and amenity, driver delay, accidents and safety, noise and vibration and air quality. Any potential noise, vibration or air quality effects will not be considered by the traffic and transport assessment (see Section 5.6 regarding noise and vibration and Section 5.8 regarding air quality).

The IEMA Guidelines suggest the following rules to define the extent and scale of the assessment required:

- Rule 1: Include roads where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%); and
- Rule 2: Include any specifically sensitive areas where traffic flows are predicted to increase by 10% or more. The above criterion applied to the OnTI traffic demand will dictate the extent of the study area and the scale of the impact assessment.

Judging the significance of an effect will be based on the relationship between the magnitude of impact and the sensitivity of the receptor, or road link affected.

The identified receptors will be considered on a scale of high, medium, low or very low based on their sensitivity to changes in traffic flow.

Impact magnitude will be established by applying IEMA Guidelines, which set out considerations, and in some cases thresholds, regarding changes to the volume and composition of traffic. Impact magnitude will be determined according to the criteria set out in Table 5.5.3.

**Table 5.5.3– Determining Magnitude of Impact**

Transport Effect	Major	Moderate	Minor	Negligible
Driver delay	Change in total traffic or HGV flows over 90%.	Change in total traffic or HGV flows of 60 to 90%.	Change in total traffic or HGV flows of 30 to 60%.	Change in total traffic or HGV flows of less than 30%.
Pedestrian amenity and pedestrian severance	Change in total traffic or HGV flows over 90%.  And/or Where there will be a temporary maximum increase in pedestrian journey length of 500m or more along a road or Core Path for more than 6 months over a 12 month period.	Change in total traffic or HGV flows of 60 to 90%.  And/or Where there will be a temporary maximum increase in pedestrian journey length of 250 to 500m along a road or Core Path for a 3 to 6 month period over 12 months.	Change in total traffic or HGV flows of 30 to 60%.  And/or Where there will be a temporary increase in pedestrian journey length of up to 250m along a road or Core Path for between 4 weeks and 3 months over a 12 month period.	Change in total traffic or HGV flows of less than 30%.  And/or Where there will be no temporary increase in pedestrian journey length.
Core Paths	Change in total traffic or HGV flows over 90%.  And/or Where there will be a temporary maximum increase in pedestrian journey length of 500m or more along a road or Core Path for more than 6 months over a 12 month period.	Change in total traffic or HGV flows of 60 to 90%.  And/or Where there will be a temporary maximum increase in pedestrian journey length of 250 to 500m along a road or Core Path for a 3 to 6 month period over 12 months.	Change in total traffic or HGV flows of 30 to 60%.  And/or Where there will be a temporary increase in pedestrian journey length of up to 250m along a road or Core Path for between 4 weeks and 3 months over a 12 month period.	Change in total traffic or HGV flows of less than 30%.  And/or Where there will be no temporary increase in pedestrian journey length.
Accidents and road safety	Informed by a review of existing collision patterns and trends based upon the existing personal injury accident records and the forecast increase in traffic.	Informed by a review of existing collision patterns and trends based upon the existing personal injury accident records and the forecast increase in traffic.	Informed by a review of existing collision patterns and trends based upon the existing personal injury accident records and the forecast increase in traffic.	Informed by a review of existing collision patterns and trends based upon the existing personal injury accident records and the forecast increase in traffic.

Transport Effect	Major	Moderate	Minor	Negligible
Public transport delay	Change in total traffic or HGV flows over 90%.  And/or Any change to total journey times by public transport of more than 80% lasting for more than four weeks in any 12 month period.	Change in total traffic or HGV flows of 60 to 90%.  And/or Any change to total journey times by public transport of 60 to 80% lasting for more than four weeks in any 12 month period.	Change in total traffic or HGV flows of 30 to 60%.  And/or Any change to total journey times by public transport of 40 to 60% lasting for more than four weeks in any 12 month period.	Change in total traffic or HGV flows of less than 30%.  And/or Any change to total journey times by public transport of 20 to 40% lasting for more than four weeks in any 12 month period

### 5.5.6 Cumulative Effects

Should there be other large scale proposed developments running concurrently with the OnTI, it is anticipated that the associated planning applications will include information on their potential traffic generation and its effects. Where available, the outputs of these assessments will be utilised to undertake an assessment of cumulative effects. Details of the any cumulative effects and appropriate mitigation, if required, will be discussed within the ER.

Scoping Question 5.5.1: Is the proposed approach and method of assessment for traffic and transport acceptable?

### 5.6 Noise and Vibration

This section sets out how the noise and vibration assessment will be conducted. The proposed approach to the assessment has been determined via a desk based assessment. This utilised existing available geographical information to identify potential noise sensitive receptors and sound sources present within the Scoping Study Area as shown on Figure 1.1.2.

The following legislation, planning policy and guidance have informed the proposed approach to assessment:

- The Control of Pollution Act 1974 (particularly Sections 60 and 61);
- The Environmental Protection Act 1990 (as amended by the Noise and Statutory Nuisance Act 1993) (particularly Section 79);
- Planning Advice Note 1/2011: Planning and Noise;
- Technical Advice Note - Assessment of Noise (2011);
- BS 4142:2014 Methods for rating and assessing industrial and commercial sound;
- BS 7445-1:2003 Description and measurement of environmental noise. Guide to quantities and procedures;
- BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise; and

- ISO 9613-2:1996 Acoustics -- Attenuation of sound during propagation outdoors -- Part 2: General method of calculation.

### 5.6.1 Baseline Characteristics

At this stage, no sound monitoring has been undertaken and no sound monitoring data are available. A review of Ordnance Survey (OS) mapping and Google Earth Pro 7.1.2.2041 has been undertaken in order to provide a high-level evaluation of the likely existing sound sources.

The coastline is interspersed with villages largely backed by agricultural land with the A98 running east / west. Sound levels are likely to be influenced by road traffic and additional anthropogenic sources closer to areas of habitation, as well as the sea on approaching the coast.

Inland from the coast, the Scoping Study Area is predominantly rural, comprising a mosaic of arable and livestock farming land with blocks of commercial forestry. There are various isolated dwellings and some small villages throughout. Baseline sounds levels are generally expected to be low and typical of a rural environment, being influenced by road traffic with additional anthropogenic sources closer to areas of habitation.

The largest settlement in the Scoping Study Area is Keith. Again, sound levels here are principally likely to be influenced by local road traffic, and also rail traffic, as well as other anthropogenic sources. The transmission infrastructure at the existing Blackhillock substation is likely to emit a low level 'hum' from equipment such as generators and buzz bars.

### 5.6.2 Potential Effects

The assessment presented within the ER will consider the effects on both human and ecological receptors.

As the precise location of the OnTI is yet to be finalised it is not currently possible to identify specific sensitive receptors or their distances from any construction works or infrastructure locations.

The potential effects of the OnTI as they are proposed to be considered in the ER are set out in Table 5.6.1 below.

**Table 5.6.1 – Summary of Potential Effects**

Potential Effect	Construction	Operation & Maintenance	Decommissioning	Scoped Out
Noise effects on human and ecological receptors resulting from laying and operation of the onshore cable circuits.	Yes	No	No	No
Noise effects on human and ecological receptors resulting from the onshore substation infrastructure and components.	Yes	Yes	Yes	No
Vibration effects on human, ecological receptors and infrastructure resulting from the laying and	No	No	No	Yes

Potential Effect	Construction	Operation & Maintenance	Decommissioning	Scoped Out
operation of the onshore cable circuits.				
Vibration effects on human, ecological receptors and infrastructure resulting from the onshore substation infrastructure and components.	Yes	No	No	No

### 5.6.3 Construction Effects

It is considered that sound generated from construction activities will be temporary. Noise effects will be most likely to result from the following sound sources:

- General construction activities carried out on the surface along the proposed onshore cable route and at the onshore substation site. Such activities are primarily likely to include the use of different mobile and static plant, particularly during excavations and earth movements;
- Horizontal directional drilling (HDD) or augur boring activities at proposed crossing points along the onshore cable route, e.g. at landfall, sensitive watercourses or roads;
- The construction of buildings and installation of equipment at the onshore substation site, which may require piling; and
- Construction traffic movements, which may increase traffic flows. In particular, a percentage of the construction traffic will be made up of HGVs delivering or removing equipment, materials and plant.

Depending on the final location of the onshore substation, and whether the construction of buildings and installation of equipment requires piling, vibration effects may occur, including cosmetic damage to any nearby properties or potential effects upon residents.

### 5.6.4 Operational Effects

During operation, it is considered that operational noise effects could arise as a result of the inherent sound generated by the onshore substation, which will be permanent. The significance of the effects will depend upon the final location of the onshore substation and its proximity to quiet places and other areas that are particularly valued for their acoustic environment, as well as ecologically sensitive locations. Depending on the final location of the onshore substation location within the Scoping Study Area, it is considered that receptors may include properties at Keith and around the existing Blackhillock substation. It is proposed that the ER will contain a detailed assessment to determine the likely environmental and health effects on identified sensitive receptors due to operational sound emissions for the onshore substation. Sound levels calculated with use of a sound propagation model will be compared with the relevant reference criteria within BS 4142:2014. Within the model, acoustic character corrections will be applied to the operational noise as necessary in accordance with the standard.

As there will be no permanent staffing of the onshore substation, and maintenance activities will be limited with only small numbers of staff and vehicle movements, it is proposed that the assessment of noise effects from maintenance activities during operation of the OnTI be scoped out of the EIA.

It is envisaged that the OnTI will require no major refurbishment works. It is considered that there will be no sources of significant vibration effects during operation of the OnTI. It is proposed that a detailed assessment of operational vibration effects be excluded from the EIA.

#### 5.6.5 Decommissioning Effects

It is assumed that at decommissioning, all below ground infrastructure and the foundations of the onshore substation will remain *in-situ*. Above ground equipment at the onshore substation will be cleared and the site reinstated. The decommissioning methodology will not be finalised until immediately prior to decommissioning, but will be in line with relevant policy and guidance at that time.

It is therefore considered that the effects of decommissioning will be similar in nature to those during construction but that they will be more limited in timescale and geographical extent.

#### 5.6.6 Potential Mitigation Measures

The construction works will use the Best Practicable Means to limit effects on noise sensitive receptors. Those measures will be set out in the Construction Environmental Management Plan (CEMP).

Operational mitigation measures to reduce sound from the OnTI to acceptable levels at receptors when assessed in accordance with BS 4142:2014 are likely to include:

- Selection of quieter equipment;
- Installation of acoustic enclosures;
- Installation of acoustic barriers and / or bunds;
- Silencing of exhausts / outlets for air handling / cooling units with attenuators; and
- Locating equipment to take advantage of screening inherent in the design, e.g. from buildings located within the onshore substation.

#### 5.6.7 Approach to EIA

##### 5.6.7.1 Baseline Characterisation

Once the onshore substation site has been identified, the MC Environmental Health Officer (EHO) will be consulted to identify suitable sound monitoring locations. It is proposed that unattended sound monitoring will be undertaken in accordance with the methodologies advocated within BS 7445-1:2003 and BS 4142:2014. Each survey will cover day and night time, and include a Sunday.

It is not proposed to undertake sound monitoring to inform the construction assessment of the onshore cable circuits. A desk based assessment will identify whether selected locations are likely to be in the lowest construction noise category and subject to the lowest noise limits under the guidance, or if there are other noise sources in the area that might raise the baseline category. As the assessment locations are likely to be in predominantly rural areas it is considered that the baseline will be classed as BS 5228:2009+A1:2014 Category A (for daytime this is a construction noise limit of 65 dB) and therefore the lowest thresholds and limits under the guidance will be applied.

##### 5.6.7.2 Construction Assessment

Regarding the onshore cable circuits, a sound propagation model will be created and evaluated using the Lima sound modelling suite for operational plant sound and road traffic noise. The model will be based on anticipated construction methodologies and plant components, and incorporate all noise sensitive uses (such as residential dwellings, schools, medical facilities etc.) within 1 km centred on the onshore cable route.

The 65dB contour is assumed to be the minimum construction noise criterion for the OnTI derived from the methodology within BS5228-1:2009+A1:2014. In order to accomplish this:

- The sound propagation model will utilise BS 5228:2009+A1:2014 and the Calculation of Road Traffic Noise methodology implemented within the Lima noise modelling suite;
- The model will be constructed based on construction noise levels obtained from the plant complement envisaged;
- Construction sound levels will be represented by both receptor levels and a series of noise contour maps;
- Properties that comfortably fall outside the 65dB contour will be excluded from the assessment; and
- Where construction works cannot be located at a sufficient distance from properties and residential areas falling within the 65dB contour, appropriate outline mitigation recommendations will be identified in order to reduce effects as far as reasonably practicable.

Regarding the onshore substation, a further sound propagation model will be created using the Lima modelling suite. Construction noise effects (and if appropriate vibration) will be assessed in accordance with BS 5228:2009+A1:2014. Construction noise limits will be set for the nearest noise sensitive receptors based on the measured ambient sound levels during the baseline sound surveys. The assessment will identify whether mitigation is likely to be required to achieve these limits.

This will include an assessment of effects during different phases of the construction, together with the effect of sound from construction traffic movements.

#### 5.6.7.3 Operational Assessment

An assessment of operational sound generated by the onshore substation will be undertaken in accordance with BS 4142:2014. A sound propagation model will be created and evaluated using the Lima modelling suite for operational plant sound. In order to accomplish this, the sound propagation model will utilise the ISO 9613-2:1996 sound propagation methodology implemented within Lima.

The assessment of the calculated sound and noise levels will be compared with the relevant reference criteria within BS 4142:2014. Particular attention will be paid to night time conditions as these are likely to be the most sensitive within any 24 hour period. Acoustic character corrections for tonality, impulsiveness, intermittency, or any other specific sound features readily distinctive against the residual acoustic environment, will be applied to the operational sound as necessary in accordance with BS 4142:2014.

#### 5.6.8 Cumulative Effects

Should there be other nearby proposed developments running concurrently with the OnTI, it is anticipated that the associated planning applications will include noise and vibration assessments in accordance with BS 5228-1:2009+A1:2014. Where available, the outputs of these assessments will be utilised to undertake an assessment of cumulative effects. Details of the any cumulative effects and appropriate mitigation, if required, will be discussed within the ER.

Scoping Question 5.6.1: Is the EHO in agreement with the proposed approaches to sound monitoring and baseline characterisation?

## 5.7 Socio Economics, Tourism and Recreation

This section covers the potential socio-economic, tourism and recreation effects arising from the OnTI. It makes recommendations on whether the potential effects on the relevant receptors should be scoped in or out of the EIA.

The recreation elements of this section covers the informal, onshore recreation resources that might be affected by the onshore cable corridor. This includes resources such as public rights of way (including ‘core paths’ and ‘Great Trails’), unenclosed and uncultivated land to which the public has access, inland water bodies and other items of public resort, such as viewing points or picnic spots. Formal facilities, such as football pitches or golf courses are not considered under recreation. The impact on formal facilities will be captured under the volume and value of tourism. This section also covers shore-based recreation in the vicinity of the export cable landfall point.

There is no specific guidance available covering the assessment of informal recreation receptors so it is proposed that a tried and tested three-strand method be utilised: desk studies; walkover surveys; and consultation. For the Scoping Report datasets have been used from the MAGIC website (<http://magic.defra.gov.uk>), as well as internet searches and OS Explorer sheets 424 and 425.

Table 5.7.1 below details the data sources and technical reports that have been used to inform this Scoping Report. These have been used to identify baseline conditions in the Study Area, which cover the Moray and Aberdeenshire local authority districts, including socio-economic characteristics, and opportunities or challenges relevant to the construction and operation of the OnTI. The time periods selected for economic indicators are chosen to cover the whole of the economic cycle (2005-2015), although in practice this may not always be possible due to the limitations of the data or relevance for some indicators (e.g. population). For other datasets, it is necessary to rely on the latest available data due to limited or inconsistent time series data.

The collection of Scottish and local research on local economic sector strengths and opportunities (including that specific to the offshore wind sector such as engineering, construction and marine activities), as well as tourism and recreational assets is on-going. This will include research undertaken by Highlands and Islands Enterprise, local authorities, tourism and other sector bodies.

**Table 5.7.1 – Datasets and technical reports**

Dataset / technical report	Main content	Source	Date
<b>Sub-national Gross Value Added (GVA)</b>	Current position and trends in the following for zones of influence: <ul style="list-style-type: none"> <li>• Total GVA;</li> <li>• GVA in sectors of interest;</li> <li>• GVA per head; and</li> <li>• GVA per worker.</li> </ul>	Office of National Statistics (ONS)	2005-2015
<b>Business Register Employment Survey (BRES) and Annual Business Inquiry (ABI)</b>	Current position and trends in: <ul style="list-style-type: none"> <li>• Total employment (Full Time Equivalent (FTEs) employees);</li> <li>• Sectoral mix; and</li> <li>• Employment in relevant sectors:               <ul style="list-style-type: none"> <li>○ Energy sector</li> <li>○ Construction and manufacturing sectors relevant to offshore wind</li> <li>○ Tourism</li> </ul> </li> </ul>	ONS	2005-2008 (ABI) 2009-2015 (BRES)
<b>ONS UK Business Counts</b>	Current position and trends in total stock of businesses, including size and sector breakdown	ONS	2010-2015
<b>Employment Forecasts</b>	Projected changes in: <ul style="list-style-type: none"> <li>• Total employment (FTEs); and</li> </ul>	Availability of forecasts will	2014-2026 (or similar period)

Dataset / technical report	Main content	Source	Date
	<ul style="list-style-type: none"> <li>Sectoral mix.</li> </ul> Also provides historic data for range of economic and labour market indicators	need to be determined in due course	
<b>Mid Year Population Estimates</b>	Current position and trends in total and working age population in zones of influence	ONS	2001-2015
<b>Sub-national Population Projections</b>	Projected total and working age population in zones of influence	ONS	2014-2039
<b>Census of Population</b>	Range of variables on the workforce status, skills and occupational engagement of workers in relevant local authority area; also commuting patterns into and out of the zones of influence	ONS	2011
<b>Claimant Count</b>	Claiming of various out of work benefits, including the Jobseekers Allowance	ONS (Department for Work and Pensions, 2017)	2006-2016
<b>Census of Population</b>	Range of variables on the workforce status, skills and occupational engagement of workers in relevant local authority area; also commuting patterns into and out of the zones of influence	ONS	2011
<b>Local tourism surveys</b>	Estimates of volume and value for tourism areas as a whole and local authority districts	Availability to be determined	Latest available
<b>Recreational Activity</b>	Data on use of offshore and related onshore recreational resources in or close to cable corridor	Availability to be determined	Latest available
<b>Economic studies (e.g. local authority level research and assessments)</b>	A range of research and specific assessments on economic and supply chain and skills strengths	Availability to be determined	Latest available
<b>Ports and Harbours Infrastructure</b>	Literature on the nature and range of facilities, assets and use	Specific to each location	Latest available

### 5.7.1 Baseline Characteristics

Drawing on the datasets identified above, baseline characteristics are briefly described below.

#### 5.7.1.1 Economic Performance

This subsection examines performance and trends within economic wealth contribution, productivity and sectors driving growth in Scotland and where possible, draws out the local picture for the districts within the study area: Moray and Aberdeenshire.

The economy of Scotland contributed around £127.3bn in Gross Value Added (GVA) to the UK economy in 2015, representing just under 8% of all UK output, and a growth of 17% since 2010. Scotland's economic performance shows a clear upward trajectory and in 2011, GVA output surpassed its pre-recession peak.

The lowest geographical level of GVA data is available at NUTS3, which provides data for the districts of Moray and Aberdeenshire. Together, the local Study Area<sup>7</sup> accounts for 8% of Scotland's GVA output in

<sup>7</sup> The study area being referred to is the socio economic impact area of Moray and Aberdeenshire.

2015. Aberdeenshire outperformed Scotland as a whole in experiencing a significant growth in output expanding by 42% between 2010 and 2015.

**Table 5.7.2– Gross Value Added (£, billion)**

	2010	% of Scotland	2015	% of Scotland	% change 2010 to 2015	Compound Annual Growth Rate 2010 to 2015
Scotland	£108.8	100%	£127.3	100%	17%	3.2%
Aberdeenshire	£5.1	5%	£7.3	6%	42%	7.3%
Moray	£1.8	2%	£2.0	2%	7%	1.3%

Source: Office for National Statistics (2016a)

Productivity, as measured by GVA per head of population is equivalent to £23,685 in Scotland. A comparison with national productivity levels shows a 7.5% gap with the UK as a whole. Productivity within the local impact districts has been relatively higher than Scotland in Aberdeenshire by 17%, while productivity has been relatively lower than Scotland in Moray by 13%.

**Plate 5.7.1 – Gross Value Added per head of population by district, 2015 (£)**



Source: Office for National Statistics (2016a)

Looking at the GVA composition of four relevant key sectors (Manufacturing, Construction, Energy and Tourism), this shows that together, they account for 28% of Scotland’s GVA output in 2015 with the manufacturing sector accounting for 11% alone. Manufacturing is particularly concentrated in Moray and Aberdeenshire where it accounts for 18% and 27% of each districts’ GVA output respectively.

### 5.7.1.2 Employment

This subsection examines performance and trends within employment in Scotland and districts within the local study area, and highlights the current employment picture within the key relevant sectors. This will help to inform the assessment of the potential to recruit local people from within the study area during the construction and operational phases.

The Business Register and Employment Survey (BRES) provides more up to date information on recent trends in employment. The number of employees in Scotland stands at 2.44 million in 2015, an increase of 113,000 since 2010 (5%). Together, the districts within the local Study Area account for 5% of Scotland’s employment. Despite only accounting for 4% of Scotland’s employment, Aberdeenshire has experienced

a significant growth in overall employment compared to other districts in the Study Area and Scotland as a whole.

**Table 5.7.3 – Employment**

	2010	% of Scotland	2015	% of Scotland	% change 2010 to 2015	Compound Annual Growth Rate 2010 to 2015
Scotland	2,330,500	100%	2,443,400	100%	5%	1.0%
Aberdeenshire	87,900	4%	102,500	4%	17%	3.1%
Moray	32,400	1%	34,000	1%	5%	1.0%

Office for National Statistics (2016b)

Employment by sector shows that cumulatively the four key relevant sectors account for 26% of Scotland’s employment with the Tourism sector accounting for the most at 10% of Scotland’s employment. The data shows that in terms of absolute employment:

- Manufacturing is concentrated in Aberdeenshire;
- Engineering is equally concentrated in Aberdeenshire and Aberdeen City;
- Construction is concentrated in Highland and Aberdeenshire;
- Energy is significantly more concentrated in Aberdeen City; and
- The tourism sector is concentrated in Highland and Aberdeen City.

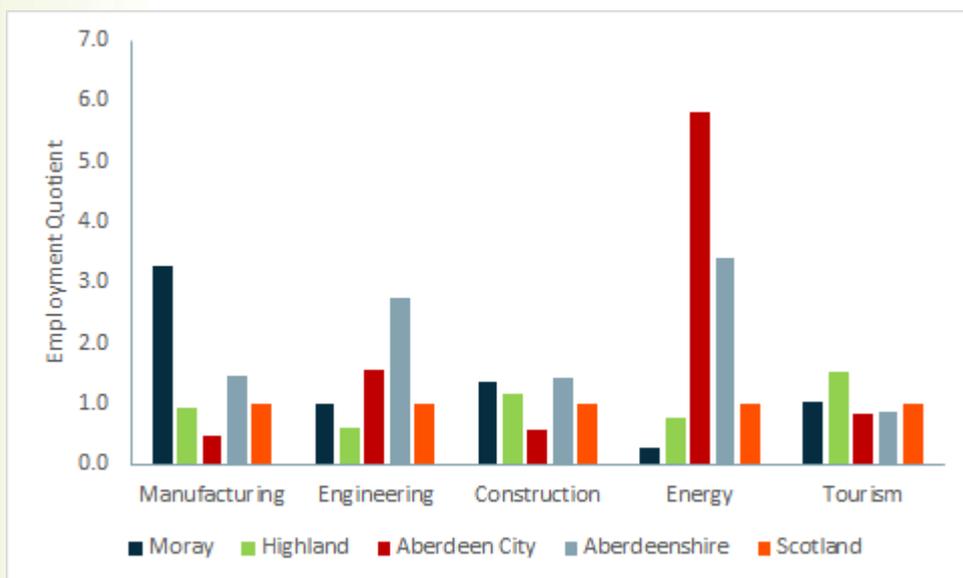
**Table 5.7.4 – Employment by sector, 2015**

	Employment	% of Scotland
Manufacturing	114,500	5%
Engineering	64,600	3%
Construction	129,800	5%
Energy	72,200	3%
Tourism	244,700	10%
<b>Total</b>	<b>625,700</b>	<b>26%</b>

Source: Office for National Statistics (2016b)

The relative strength of each sector within the study districts can be analysed through employment quotients shown in Plate 5.7.2 below. Employment quotients are a measure of how more or less concentrated an industry is in a local economy compared to nationally, where an employment quotient of 1 corresponds to the national position.

**Plate 5.7.2 – Employment quotients for key sectors by districts within the study area, 2015**



Source: Office for National Statistics (2016b)

#### 5.7.1.3 Tourism

This section considers the volume and value of the visitor economy to the local Study Area. This will be used to help inform the assessment of the OnTI on the tourism and recreation activities during the construction and operational phases.

The tourism sector has been identified as a priority industry by the Scottish Government, Scottish Enterprise as well as Highland and Islands Enterprise (HIE). According to VisitScotland (2016), the sector contributes in the region of £5 billion of expenditure and employs around 217,000 people in businesses across Scotland.

In 2015, Scotland attracted around 15 million trips. Some 12 million of these were from within the UK (5.8 million were from within Scotland). These visitors spent 64 million nights in Scotland with an associated expenditure of over £5 billion (VisitScotland, 2016).

**Table 5.7.5 – Volume and value of tourism in Scotland, 2015**

Country of residence	Trips 2015 (m)	% of total	Nights 2015 (m)	% of total	Spend 2015 (£m)	% of total
Scotland	5.84	39%	16.67	26%	1,154	23%
England	5.99	40%	23.99	38%	2,086	41%
Wales	0.16	1%	0.67	1%	39	1%
<b>Total GB Tourism</b>	<b>12.00</b>	<b>81%</b>	<b>41.34</b>	<b>65%</b>	<b>3,279</b>	<b>65%</b>
Northern Ireland	0.27	2%	0.94	1%	97	2%
<b>Total overseas tourism</b>	<b>2.59</b>	<b>17%</b>	<b>21.49</b>	<b>34%</b>	<b>1,695</b>	<b>33%</b>
<b>Total</b>	<b>14.86</b>	<b>100%</b>	<b>63.77</b>	<b>100%</b>	<b>5,071</b>	<b>100%</b>

Source: VisitScotland (2016)

Data on regional visits is unavailable for districts separately. The overall data (Table 5.7.5) shows that the majority of the trips within the Scoping Study Area are domestic, as is the majority of the tourism expenditure.

**Table 5.7.6 – Volume and value of tourism by district, 2015**

	GB Trips	GB spend (£m)	International Trips	International spend (£m)
Aberdeen, Aberdeenshire and Moray	1,047,000	290	292,000	95
<b>Total</b>	<b>1,047,000</b>	<b>290</b>	<b>292,000</b>	<b>95</b>

Source: VisitScotland (2016)

In terms of accommodation, the most popular types used by GB tourists are a hotel/motel, friends/relatives and self-catering. Data on accommodation use for overseas tourists is unavailable.

Table 5.7.7 lists the top visitor attractions within the Local Study Area. According to VisitScotland, the most popular tourist attraction within the Local Study Area is the Aden Country Park with 326,620 visitors in 2015.

**Table 5.7.7 – Top visitor attractions in the Local Study Area, 2015**

Attraction	Visitors
Aden Country Park	326,620
David Welch Winter Gardens	274,713
Johnston’s Cashmere Visitor Centre	186,898
Brodie Castle	108,173
Scottish Dolphin Centre	9,561

Source: VisitScotland (2016)

#### 5.7.1.4 Recreation

With the onshore cable corridor yet to be defined, it has not been possible to survey for specific resources that may be affected. However, there is a number of linear features within the Scoping Study Area that will have to be crossed by the cables and, as such, will be affected. These include:

- National Cycle Network (NCN) Route 1 (includes Moray Coast Ride)
- North Sea Coast Route
- The Great Trails - Moray Coast Trail and, possibly, the Speyside Way, depending upon route chosen.

More generally, once the onshore cable corridor is defined, a search for significant receptors that may be affected will be undertaken. These may include:

- Routes and/or locations with a high level of public usage, such as routes to viewpoints or monuments, waterbodies, forests, etc.
- In addition to the high-profile routes referred to above, relevant circular and shorter promoted routes will also be looked at, such as those covered on the Moray Ways website ([www.morayways.org.uk](http://www.morayways.org.uk)).
- Routes and/or areas of benefit to specific groups of users, such as disabled users, mountain bikes or equestrians.
- Resources used by particular interest groups, such as the foreshore for kite-surfers or the River Isla for canoeists. A full list of significant activities and resources will be worked up through consultation with key stakeholders and special interest groups.
- While focussing on recreational use, commuter use of important routes, such as NCN1, will also be assessed.

### 5.7.2 Potential Effects

The summary of potential effects to be assessed within EIA is set out in Table 5.7.8 below.

**Table 5.7.8 - Summary of the Socioeconomic, Tourism and Recreation Potential Effects**

Potential Effect	Construction	Operation	Decommissioning	Scoped Out
<b>Socio Economics</b>				
Direct and Indirect employment creation in the construction	Yes	No	No	No
Direct and Indirect GVA creation in the construction	Yes	No	No	No
Change in demand for housing and local services associated with influx of labour	No	No	No	Yes
<b>Tourism</b>				
Volume of tourism	Yes	No	No	No
Value of tourism	Yes	No	No	No
<b>Recreation</b>				
Short-term path/route closures and diversions; noise; dust or visual disturbance	Yes	No	No	No

### 5.7.3 Construction Effects

As a major investment, the construction, operation and decommissioning of the OnTI has the potential to create economic benefits.

These economic benefits arise through the construction expenditure within the supply chain located in the Study Area. This will support direct and indirect employment and GVA (a measure of wealth creation). The potential scale of this activity will depend on the nature of the procurement of this activity, including the presence of suppliers in the impact areas. Whilst the approach to procurement cannot be determined at the current time, the presence of a significant manufacturing and construction sector (and the associated infrastructure and skills sets) in and around Aberdeen, Inverness and the wider Highlands area means that this potential effect should be scoped into the assessment.

There are also potential labour market effects which should be taken into account, reflecting the potential for local residents to access employment in the construction and manufacturing sectors should supply chain employment arise. The change in the fortunes of the offshore oil sector has freed up some capacity which could be taken up by the opportunities created by the Moray West depending on the degree of

mobility and transferability of skills and occupations. These potential effects have been scoped in to the assessment.

The construction of the OnTI has the potential to draw in workers from outside the local impact area. This will depend on both the extent to which suppliers are based outside the area and whether they source workers locally (effects described above). Subject to this, there may be a short-term increase in the demand for accommodation and associated retail and leisure services, with the potential for effects on the receptor depending on the scale and nature of demand given the scale and nature of the local communities. However, given the modest scale of activity, the likelihood is that this additional demand can be easily accommodated.

The construction of the OnTI and laying of the onshore cable circuits has the potential to affect tourism and recreational activities. This may affect both in terms of the disruption to the times, areas and routes in which these activities can take place and the associated changes in economic activity and benefit which they support onshore in the local visitor economy. However, this will be very temporary and limited in nature, with access restored on completion of construction. During the installation of the onshore cable circuits, potential noise, dust and visual disturbance impacts could arise, although these will be temporary in nature. Effects from noise are considered in Section 5.6 (Noise and Vibration) while potential effects upon air quality have been scoped out (Section 5.8). Visual impacts are considered in Section 5.3 (Landscape and Visual Amenity). Rights of way and other access routes may need to be closed or diverted temporarily while the cable is constructed under them.

Until the final onshore cable corridor and the location of the onshore substation are finalised, it is difficult to assess whether construction activity will cause disruption for the local tourism economy. For this reason, the receptor is scoped in.

#### 5.7.3.1 Operational Effects

Once operational, the OnTI will require maintenance throughout its lifetime.

The operation and maintenance activity associated specifically with the OnTI will support economic activity both directly and the associated supply chain, with some levels of employment being generated. However, this is expected to be modest compared to the operations and maintenance activity for the main Moray West Offshore Windfarm and associated OfTI. For these reasons it is scoped out of the OnTI assessment.

The operations will be limited to the underground transmission cable and the substation and maintenance activity will be relatively intermittent along the onshore cable corridor. There is not expected to be much, if any, potential for disruption to the onshore local visitor economy. This potential effect, and the associated visitor economy effect, have therefore been scoped out. Likewise, operation and maintenance activity should not disrupt times, areas and routes of recreational activities. Visual impacts of the substation are considered in section 5.3 (Landscape and Visual Amenity). On balance, there should also be little or no impact on recreation during the operational phase and has therefore been scoped out.

#### 5.7.3.2 Decommissioning Effects

The decommissioning of OnTI will be reviewed and set out in more detail as part of the decommissioning plan. Whilst the decommissioning may lead to the same types of socio-economic and tourism effects as for the construction of the OnTI, the effects will be much less than during construction as the cables and substation foundations have been proposed to be left *in-situ*. Decommissioning is uncertain and little information is currently available on the details of the decommissioning phase upon which to make an assessment, due to it being in the distant future. For this reason, these should be scoped out at this stage and can be reviewed as part of the decommissioning plan.

As the cable circuits have been proposed to be left underground at decommissioning, there should be no impact on recreation during this phase and has therefore been scoped out.

#### 5.7.4 Approach to EIA

The following section describes the approach that will be used to assess the potential impacts of the OnTI and their significance. The assessment will be based on a Design Envelope approach with worst case scenarios for the different elements of the OnTI being defined.

##### 5.7.4.1 Relevant guidance

There is no specific guidance on the approach to assessing the socio-economic impact of major infrastructure projects. The UK Government's Greenbook (Appraisal and Evaluation in Central Government. HM Treasury, 2011) provides a helpful guide to socio-economic appraisal techniques for various types of projects.

##### 5.7.4.2 Assessment method

Table 5.7.9 below sets out the intended approach to assessment of specific effects.

**Table 5.7.9 - Proposed Approach to Assessment of Potential Effects**

<p><b>Potential impact:</b></p>	<ul style="list-style-type: none"> <li>• Direct and Indirect employment creation in the construction phase;</li> <li>• Direct and Indirect GVA creation in the construction phase;</li> <li>• Volume of tourism;</li> <li>• Value of tourism; and</li> <li>• Short-term path/route closures and diversions; noise; dust or visual disturbance.</li> </ul>
<p><b>Surveys/Studies to be undertaken:</b></p>	<p>For recreation, a walkover survey will be carried out for each significant receptor to confirm their nature, assess condition and, where possible, determine levels of use from on-the-ground evidence. This will be supplemented by desk based Analysis.</p> <p>The following information will be used in the assessment, drawn from a combination of Moray East ES (2012) and the baseline assessment:</p> <ul style="list-style-type: none"> <li>• Construction costs by type of activity;</li> <li>• Procurement and geographical sourcing assumptions; and</li> <li>• Possible measures adopted by local stakeholders and potentially the developer to promote the maximisation of economic benefits.</li> </ul> <p>The assessment will also draw on an analysis of the nature of the business base and construction skills amongst the workforce and capacity for the Study Area, matching this against the supply chain opportunities and skill needs of the offshore wind sector.</p>
<p><b>Approach to impact assessment:</b></p>	<p>The information noted above will be used within an economic impact model. The model will include Input-output tables specific for Scotland. The total values for the construction programme are key inputs into the economic impact model; it is this injection of expenditure which drives the employment and GVA impacts that the assessment is seeking to measure. The analysis of the scope for local workers to access the employment opportunities will be based on an analysis of the</p>

construction programme, the nature of the activity which will occur locally and the types of skills required, matched against the capacity and capability of the workforce in the Study Area. Evidence of significance of the recreation receptors will be sought by a combination of internet searches and communication with special interest groups and resource managers. Effects are expected to be temporary but may be direct or indirect; standalone or cumulative; and beneficial or adverse. A simple matrix combining 'sensitivity' and 'magnitude of change' will be used to assign a level of significance ranging from negligible to high. However, it is important to appreciate that this process is no more than a structured tool and that the final evaluation will involve the exercise of professional judgement.

#### 5.7.5 Cumulative Effects

The assessment of potential cumulative socio-economic, recreation and tourism effects of the OnTI will take account of:

- The construction, operation and decommissioning of other wind farms in the proximity to Moray West Development, such as Dorenell. These schemes will be at different stages of construction and operation, leading to a different mix of economic and labour market impacts in the Study Area for the OnTI.
- The interaction with other relevant offshore and onshore activities, which may generate large scale requirements for labour and services which overlap with the requirements for this OnTI. These are likely to be major construction and engineering projects.

#### 5.7.6 Potential Mitigation Measures

Many of the socio-economic effects will be positive in their nature (e.g. job and wealth creation) and therefore will not require mitigation. The OnTI is being developed as part of a series of projects to developing offshore wind in the Moray Firth, and the developers have established ongoing engagement with local economic agencies in order to allow local enterprises to take advantage of the opportunities arising from development.

The requirement for specific mitigation measures associated with other socio-economic effects will be explored as part of the assessment process.

Scoping Question 5.7.1: Is the proposed approach and method of assessment for socio economics, tourism and recreation acceptable?

## 5.8 Air Quality

According to the 2016 Air Quality Annual Progress Report for the Moray Council (Aecom, 2016), there are no existing significant air quality issues within Moray. Nitrogen dioxide (NO<sub>2</sub>) is currently the only air pollutant of concern and monitoring shows that annual mean concentrations are well below the Scottish Air Quality Standard, with monitoring at 18 of 19 locations showing a decline in concentrations. No Air

Quality Management Areas have been declared within Moray, and as such there are no planned air quality improvement measures.

Similarly, the 2016 Air Quality Annual Progress Report for Aberdeenshire Council (AC, 2016) identifies that Aberdeenshire enjoys good air quality with no exceedances of the national air quality objectives and no Air Quality Management Areas declared.

It is considered that potential air quality effects resulting from the OnTI are most likely to arise during construction, and possibly decommissioning. These may include:

- Dust arising from excavations and earth movements. If uncontrolled, particulate matter can be released to the air;
- Emissions from construction plant. Any plant emissions will be generated on site and are likely to be small in magnitude. Emissions can be associated with a range of pollutants, including NO<sub>2</sub>; and
- Emissions from construction vehicles. Vehicle emissions will be generated on site and on the local road network, and are likely to be small in magnitude. Emissions can be associated with a range of pollutants, including NO<sub>2</sub>.

It is considered that such potential effects can be sufficiently controlled by standard construction practices and good site management (via the implementation of a CEMP), which it is assumed will be imposed as a condition of any consent for the OnTI.

It is therefore proposed that any further assessment of air quality effects be scoped out of the EIA.

Scoping Question 5.8.1: Is the proposed approach to scope out air quality acceptable?

## 5.9 Land Use

This section provides a brief overview of land use practices within the Scoping Study Area and considers the OnTI's potential effects upon them. Both existing and proposed land uses are considered. The baseline characteristics have been established through a desk study utilising the following sources:

- OS mapping;
- Google Earth Pro 7.1.2.2041;
- The Macaulay Land Use Research Institute (2010) Land Capability for Agriculture in Scotland;
- Aberdeenshire LDP; and
- Moray LDP.

### 5.9.1 Baseline Characteristics

#### 5.9.1.1 Land Designations and Allocations

Both the Moray and Aberdeenshire LDPs contain settlement statements which allocate or designate land in and around settlements for future development or certain uses, e.g. amenity greenspace, sports areas, green corridors and civic space. Within the Scoping Study Area, the Moray LDP includes settlement statements for Buckie, Findochty, Portknockie, Cullen, Newmill and Keith. These statements allocate or designate land only within the boundaries of the settlements, although in all cases these extend beyond

the locations of existing development. The Aberdeenshire LDP does not include settlement statements for any of the settlements within the Scoping Study Area.

Policy E10 within the Moray LDP concerns 'Countryside Around Towns'. These are locations where development will only be permitted if it:

- Relates to the rehabilitation, conversion, limited extension, replacement or change of use of existing buildings;
- Is necessary for the purposes of agriculture, forestry, low intensity recreation or tourism or specifically required by other policies or proposals within the LDP; and
- Is a designated long term housing allocation under Policy H2.

Within the Scoping Study Area, land designated as Countryside Around Towns encircles the settlement boundaries of both Buckie and Keith.

Regarding minerals, the Proposals Maps within the Moray LDP safeguard three locations associated with existing quarries. These are Bogend Quarry near Buckie, and Cairdshill and Blackhillock Quarries close to the existing Blackhillock substation.

Supplementary Guidance 6 of the Aberdeenshire LDP (Areas Safeguarded or Identified as Areas of Search for Minerals Development) identifies an area of search for sand and gravel reserves approximately 1 km southwest of Fordyce (referred to as 'Cotton Hill, Fordyce'). These areas of search comprise mineral reserves that should not be sterilised by inappropriate development, but their boundaries are not accurately defined.

#### 5.9.1.2 Agricultural Land Capability

Much of the land within the Scoping Study Area is in agricultural use. The Macaulay Land Use Research Institute's Land Use Capability system is the official agricultural classification system used in Scotland. The system is used to rank land based on its potential productivity and cropping flexibility.

According to the Macaulay Land Use Research Institute (2010), land within the northern section of the Scoping Study Area falls within Class 3.2, making it capable of producing a moderate range of crops with a trend towards grass in the rotation. There are also small areas of Class 3.1 (can produce a moderate range of crops with high yields of cereals, grass and vegetables); Class 4.2 (capable of producing a narrow range of crops, but primarily supports grassland and short arable breaks); Class 4.2 (suited to grassland, but has limited potential to produce other crops); and Class 5.2 (can be used as improved grassland, but has some physical limitations).

Within the centre of the Scoping Study Area the amount of Class 3.1 land reduces and there is an increased coverage of Classes 4.2 and 5.2, as well as some Class 4.1. Class 3.2 again dominates the southern section of the Scoping Study Area, where there are smaller spans of Classes 3.1, 4.1 and 4.2.

#### 5.9.1.3 Forestry

Forestry covers approximately one quarter of the Scoping Study Area. Although this includes broadleaf woodland and several areas of Ancient Woodland (see section 5.2.1.2), it largely comprises blocks of commercial, coniferous forestry.

#### 5.9.2 Potential Effects

The potential effects that may arise from construction, operation, maintenance and decommissioning of the OnTI, and their proposed treatment within the EIA, are summarised in Table 5.9.1.

**Table 5.9.1 – Summary of Potential Effects**

Potential Effect	Construction	Operation & Maintenance	Decommissioning	Scoped Out
Direct, temporary disturbance of, or change in land use.	Yes	No	No	No
Direct, permanent change in land use.	No	Yes	Yes	No

#### 5.9.2.1 Construction Effects

Depending upon the final route for the onshore cable circuits, their construction has the potential to directly disrupt or change existing land uses, such as through the prevention of access to, and use of agricultural land. Effects will be temporary and occur on a relatively small spatial scale at different locations within the onshore cable route. There will also be temporary land use changes at the locations of the construction compounds, which will be likely to last for the duration of the construction of the OnTI. The significance of any effects would depend upon the final location of the OnTI.

Changes in land use associated with the onshore substation will be permanent and are considered in section 5.9.2.2.

Indirect changes to land use during construction, e.g. nearby construction noise causing a member of the public not to visit an amenity greenspace, are discussed in Section 5.6 of this Scoping Report.

#### 5.9.2.2 Operational Effects

Once installed, the existing surface land use along the onshore cable route is likely to be able to resume. However, the presence of the onshore cable circuits will restrict future changes in land use, e.g. development.

As there will be above ground infrastructure at the onshore substation site, changes in any existing or future land use will be permanent.

The significance of any effects would depend upon the final location of the OnTI.

#### 5.9.2.3 Decommissioning Effects

On decommissioning, as it is currently proposed that all underground infrastructure will remain *in-situ*, there will be no changes to land use resulting from the onshore cable circuits. Current proposals to remove above ground equipment from, and reinstate the onshore substation site will result in a change in land use. The significance of any effects would depend upon the end use of the onshore substation site.

### 5.9.3 Potential Mitigation Measures

The process of identifying the onshore cable corridor, and the search for a suitable onshore substation site, will be cognizant of existing and future land uses. Efforts will be made to avoid sensitive land uses and land take will be limited where practicable and will consider other environmental and technical constraints, e.g. routing the onshore cable corridor to follow field boundaries and through existing gaps between blocks of commercial forestry.

Several measures could be employed during construction to avoid or limit the effects of any land use changes during construction, including:

- Containing construction activities within the 30 m working corridor and agreed access routes for installation of the onshore cable circuits;
- The appropriate field by field reinstatement of land disturbed by installation of the onshore cable circuits; and
- Agreeing drainage arrangements with landowners or occupiers, followed by the reinstatement or replacement of drains, or the provision of new drains on the completion of construction.

#### 5.9.4 Approach to EIA

Once the likely location of the OnTI is known, further land use data will be gathered; this will include a search of planning applications. Data will be mapped and used to inform detailed design of the onshore cable route and the identification of the onshore substation site.

The ER will include the mapping of land use within the onshore cable corridor and onshore substation site. Where changes in land use are unavoidable, the land take will be calculated and a qualitative consideration of the potential effects will be provided.

Scoping Question 5.9.1: Is the proposed approach and method of assessment for land use acceptable?

#### 5.10 Population and Human Health

With the exception of electromagnetic fields (EMF), the potential effects from the OnTI upon the population and human health are discussed within the appropriate environmental topic section as required and not within a specific, standalone section within this Scoping Report. For example, potential effects upon populations and human health with respect to noise emissions are addressed with section 5.6 as part of noise and vibration, while potential effects upon the population in terms of recreation and tourism are addressed within section 5.7 as part of socio economics, tourism and recreation. The potential effects that may arise from EMF are addressed in section 5.10.1 below.

##### 5.10.1 Electromagnetic Fields

The OnTI will generate EMFs from both onshore cable circuits and from the equipment housed within the onshore substation. EMFs are part of the natural world and are also produced wherever electricity is generated, transmitted or used. Public exposure to EMFs comes from a range of sources, including household wiring and appliances.

Strong EMFs are known to have a detectable physiological effect on the body, and extensive scientific research has been undertaken to investigate whether there is potential for adverse health effects from exposure to EMFs. International and national health protection bodies have recommended conservative guidelines for public EMFs exposure, set to protect health. These guidelines have been adopted in the UK and are applied using a Code of Practice for electricity transmission infrastructure (Department of Energy and Climate Change, 2012).

The erection of a perimeter fence will offer screening to EMFs. Due to the likely distance between onshore substation components and the closest publicly accessible point (outside of the perimeter fence), the greatest exposure to EMFs is likely to be from the onshore cable circuits. EMFs generated by the onshore cable circuits will be fully screened by sheaths and by their burial underground. Due to the way in which

these cables are manufactured, insulated and installed within sheaths, limited, if any, EMFs will be experienced above ground. The maximum EMF level that the public will be exposed to will be significantly below the guideline for public exposure limits which are set to protect health.

The OnTI will be designed and operated in accordance with all relevant health and safety legislation and the occupational exposure guidelines for EMF. It is considered that EMFs from the OnTI will not be significant to cause any public health risk and as such potential effects from EMFs are scoped out and further assessment of EMF is not required within the ER.

It is also proposed that a standalone section addressing 'Population and Human Health' will not be required within the ER, with any potential human health effects being assessed within the other environmental topic sections of the ER.

Scoping Question 5.10.1: Is the proposed approach to scope out EMFs from further assessment and from the ER acceptable?

Scoping Question 5.10.2: Is the proposal to assess potential effects upon population and human health within appropriate environmental topic sections and not within a specific standalone section acceptable?

## 6 Summary of the Proposed Scope of the EIA

### 6.1 Scoping Conclusions

Table 6.1.1 shows the categories that have been used to indicate the level of potential effect.

Table 6.1.2 below provides a high-level summary of the potential effects identified for all onshore environmental receptors as set out within Section 7. The purpose of this summary table is to indicate simply where potential effects that may result from the OnTI are proposed to be scoped in, or out, of the EIA and ER. Potential effects have been scoped in or out based on analysis of potential significant effects.

**Table 6.1.1 - Category Used to Indicate Level of Potential Effect**

-	Potentially significant effects identified. Effect to be assessed in EIA.
0	No potential significant effect. Effect scoped out of EIA.
+	Potentially significant positive effects identified. Effect to be assessed in EIA.

**Table 6.1.2 - Summary of Potential Effects**

Potential Effect	Construction	Operation and Maintenance	Decommissioning
<b>Hydrology, Hydrogeology and Geology</b>			
Effects on water quality of surface watercourses and dependant abstractions from mobilised sediment and contaminated runoff.	-	-	-
Effects on water quality of local groundwater and any dependant abstractions from infiltration of mobilised sediment and contaminated runoff.	-	-	-
Changes in river baseflow and groundwater availability for GWDTEs due to dewatering.	-	-	0
Changes in patterns and rates of infiltration and runoff from ground disturbance / installation of substation foundations.	-	-	-
Volumetric displacement of surface floodwaters from soil stockpiles and land take.	-	-	-
Changes in watercourse conveyance from watercourse crossings.	-	0	0
Effects on watercourse morphology from watercourse crossings and development in close proximity to watercourses.	-	0	0
Loss of carbon rich peat soils.	-	0	0
Loss or damage to sensitive geological sites.	-	0	0
Loss of or damage to agriculturally valuable soils.	-	0	0
<b>Terrestrial Ecology</b>			
Potential direct loss of ecological features (habitats and/or fauna) on statutory designated sites.	-	0	0
Potential direct loss of ecological features (habitats and/or fauna) on non-statutory designated sites.	-	0	0
Direct terrestrial habitat loss / disturbance.	-	0	0
Indirect terrestrial habitat loss / disturbance (e.g. from disruption or changes to hydrology).	-	-	-

Potential Effect	Construction	Operation and Maintenance	Decommissioning
Loss of, or disturbance to, intertidal habitat and species.	-	-	-
Increased suspended sediments / sediment deposition within the intertidal area.	-	-	-
Spread of invasive non-native terrestrial and/or freshwater species.	-	-	-
Potential injury or death of terrestrial and/or freshwater fauna (direct effect).	-	-	-
Noise disturbance leading to the displacement of terrestrial fauna (indirect effect).	-	-	-
Pollution leading to loss of or damage to ecological features (direct and/or indirect effect).	-	-	-
Biosecurity	-	-	-
<b>Landscape and Visual Amenity</b>			
Physical changes to the landscape elements and features within the site boundary	-	-	-
Landscape character effects on the Coastal Character Area, landscape planning designations and landscape character types/units	-	-	-
Visual effects on views from visual receptors and viewpoints	-	-	-
Night-time visual effects on views from visual receptors and viewpoints	-	-	-
<b>Historic Environment</b>			
Direct disturbance of designated and non-designated archaeological remains where they are located within the footprint of the OnTI.	-	0	0
Indirect effects on the settings of designated assets resulting from below ground infrastructure	0	0	0
Indirect effects on the settings of designated assets resulting from above ground infrastructure.	0	-	0
<b>Traffic and Transport</b>			
Disruption and delay to vehicle travellers	-	0	-
Disruption to pedestrian amenity and pedestrian severance	-	0	-
Disruption to the use of core paths	-	0	-
Potential to cause accidents and reduce road safety	-	0	-
Disruption and delay to public transport services	-	0	-
<b>Noise and Vibration</b>			
Noise effects on human and ecological receptors resulting from laying and operation of the onshore cable circuits.	-	0	0
Noise effects on human and ecological receptors resulting from the onshore substation infrastructure and components.	-	-	-
Vibration effects on human, ecological receptors and infrastructure resulting from the laying and operation of the onshore cable circuits.	0	0	0
Vibration effects on human, ecological receptors and infrastructure resulting from the onshore substation infrastructure and components.	-	0	0
<b>Socio Economics, Tourism and Recreation</b>			

Potential Effect	Construction	Operation and Maintenance	Decommissioning
Direct and Indirect employment creation in the construction – socio economics	+	0	0
Direct and Indirect GVA creation in the construction – socio economics	+	0	0
Change in demand for housing and local services associated with influx of labour – socio economics	0	0	0
Volume of tourism	-	0	0
Value of tourism	-	0	0
Short-term path/route closures and diversions; noise; dust or visual disturbance - recreation	-	0	0
<b>Land Use</b>			
Direct, temporary disturbance of, or change in land use	-	0	0
Direct, permanent change in land use.	0	-	-
<b>Air Quality</b>			
Dust arising from excavations and earth movements	0	0	0
Emissions from construction plant and vehicles	0	0	0
<b>Population and Human Health</b>			
Effects of EMFs on human health	0	0	0
Other potential effects upon population and human health	Addressed within appropriate environmental topic e.g. Noise and Vibration, Tourism and Recreation		

## 7 Proposed Structure of the Environmental Report

The ER will likely comprise of four volumes and these volumes are likely to be presented in the following format:

### Volume 1 – Non-Technical Summary

A simple, non-technical document describing the OnTI, the potential significant effects which could result from the OnTI, and the mitigation measures that have been identified.

### Volume 2 – Environmental Impact Assessment

- **Chapter 1 – Project Background** (Introduction, Policy and Legislation Summary (note that a separate Planning Statement will accompany the applications), Approach to EIA (including Scoping Responses Gap Analysis) and Stakeholder Consultation will be presented in this section. The qualifications and experience of all companies and persons involved in collating, assessing or presenting technical information within the ER will be included within this section).
- **Chapter 2 – Project Details** (Site Selection and Alternatives will be presented in this section together with the Project Description).
- **Chapter 3 – EIA**
  - 3.1 Hydrology, Hydrogeology and Geology
  - 3.2 Terrestrial Ecology
  - 3.3 Landscape and Visual Amenity
  - 3.4 Historic Environment
  - 3.5 Traffic and Transport
  - 3.6 Noise and Vibration
  - 3.7 Socio Economics, Tourism and Recreation
  - 3.8 Land Use
- **Chapter 4 – Summary**
  - 6.1 Summary Chapter

Cumulative assessments will be presented within each discipline section.

The topic of 'Air Quality' has been scoped out from any further assessment. The topic of 'Population and Human Health' will be addressed within the appropriate environmental topic section of the ER and not within a standalone section, with EMF scoped out from any further assessment.

### Volume 3 – Figures / SLVIA Photomontages and Visualisations

### Volume 4 - Technical Appendices

It is anticipated that each EIA discipline chapter will be structured accordingly:

- Introduction – Introduces the topic under discussion and sets out the consultation carried out, the baseline and relevant legislation, policy and guidance;
- Summary – Summary table of all impact assessment outputs;
- Design Envelope Parameters – Sets out the realistic worst case scenario in terms of the OnTI parameters relevant to the EIA discipline being assessed;

- EIA Methodology – Description of the impact assessment methodology utilised;
- Impact Assessment – Assessment of the potential significant effects arising from the Development;
- Proposed Monitoring and Mitigation – Description of proposed mitigation measures during construction, operation and decommissioning phases, based upon potential significant effects;
- Cumulative Impact Assessment – Assessment of the potential significant cumulative effects arising due to the interactions between the OnTI and other existing and reasonably foreseeable projects and activities; and
- Whole Project Assessment – Assessment of the Project as a whole, including the Moray West Offshore Windfarm, the OfTI and the OnTI.

The ER will be made available in hard copy and electronic copy.

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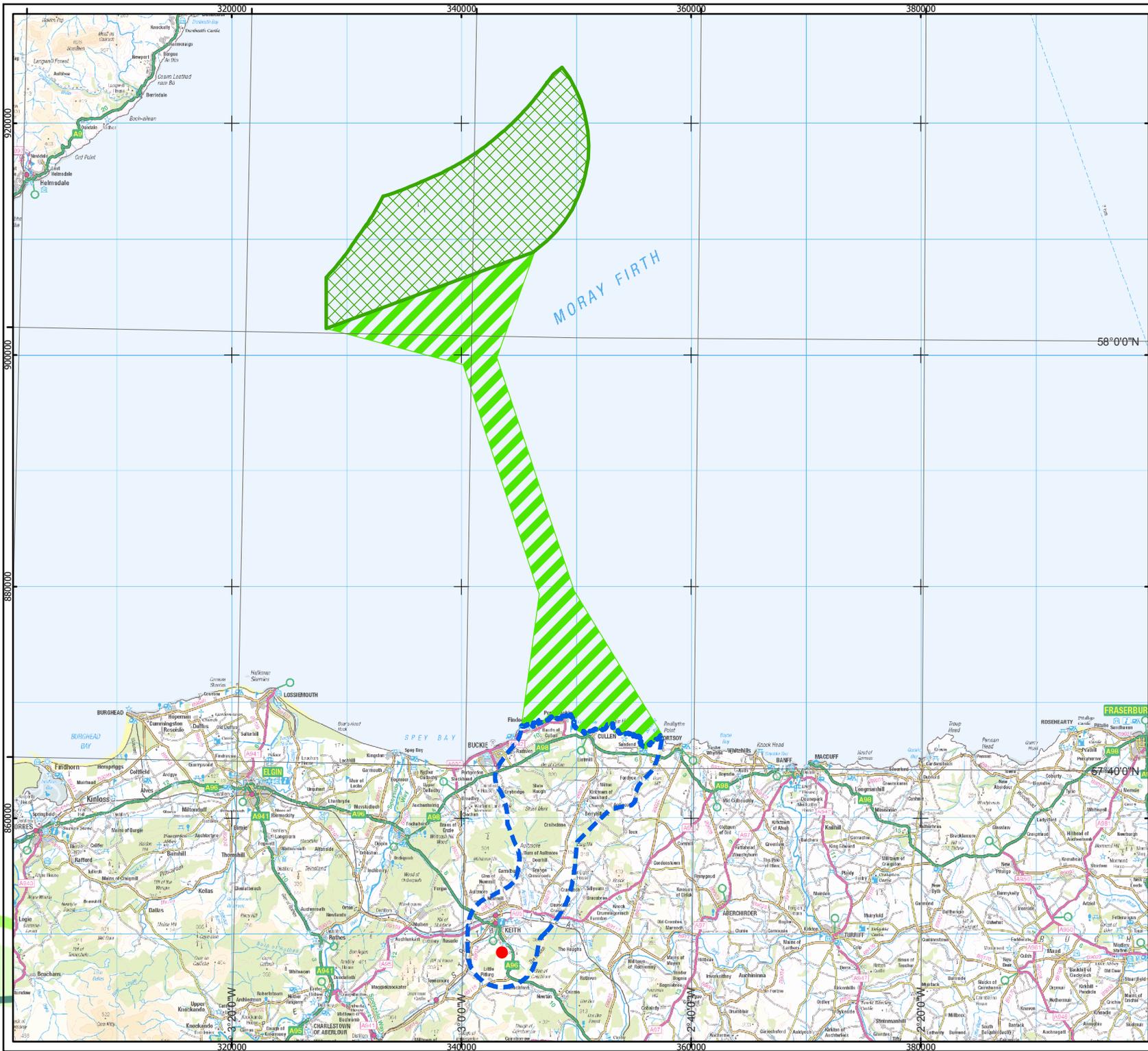
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## **Appendix 1 - Figures**

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Existing Blackhillock Substation
- Scoping Study Area
- Moray West Site
- Offshore Export Cable Corridor

Horizontal Scale: 1:450,000

A4 Chart

0 5,000 10,000 Meters

Geodetic Parameters: British National Grid

Produced: SG

Reviewed:

Approved:

Date: 07/06/2017

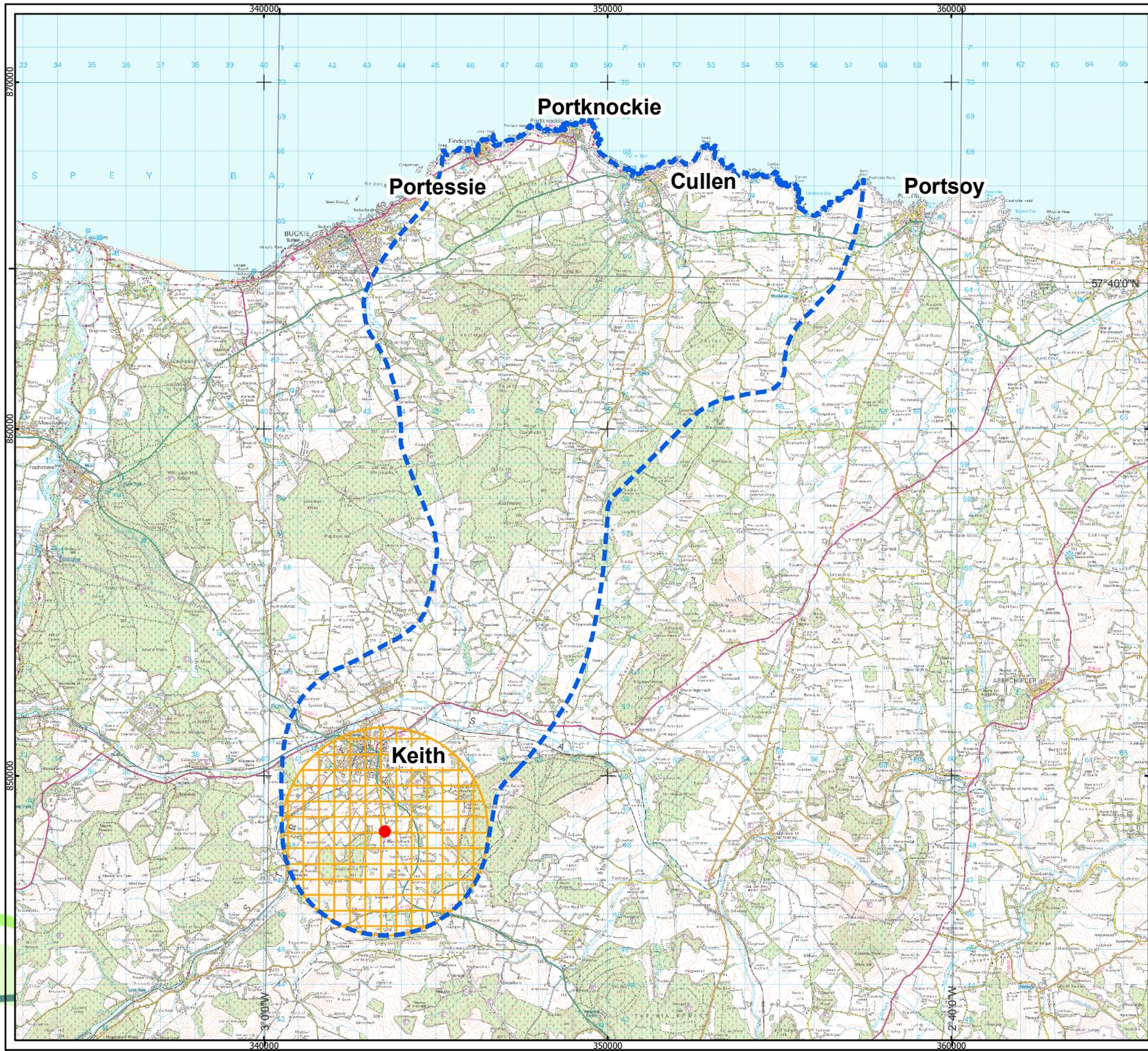
Revision: A

REF: 846005-PPW0150-GOE-MAP-001

Figure 1.1.1 - Scoping Study Area with Moray West and OfTI Sites

Moray Offshore  
Windfarm (West) Ltd

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Existing Blackhillock Substation
- ▭ Scoping Study Area
- ▭ Onshore Substation Search Area

Horizontal Scale: 1:150,000 A4 Chart  
0 2,500 5,000 Meters

Geodetic Parameters: British National Grid

Produced: SG  
Reviewed:  
Approved:

Date: 07/06/2017 Revision: A  
REF: 846005-PPW0150-GOE-MAP-002

Figure 1.1.2 - Scoping Study Area

Moray Offshore  
Windfarm (West) Ltd

**KEY**

- Existing Blackhillock Substation
- Waterbodies
- Scoping Study Area

Horizontal Scale: 1:200,000

A4 Chart



Geodetic Parameters: British National Grid

Produced: SG

Reviewed:

Approved:

Date: 07/06/2017

Revision: A

REF: 846005-PPW0150-GOE-MAP-003

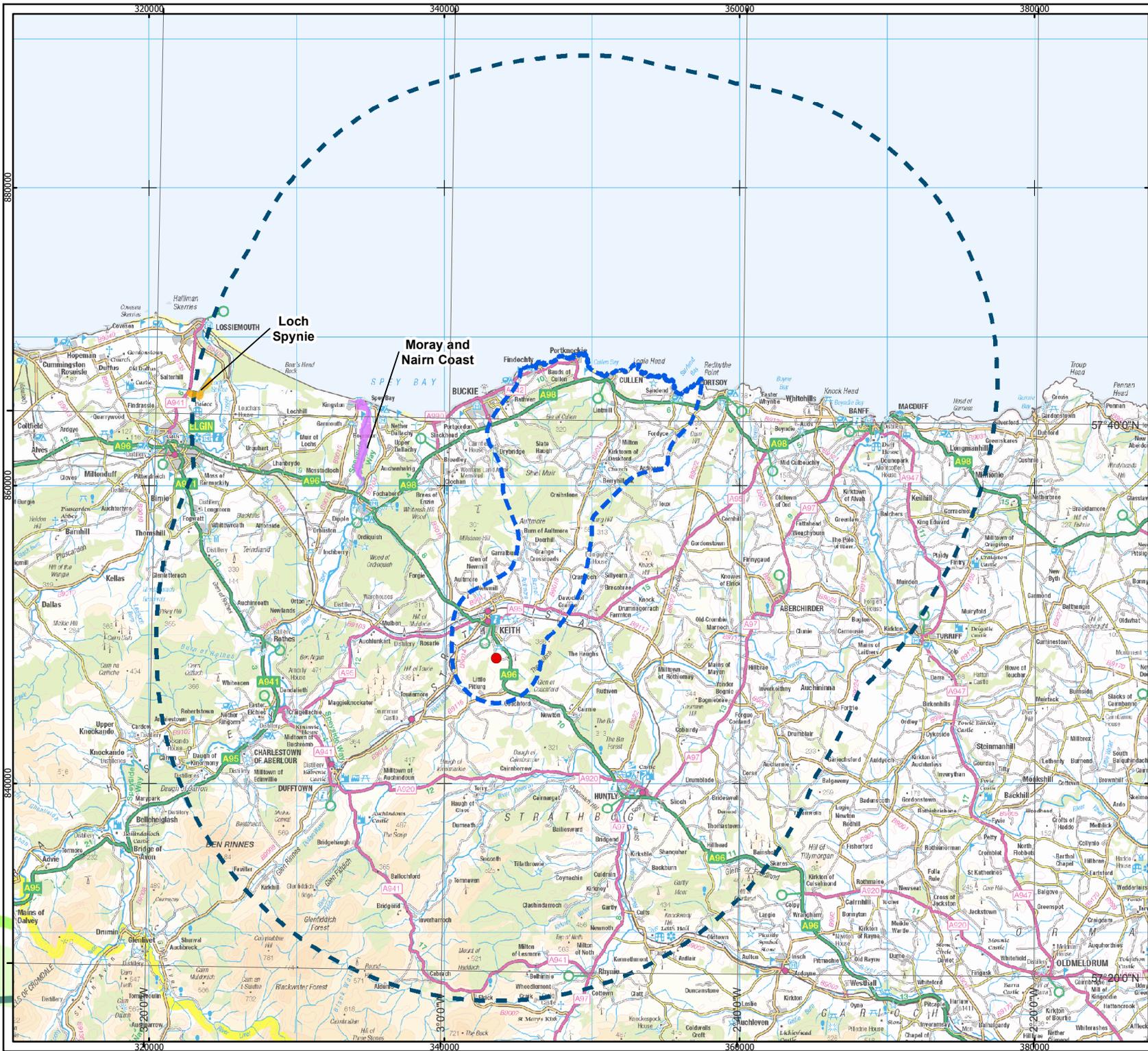
Figure 5.1.1 - Key Waterbodies

Moray Offshore  
Windfarm (West) Ltd



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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Existing Blackhillock Substation
- Scoping Study Area
- Scoping Study Area - 20 km Buffer
- Ramsar site**
- Loch Spynie
- Moray and Nairn Coast

Horizontal Scale: 1:350,000



Geodetic Parameters: British National Grid

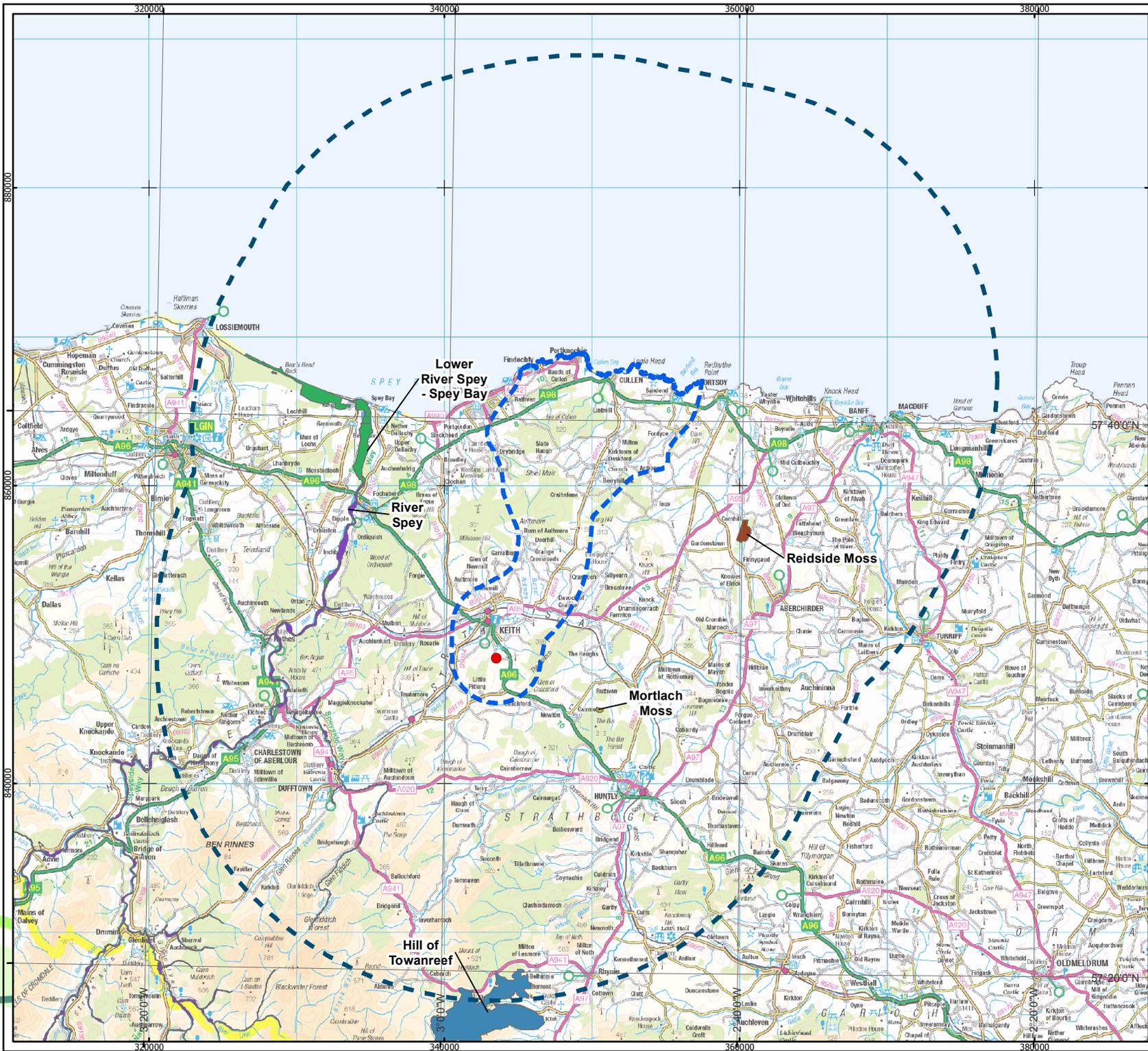
Produced: SG  
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 Approved:

Date: 07/06/2017      Revision: A  
 REF: 846005-PPW0150-GOE-MAP-004

**Figure 5.2.1 - Ramsar Sites within 20 km of the Scoping Study Area**

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Existing Blackhillock Substation
  - Scoping Study Area
  - Scoping Study Area - 20 km Buffer
- ### Special Area of Conservation
- Hill of Towanreef
  - Lower River Spey - Spey Bay
  - Mortlach Moss
  - Reidside Moss
  - River Spey

Horizontal Scale: 1:350,000

0 5,000 10,000 Meters

Geodetic Parameters: British National Grid

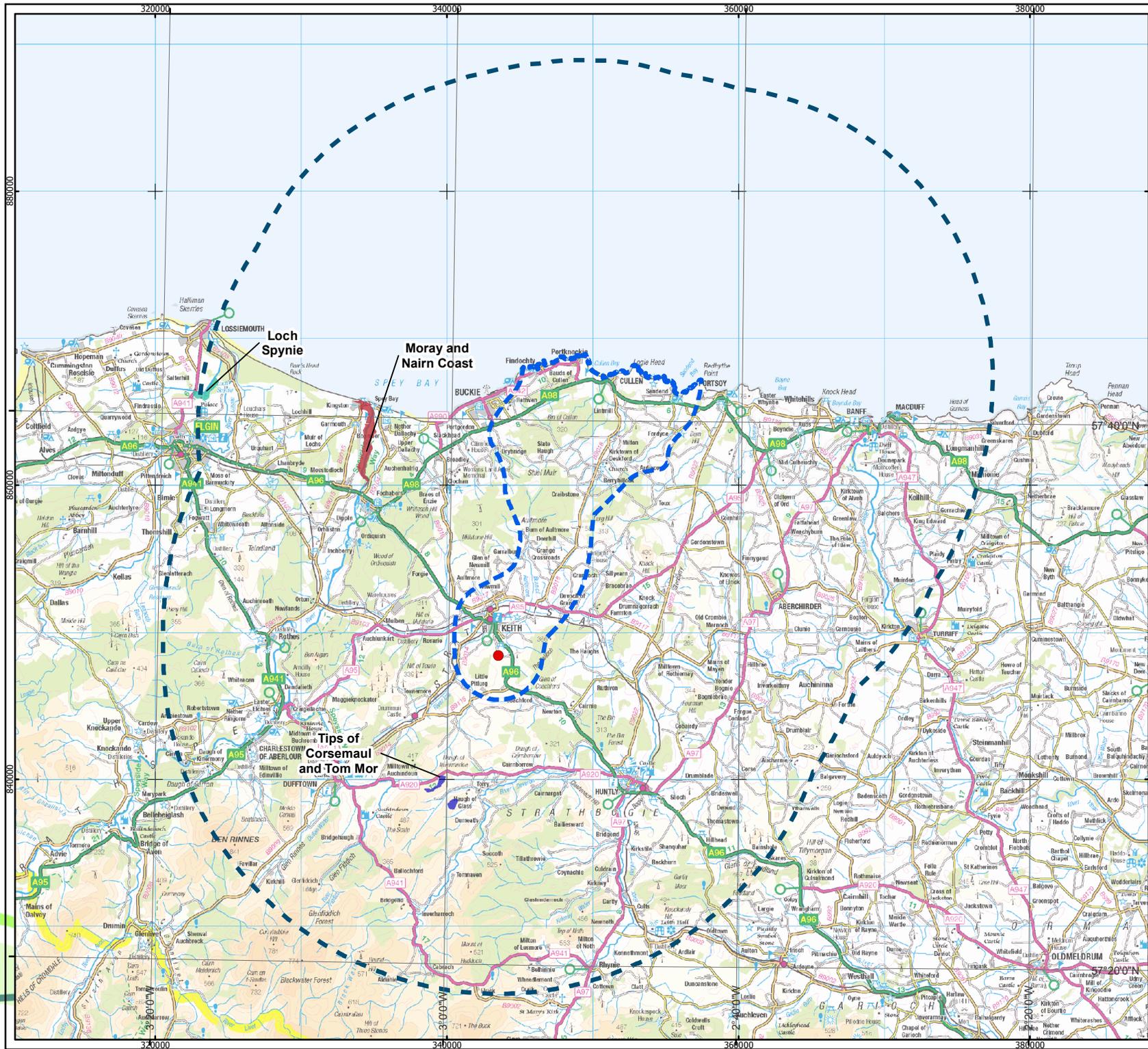
Produced: SG  
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Date: 07/06/2017      Revision: A  
 REF: 846005-PPW0150-GOE-MAP-005

**Figure 5.2.2 - Special Areas of Conservation within 20 km of the Scoping Study Area**

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Existing Blackhillock Substation
  - Scoping Study Area
  - Scoping Study Area - 20 km Buffer
- ### Special Protection Area
- Loch Spynie
  - Moray and Nairn Coast
  - Tips of Corsemaul and Tom Mor

Horizontal Scale: 1:354,452      A4 Chart      N

Geodetic Parameters:      British National Grid

Produced: SG  
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**Figure 5.2.3 - Special Protection Areas within 20 km of the Scoping Study Area**

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Existing Blackhillock Substation
- Scoping Study Area
- Scoping Study Area - 10 km Buffer

## Site of Special Scientific Interest

- Craigs of Succoth
- Cullen to Stake Ness Coast
- Den of Pitturg
- Lower River Spey
- Mill Wood
- Mortlach Moss
- Moss of Crombie
- Reidside Moss
- River Spey
- Shiel Wood Pastures
- Spey Bay
- Tips of Corsemaul and Tom Mor
- Whitehill

Horizontal Scale: 1:250,000 A4 Chart

Geodetic Parameters: British National Grid

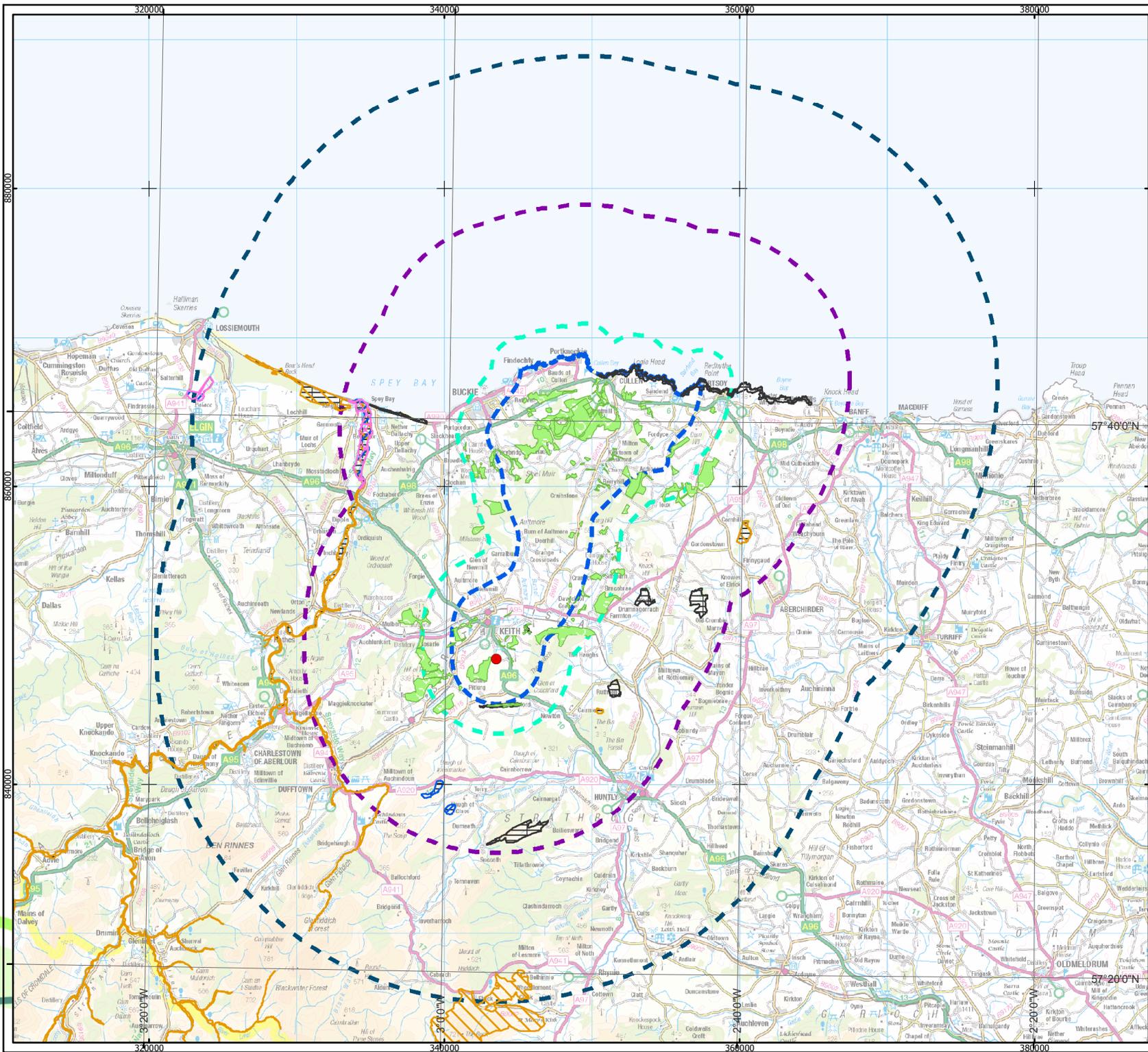
Produced: SG  
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REF: 846005-PPW0150-GOE-MAP-007	

Figure 5.2.4 - Sites of Special Scientific Interest within 10 km of the Scoping Study Area

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Existing Blackhillock Substation
- Scoping Study Area
- Scoping Study Area - 2 km Buffer
- Scoping Study Area - 10 km Buffer
- Scoping Study Area - 20 km Buffer
- Ancient Woodland (2km)
- Ramsar Site (20km)
- Special Protection Area (20km)
- Special Area of Conservation (20km)
- Site of Special Scientific Interest (10km)

Horizontal Scale: 1:350,000

0 5,000 10,000 Meters

Geodetic Parameters: British National Grid

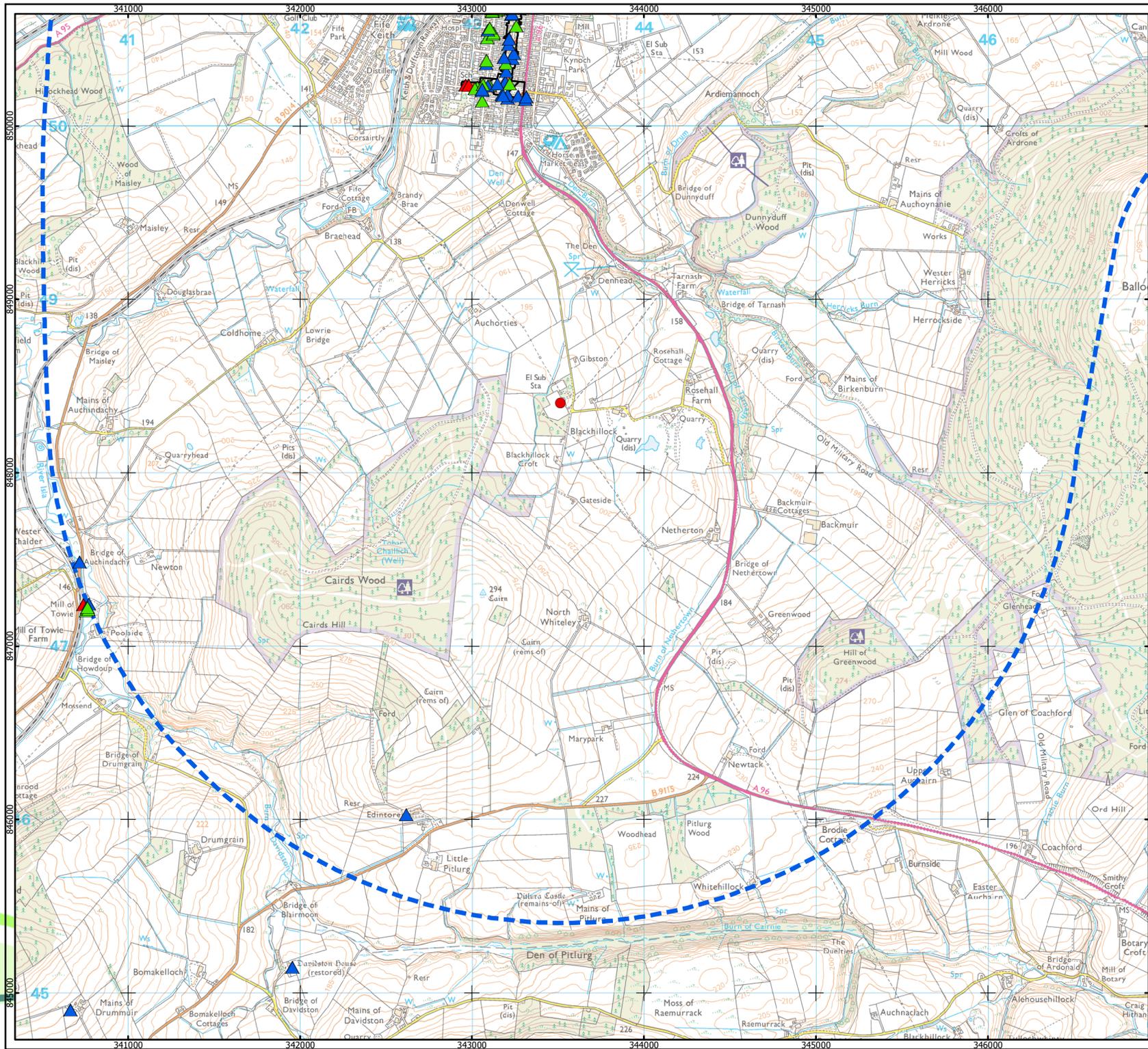
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Figure 5.2.5 - Nature Conservation Designations

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Existing Blackhillock Substation
- ▲ Category A Listed Building
- ▲ Category B Listed Building
- ▲ Category C Listed Building
- Scoping Study Area
- Conservation Area

Horizontal Scale: 1:30,000      A4 Chart      N  
 0      500      1,000 Meters

Geodetic Parameters:      British National Grid

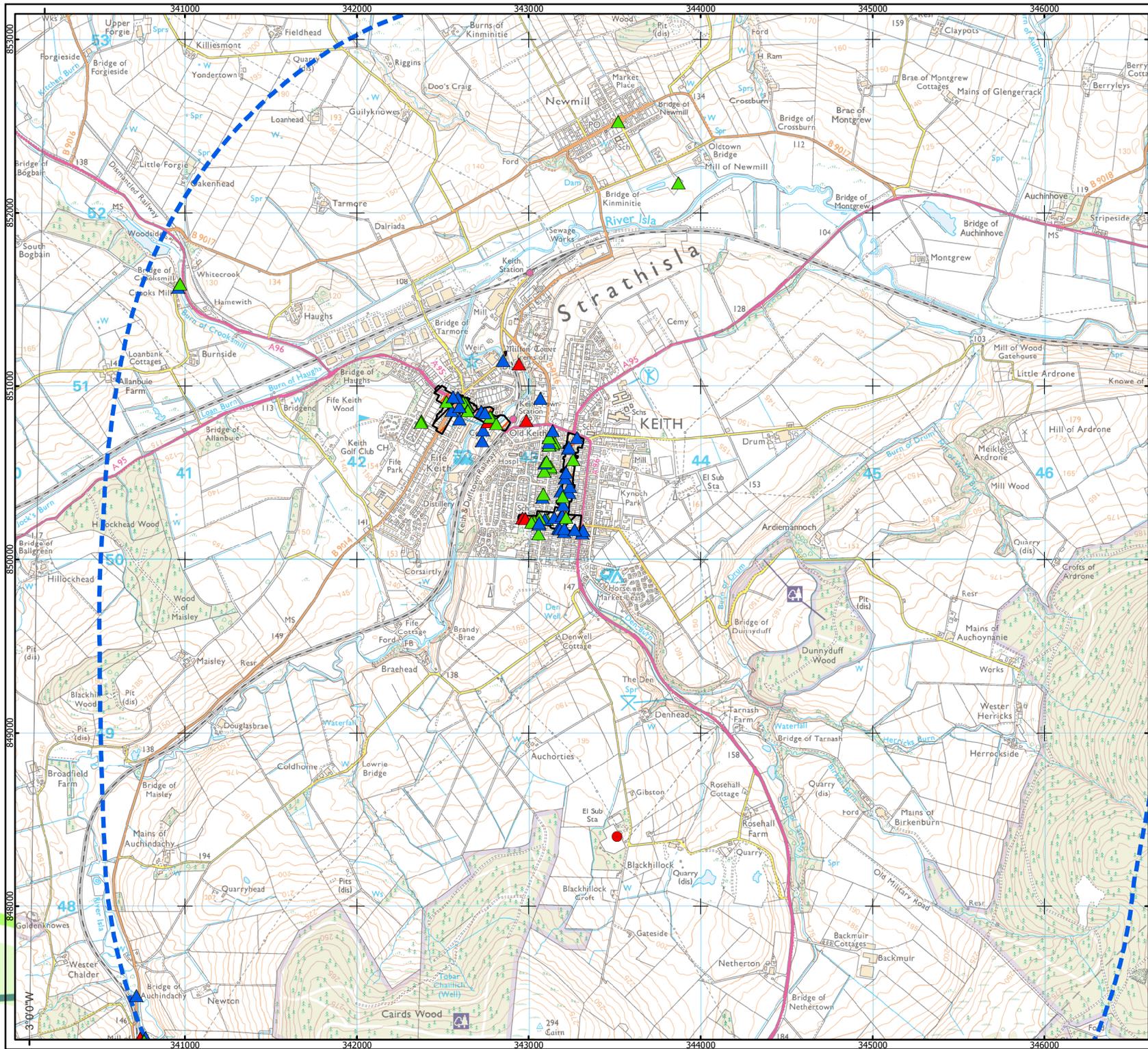
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Figure 5.4.1 - Location of Designated Heritage Assets

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Existing Blackhillock Substation
- ▲ Category A Listed Building
- ▲ Category B Listed Building
- ▲ Category C Listed Building
- Scoping Study Area
- Conservation Area
- Scheduled Monument

Horizontal Scale: 1:30,000      A4 Chart      N  
 0      500      1,000 Meters

Geodetic Parameters:      British National Grid

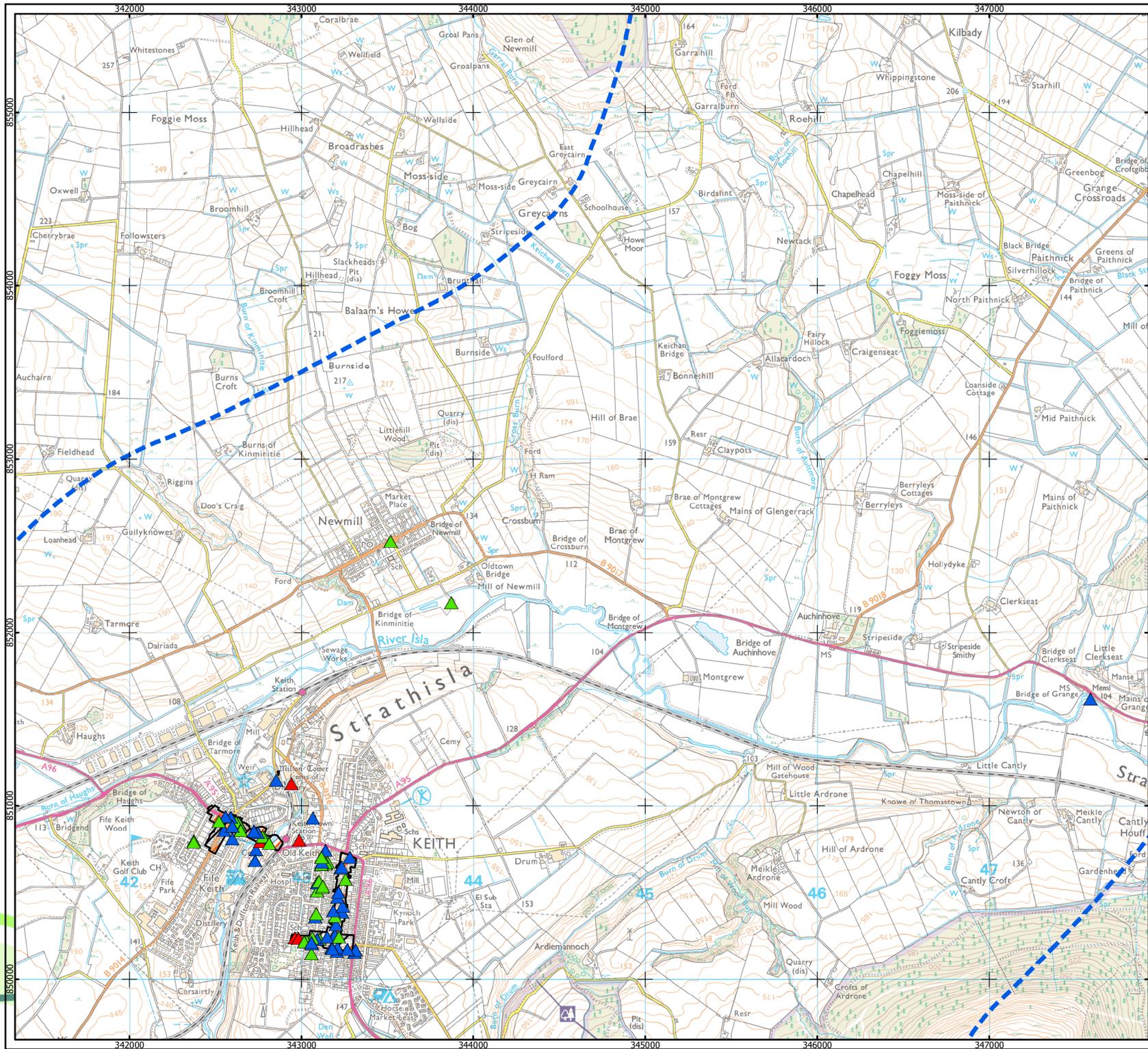
Produced: SG  
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REF: 846005-PPW0150-GOE-MAP-010	

Figure 5.4.2 - Location of Designated Heritage Assets

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- ▲ Category A Listed Building
- ▲ Category B Listed Building
- ▲ Category C Listed Building
- Scoping Study Area
- Conservation Area
- Scheduled Monument

Horizontal Scale: 1:30,000      A4 Chart      N  
 0      500      1,000 Meters

Geodetic Parameters:      British National Grid

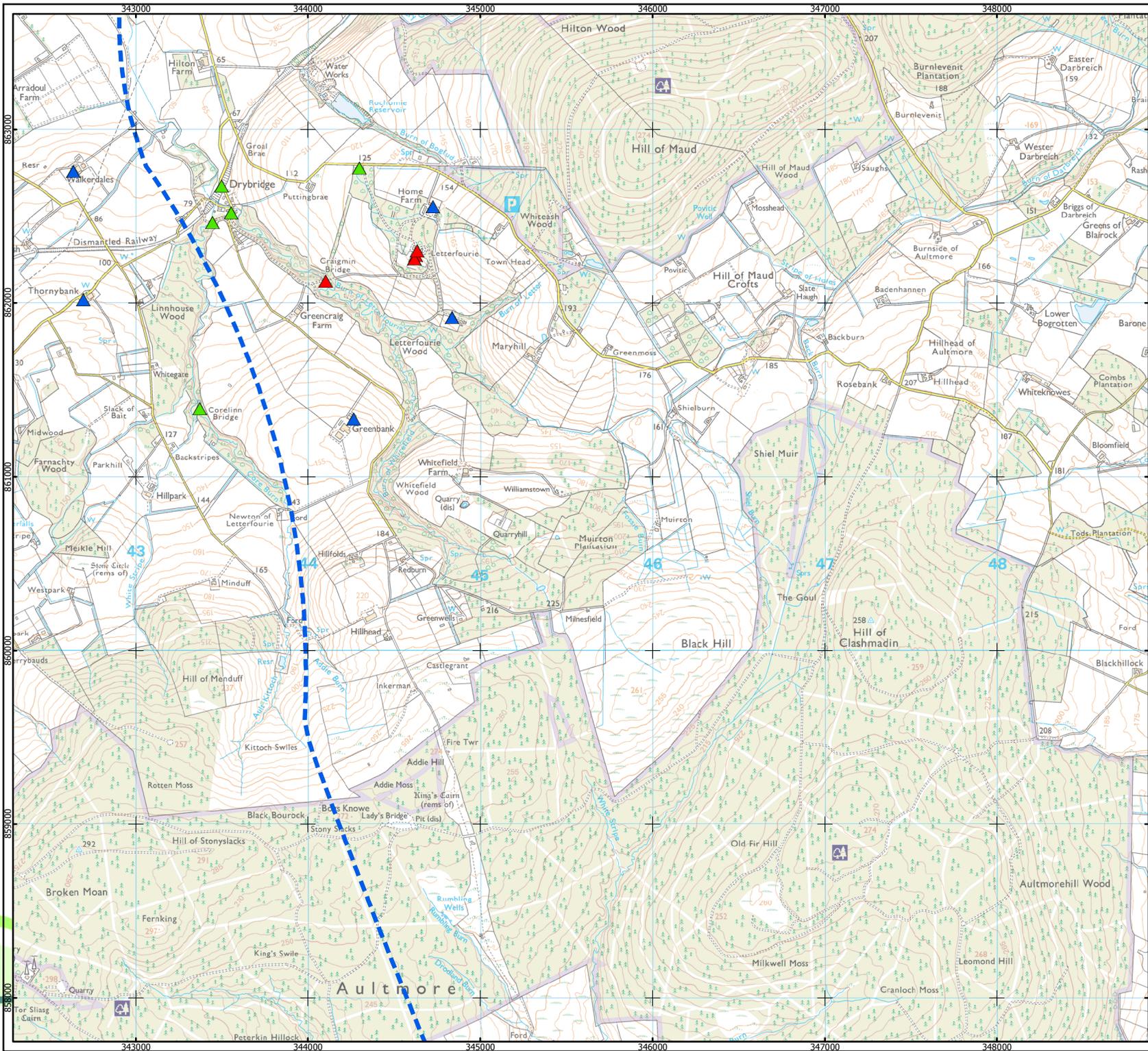
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 REF: 846005-PPW0150-GOE-MAP-011

Figure 5.4.3 - Location of Designated Heritage Assets

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- ▲ Category A Listed Building
- ▲ Category B Listed Building
- ▲ Category C Listed Building
- Scoping Study Area

Horizontal Scale: 1:30,000 A4 Chart  
 0 500 1,000 Meters N

Geodetic Parameters: British National Grid

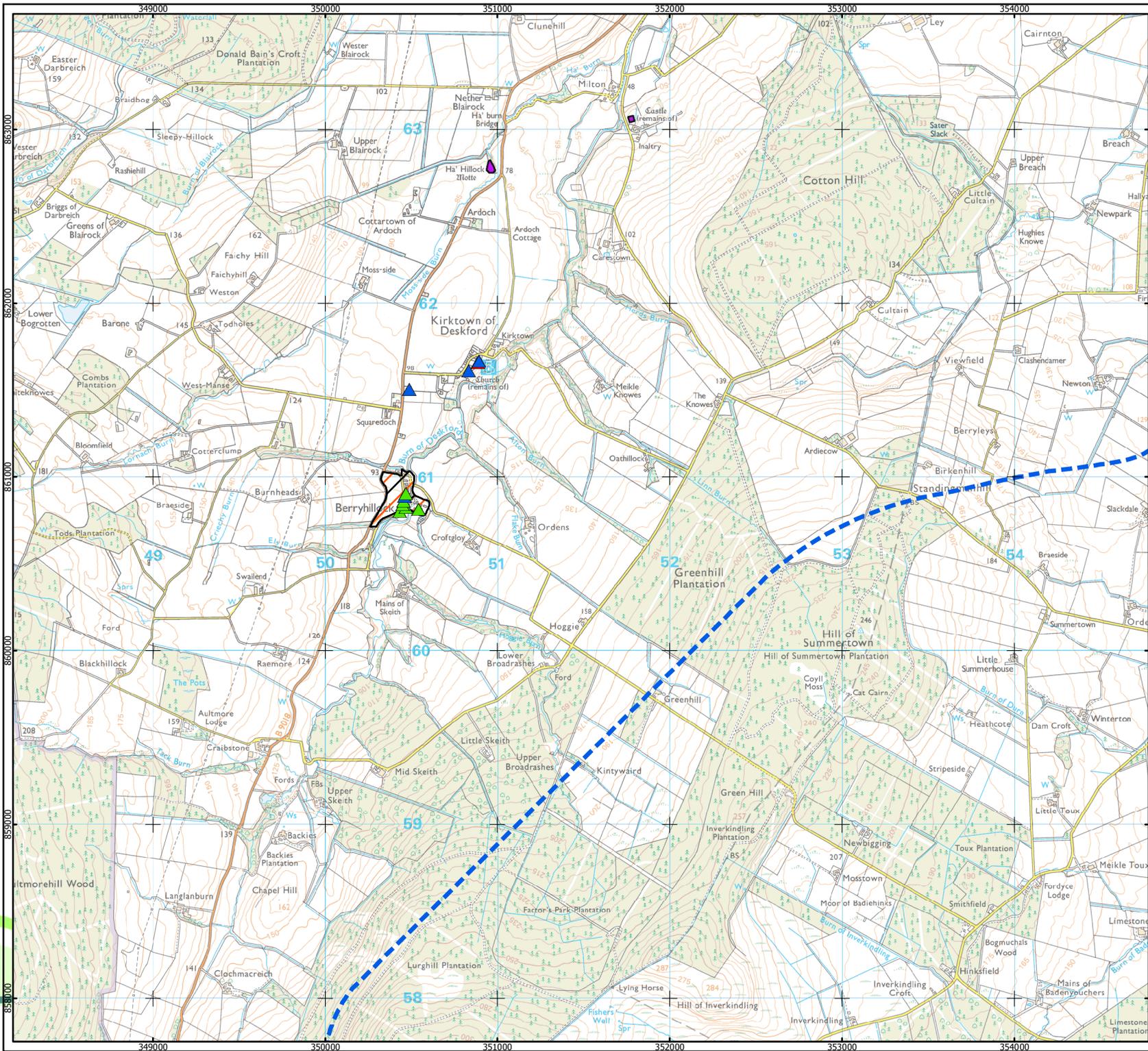
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Date: 07/06/2017	Revision: A
REF: 846005-PPW0150-GOE-MAP-012	

Figure 5.4.4 - Location of Designated Heritage Assets

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- ▲ Category A Listed Building
- ▲ Category B Listed Building
- ▲ Category C Listed Building
- Scoping Study Area
- Conservation Area
- Scheduled Monument

Horizontal Scale: 1:30,000      A4 Chart      N  


Geodetic Parameters:      British National Grid

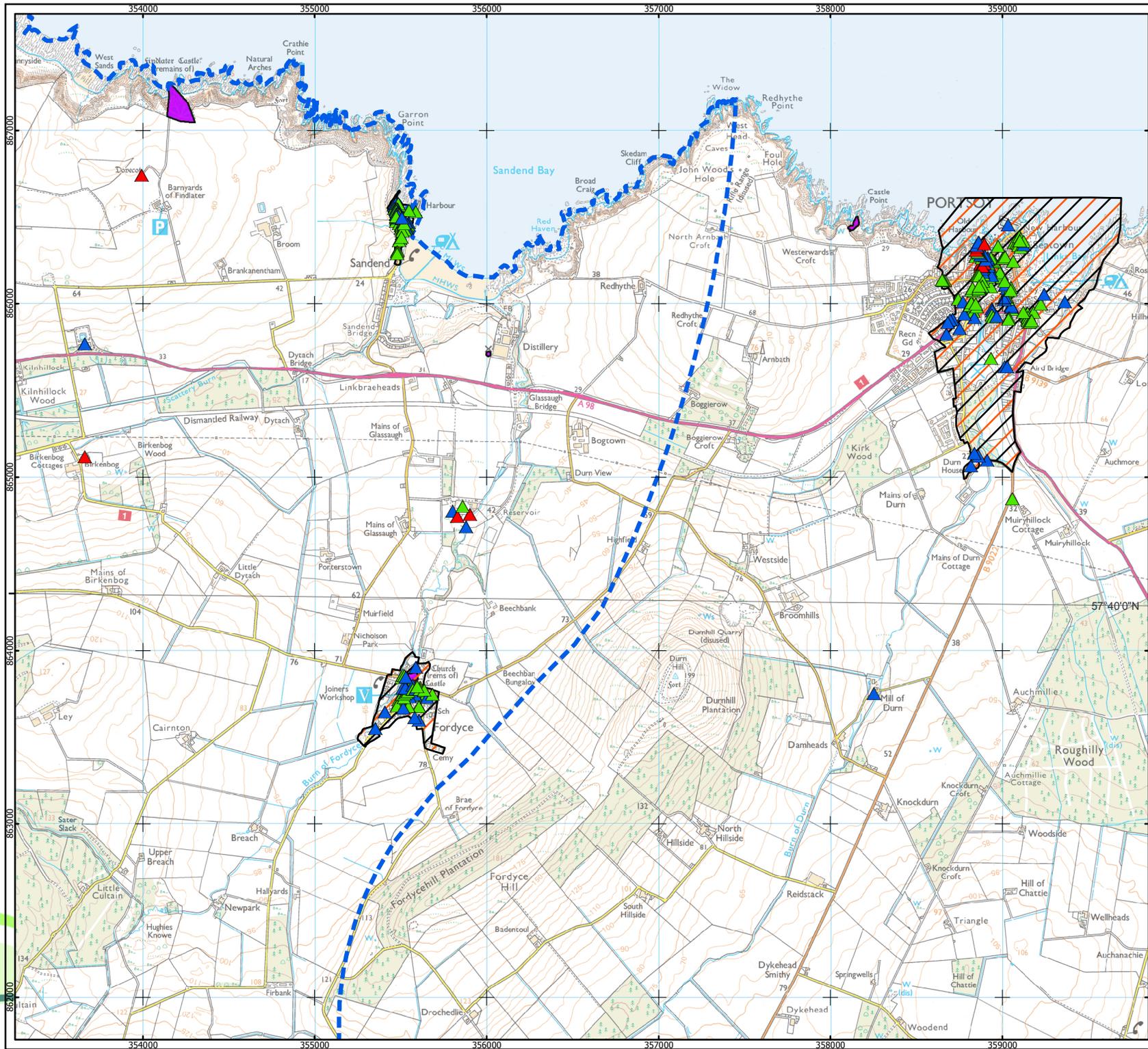
Produced: SG  
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Figure 5.4.5 - Location of Designated Heritage Assets

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- ▲ Category A Listed Building
- ▲ Category B Listed Building
- ▲ Category C Listed Building
- Scoping Study Area
- Conservation Area
- Scheduled Monument

Horizontal Scale: 1:30,000      A4 Chart      N  
 0      500      1,000 Meters

Geodetic Parameters:      British National Grid

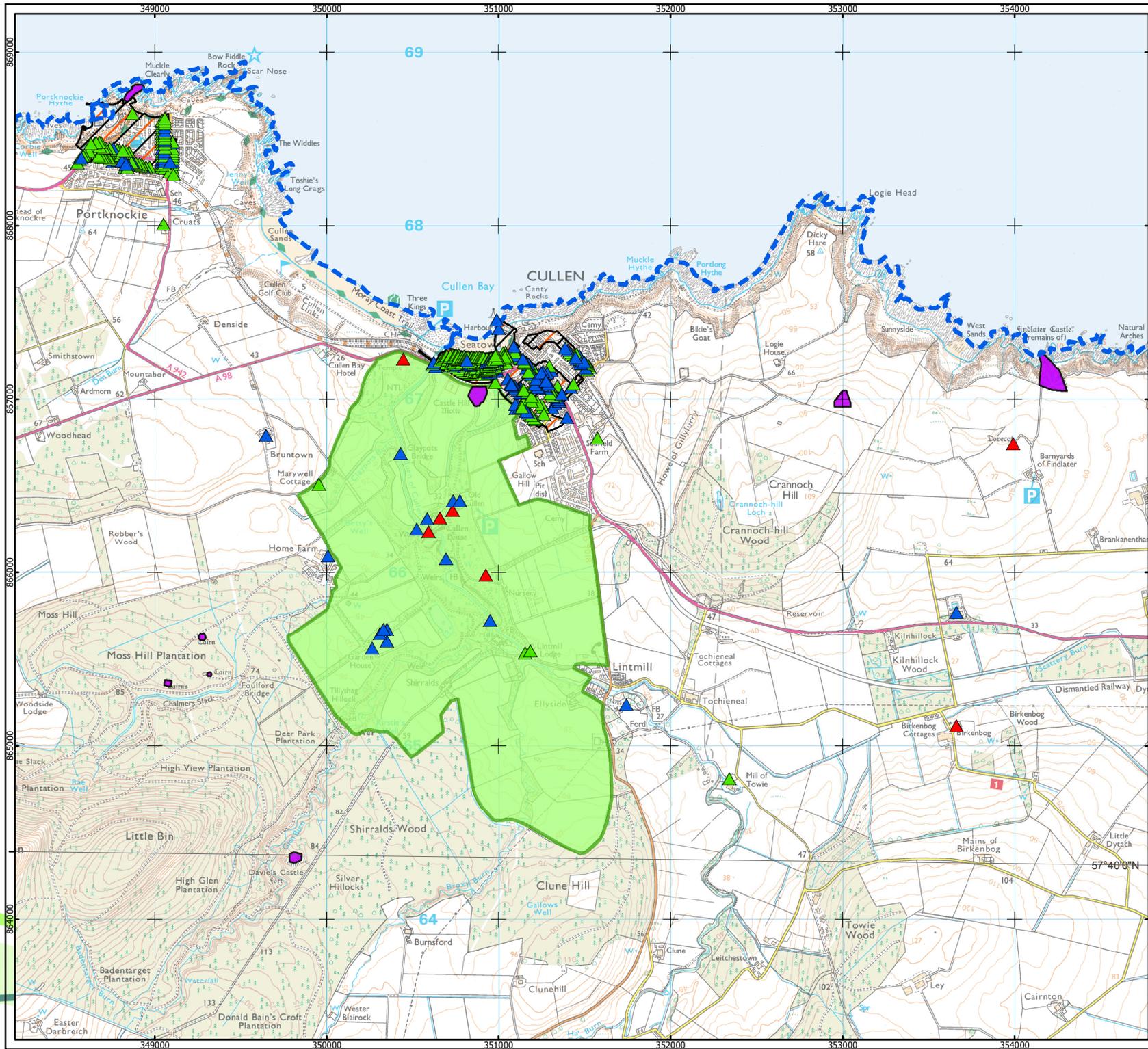
Produced: SG  
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Figure 5.4.6 - Location of Designated Heritage Assets

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- ▲ Category A Listed Building
- ▲ Category B Listed Building
- ▲ Category C Listed Building
- Scoping Study Area
- Conservation Area
- Scheduled Monument
- Gardens and Designated Landscape

Horizontal Scale: 1:30,000 A4 Chart  
 0 500 1,000 Meters N

Geodetic Parameters: British National Grid

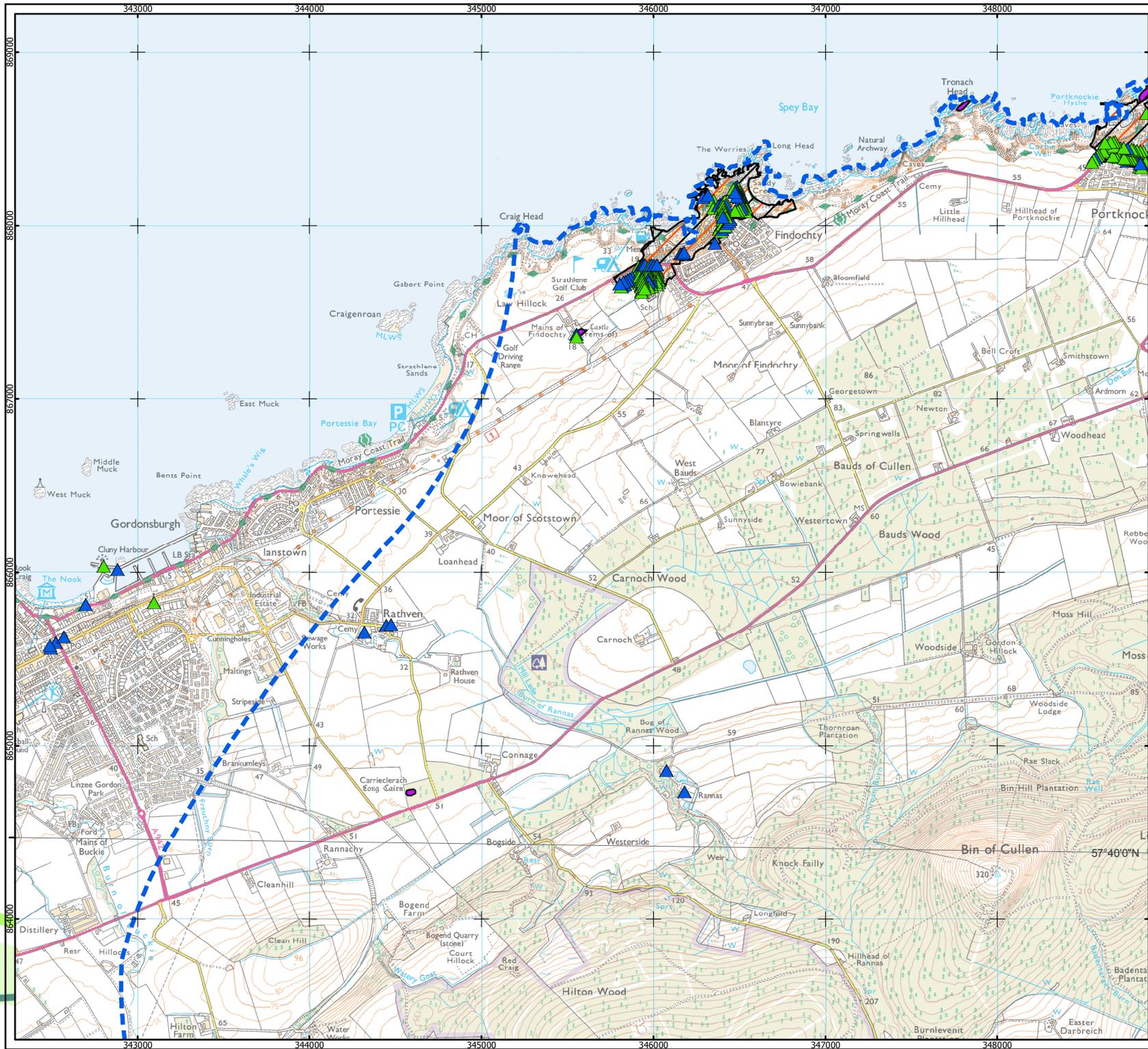
Produced: SG  
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Figure 5.4.7 - Location of Designated Heritage Assets

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- ▲ Category B Listed Building
- ▲ Category C Listed Building
- Scoping Study Area
- Conservation Area
- Scheduled Monument

Horizontal Scale: 1:30,000      A4 Chart      N  
 0      500      1,000 Meters

Geodetic Parameters:      British National Grid

Produced: SG  
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Figure 5.4.8 - Location of Designated Heritage Assets

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**MORAY WEST**  
OFFSHORE WINDFARM

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