



BERWICK BANK WIND FARM ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Volume 1, Chapter 1: Introduction



Document Status

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1. INTRODUCTION

1.1. INTRODUCTION

1. Berwick Bank Wind Farm Limited (BBWFL) is a wholly owned subsidiary of SSE Renewables Limited and will hereafter be referred to as 'the Applicant'. The Applicant is developing the Berwick Bank Wind Farm (hereafter referred to as 'the Project').
2. The Project is a proposed offshore wind farm located in the outer Firth of Forth and Firth of Tay, approximately 37.8 km east of the Scottish Borders coastline (St. Abb's Head) and 47.6 km to the East Lothian coastline (see Figure 1.1). The Project is comprised of both the offshore and onshore infrastructure required to generate and transmit electricity from the Proposed Development array area to a Scottish Power Energy Networks (SPEN) 400 kV Grid Substation located at Branxton, south-west of Torness Power station. The offshore export cables will make landfall on the East Lothian coast, specifically at Skateraw.
3. The offshore components of the Project (hereafter referred to as the 'Proposed Development') include the offshore wind farm (the wind turbines, their foundations and associated inter-array cabling), together with associated transmission infrastructure including Offshore Substation Platforms (OSPs)/Offshore converter station platforms, their foundations and the offshore export cables and cable protection.
4. The consents, licences and permissions which will be sought by the Applicant for the Project include:
 - a Section 36 consent under the Electricity Act 1989 for an offshore generating station in the Scottish offshore region (12-200 nm) where generating capacity exceeds 50 megawatts (MW);
 - Marine Licences under the Marine (Scotland) Act 2010 (0 to 12 nm) and Marine and Coastal Access Act 2009 (MCAA) (Scottish waters beyond 12 nm) for the following:
 - generating station (wind turbines, wind turbine foundations and inter-array cables);
 - transmission infrastructure (Offshore substation platforms (OSPs)/Offshore converter station platforms, interconnector cables, offshore export cables and cable protection); and
 - planning permission under the Town and Country Planning (Scotland) Act 1997 (as amended) for Project infrastructure landward of Mean Low Water Springs (MLWS).
5. The Environmental Impact Assessment (EIA) Directive (2011/92/EU, as amended by Directive 2014/52/EU) has traditionally directed the assessment of effects of certain public and private projects on the environment in Scotland. Following the United Kingdom's (UK's) departure from the European Union (EU), EU-derived legislation continues to have effect in domestic law under the European Union (Withdrawal) Act 2018. For the purpose of this chapter (and throughout this offshore EIA Report), where legislation has been amended (for example, by EU Exit Amendment Regulations), following an initial acknowledgement of the amending legislation, the legislation is not referred to as amended.
6. This Offshore Environmental Impact Assessment Report (EIA Report) has therefore been prepared by the Applicant in accordance with the traditional suite of implementing legislation in Scotland to accompany the above listed applications for consent. Volume 1, chapter 2 describes the policy and legislative background to the Proposed Development, including required consents and licences and EU Exit related changes therefore this has not been re-iterated here.
7. This chapter introduces the Proposed Development, summarises the consents and/or licences that are required for the proposed works, and outlines the content of the Offshore EIA Report. The Applicant has prepared a separate Berwick Bank Wind Farm Onshore EIA Report (SSER, 2022a) which provides a description of the onshore elements of the Project landward of MLWS and will support the onshore consent and licence applications.

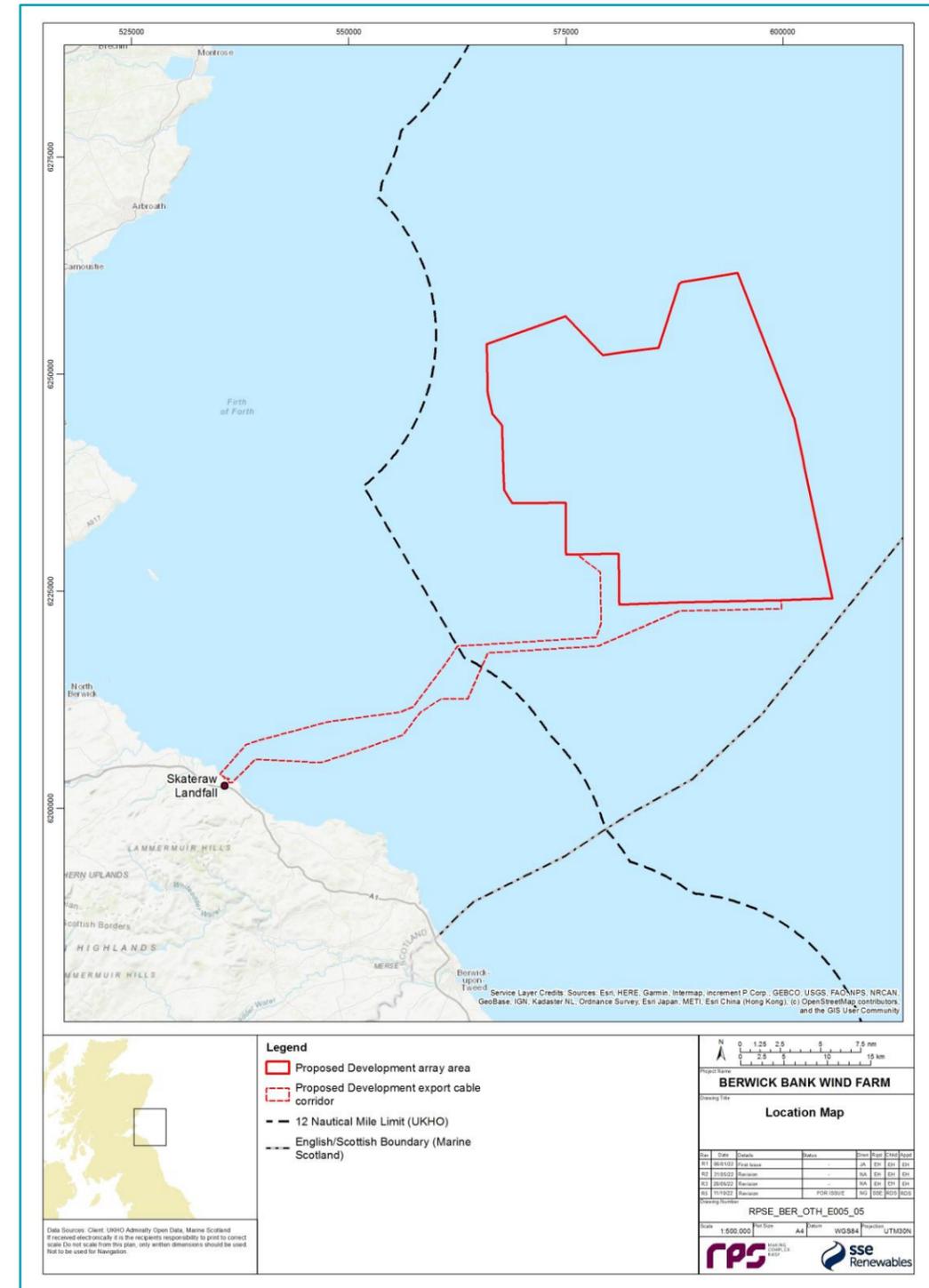


Figure 1.1: Location of the Proposed Development Array Area, within the Former Firth of Forth Zone, and Proposed Development Offshore Export Cable Corridor

1.2. PROJECT OVERVIEW

1.2.1. FIRTH OF FORTH ZONE ROUND 3 WIND FARMS

Firth of Forth Zone

8. The Round 3 offshore wind development programme was instigated by The Crown Estate (TCE) in 2008. Suitable areas for the development of offshore wind were assessed through a statutory process of Strategic Environmental Assessment (SEA) undertaken by the Department of Energy and Climate Change (DECC), now Department for Business, Energy and Industrial Strategy (BEIS).
9. As part of a competitive tender, Seagreen Wind Energy Limited (SWEL) was awarded the exclusive rights to the development of the Firth of Forth Zone by TCE in 2010. The subsequent Zone Development Agreement (ZDA) between SWEL and TCE provides the potential for the development of several offshore wind farms. Subsequently in 2019, the Firth of Forth ZDA was terminated, with the Agreement for Leases (Afls) now agreed with the Crown Estate Scotland (CES) for Seagreen and the Proposed Development.

Phase 1

10. In 2011, Phase 1 within the former Firth of Forth Zone included the development of two offshore wind farms known at the time as Seagreen Alpha and Seagreen Bravo (or Project Alpha and Project Bravo). Located around 27 km from the Angus coastline (Figure 1.2), each project had a total maximum installed capacity of 525 MW (Seagreen Wind Energy, 2018). Offshore consent for both projects (collectively comprising 150 wind turbines and a cable corridor in to Carnoustie, connecting to a substation at Tealing) was received in October 2014 from Scottish Ministers. Consent was confirmed in November 2017 following a legal challenge by the Royal Society for the Protection of Birds (RSPB).
11. In August 2018, SWEL varied the existing section 36 consents for Seagreen Alpha and Seagreen Bravo. This variation removed the capacity limits set for each project; the capacities were combined allowing for the development of a single, optimised project within the same sea area. This project (hereafter referred to as 'Seagreen') comprises of the two consented sites for Seagreen Alpha and Seagreen Bravo. A 15 year Contract for Difference (CfD) was awarded in September 2019 for 42% of the total project capacity (454 MW) and Seagreen reached financial close in June 2020.
12. Seagreen was consented with permission to install 150 wind turbines. These 150 wind turbines are allocated to two sub projects to facilitate connections to the grid at different locations: 'Seagreen 1' refers to the installation of 114 wind turbines that will connect to the grid at Tealing (via the cable route to Carnoustie); 'Seagreen 1A Project' refers to the other 36 wind turbines that will connect to the grid at Cockenzie via a new cable route (the 'Seagreen 1A Export Cable Corridor').
13. Pre-campaign surveys of the Seagreen offshore site took place from March to September 2021 and seabed preparation activities commenced in August 2021. Construction works at the export cable landfall commenced in May 2021 and construction at the offshore wind farm site commenced in September 2021. Construction will occur in two stages. Stage 1 will cover installation of up to 114 wind turbines on suction bucket caisson foundations and installation of the first OSP, and Stage 2 will cover installation of up to 36 wind turbines and installation of the second OSP.

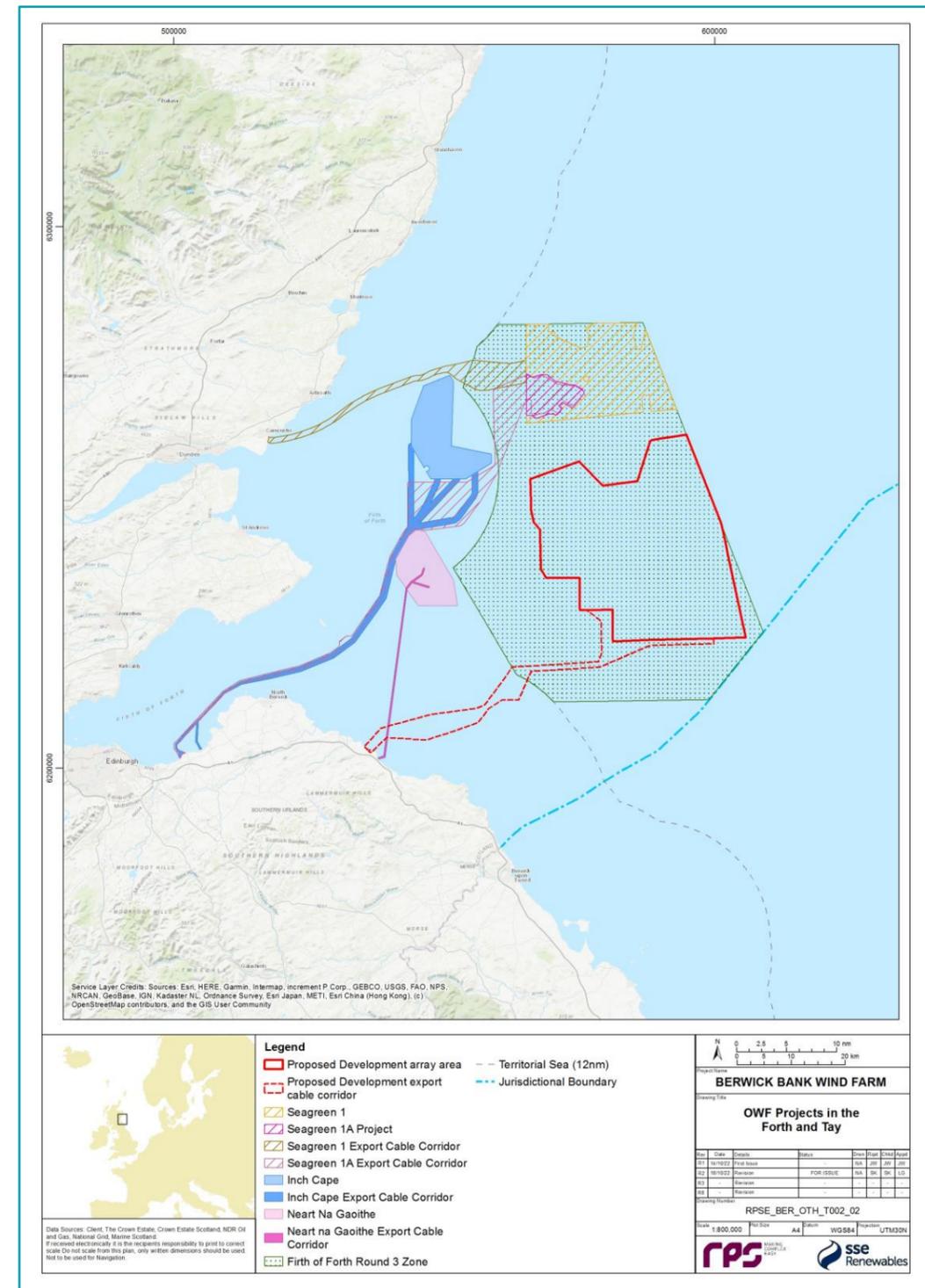


Figure 1.2: Berwick Bank Project and Seagreen Project Locations

Phase 2: Berwick Bank Wind Farm

14. Phase 2 of the former Firth of Forth Zone includes the development of the Berwick Bank Wind Farm Proposal and the superseded Marr Bank Wind Farm Proposal. The 2020 Berwick Bank proposal was previously named 'Seagreen 2' and Marr Bank Wind Farm was previously named 'Seagreen 3'. Volume 1, chapter 4 provides further detail on this.
15. The Proposed Development boundary was established through review of both engineering and environmental constraints, including stakeholder feedback following stakeholder engagement throughout the pre-application phase.
16. Further details on the site selection and consideration of alternatives to the Proposed Development are provided in volume 1, chapter 4.
17. In May 2022, the Applicant changed the boundary of the Proposed Development. These changes to the Proposed Development boundary are largely focused on the west and northern areas of the Proposed Development array area and equate to a reduction in area of approximately 23% from the boundary presented in the Berwick Bank Wind Farm Offshore Scoping Report (SSER, 2021a). Marine Scotland Licensing and Operations Team (MS-LOT) confirmed at a meeting with the Applicant on 21 March 2022 that the Proposed Development did not need to be rescope. The Applicant has undertaken a review of all application documents (technical reports and assessment chapters), drafted prior to these changes to ensure these reports continue to be relevant to the current proposal.
18. A detailed project description for the Proposed Development is presented in volume 1, chapter 3.
19. Key components of the Proposed Development include:
 - wind turbines, including foundations and support structures;
 - inter-array cables;
 - interconnector cables;
 - OSPs/Offshore converter station platforms; and
 - offshore export cables.
20. The Proposed Development's array area overlaps the large-scale morphological banks 'Marr Bank' and 'Berwick Bank' (Figure 1.3). A maximum of 307 wind turbines will be installed in the Proposed Development array area, with either suction caisson jacket or piled jacket foundations proposed for the wind turbine foundations. There will also be up to ten OSPs/Offshore converter station platforms installed with piled jackets or suction caisson jackets for the platform foundations. The wind turbines will connect to each other and to the OSPs/Offshore converter station platforms via subsea inter-array cables, and the OSPs/Offshore converter station platforms will be connected to other OSPs/Offshore converter station platforms via interconnector cables.
21. Up to eight offshore export cables will connect the OSPs/Offshore converter station platforms to the landfall on the East Lothian coast, at Skateraw Harbour (hereafter referred to as the 'Skateraw Landfall'). Once the cables make landfall, they will connect to the onshore substation/converter station, and then onto the grid connection point at Branxton, located south-west of Torness Power Station. This grid connection at Branxton will comprise a new 400 kV substation developed by SPEN.
22. At this stage, the overall capacity for the Proposed Development is not defined as this relies on the number and capacity of the wind turbines installed, within the parameters of the Project design envelope defined for this assessment (however, the Project will have a capacity of more than 50 MW). Likewise, detailed site investigation works will improve understanding of the extent of the area for development and the most suitable locations for wind turbines. This will enable development capacity and site boundaries to be refined and confirmed prior to construction.

23. In July 2022, National Grid Electricity Systems Operator (NGESO) announced as part of its Holistic Network Review, that the Applicant has signed an agreement for an additional grid connection at Blyth, Northumberland (referred to as the Cambois connection). Necessary consents for the Cambois connection (including marine licences) will be applied for separately once further development work has been undertaken on this export cable corridor route and landfall. These applications will be supported by an EIA and HRA. The Cambois connection has been included as a cumulative project for the purposes of the offshore EIA and assessed based on the information presented in the Cambois connection Scoping Report submitted in October 2022 (SSER, 2022e).
24. The construction activities associated with the Proposed Development are anticipated to commence in 2025 and will last for up to 96 months. The decommissioning process is likely to follow a similar programme to construction, in a reverse manner. The Applicant has a 50 year AfL with CES and therefore, the Applicant is seeking a 35 year consent period to allow the wind farm to continue operating should the lifespan of the wind turbines allow.

1.3. APPLICATION FOR CONSENT

1.3.1. THE APPLICANT

25. The Applicant is a leading developer, owner and operator of renewable energy across the UK and Ireland, with a portfolio of around 4 GW of onshore wind, offshore wind and hydro. Part of the FTSE-listed SSE plc, its strategy is to drive the transition to a net zero future through the world class development, construction and operation of renewable energy assets.
26. The Applicant is currently constructing one of the world's largest offshore wind energy projects, the 3.6 GW Dogger Bank Wind Farm in the North Sea, which is a joint venture with Equinor and Eni, as well as Scotland's largest and the world's deepest fixed bottom offshore site, the 1.1 GW Seagreen Offshore Wind Farm in the Firth of Forth, a joint venture with Total Energies.
27. When complete, Dogger Bank and Seagreen will help power millions of UK homes and businesses and drive the transition to Net Zero carbon emissions. These assets will join The Applicant's existing operational offshore wind portfolio which consists of 487 MW across two offshore joint venture sites, Beatrice and Greater Gabbard, both of which are operated on behalf of asset partners.

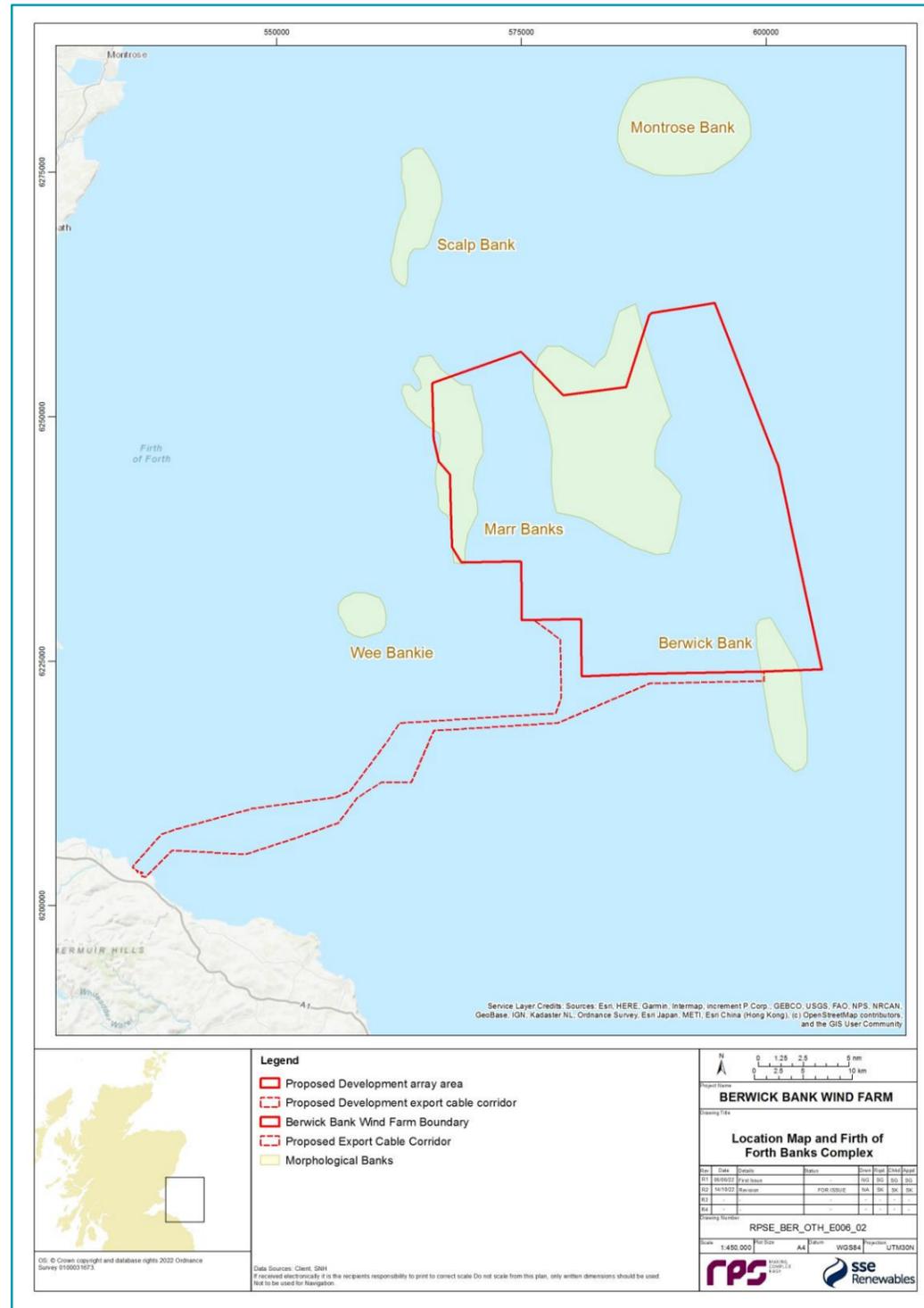


Figure 1.3: Firth of Forth Morphological Banks and the Proposed Development

1.3.2. THE OFFSHORE EIA CONSULTANT

28. RPS Energy Consultants Ltd (hereafter referred to as 'RPS') were appointed by the Applicant to lead the production of the Offshore EIA Report. RPS is a founding member of the Institute of Environmental Management and Assessment (IEMA) and is a registrant of the IEMA Quality Mark scheme.

1.3.3. APPLICATION AND ASSOCIATED DOCUMENTATION

29. Separate consents, licences and permissions for the offshore (seaward of Mean High Water Springs (MHWS)) and onshore (landward of MLWS) infrastructure of the Project are being sought. The consents, licences and permissions which will be sought by the Applicant for the Project include those listed in paragraph 4 above. An overview of the offshore application documentation is provided in Table 1.1. The onshore elements of the Project (landward of MLWS) and the onshore application documentation are discussed within the Berwick Bank Wind Farm Onshore EIA Report (SSER, 2022a).

30. Further detail of the consents, licences and permissions and their associated policy and legislation for the Proposed Development is presented in volume 1, chapter 2.

Table 1.1: Project Application Documentation

Document	Leading Author
Application Forms	
Cover letter	The Applicant
Section 36 application	The Applicant
Marine Licence applications	The Applicant
Offshore EIA Report (components described in volume 2, chapter 3)	
Non-technical Summary	The Applicant/RPS
Volume 1 – Introductory Chapters	RPS
Volume 2 – Offshore EIA Report Specialist Assessment Chapters	RPS/Cork Ecology/OPEN/Pelagica/Hardisty Jones/Anatec/Brown and May Marine Ltd
Volume 3 – Technical Reports	RPS/Atkins/Cork Ecology/OPEN/Pelagica/HiDef//Hardisty Jones/BVGA/Brown and May Marine Ltd/Anatec
Volume 4 – Outline Management Plans	RPS/Anatec Ltd/Brown and May Marine Ltd
Offshore Application Accompanying Documents	
Offshore Planning Statement	The Applicant/David Bell Planning Limited
Pre-Application Consultation (PAC) Report (Onshore and Offshore)	Copper Consultancy Ltd
Marine Protected Area (MPA) Assessment	RPS
Marine Archaeology Technical Report	RPS
Report to inform Appropriate Assessment (RIAA) including: Executive Summary Part One: Introduction and Background Part Two: Special Areas of Conservation (SACs) and annexes Part Three: Special Protection Areas (SPAs) and annexes	RPS/Royal Haskoning DHV
Berwick Bank Wind Farm Derogation Case Documents	The Applicant/GoBe Consultants Ltd

1.3.4. ENVIRONMENTAL IMPACT ASSESSMENT

Offshore and onshore EIA

25. The Applicant has prepared separate Offshore and Onshore EIA Reports to support the separate consents, licences and permissions for the offshore (seaward of MHWS) and onshore (landward of MLWS) infrastructure of the Project. The Offshore EIA Report provides a description of the offshore elements of the Project (the offshore Proposed Development) and its likely significant effects on environmental receptors seaward of MHWS. The offshore EIA Report also covers potential impacts of offshore infrastructure (seaward of MHWS) on onshore receptors (i.e. impacts from infrastructure seaward of MHWS on onshore cultural heritage receptors). The Onshore EIA Report provides a description of the onshore elements of the Project and its likely significant effects on the onshore environment (landward of MLWS). The scope of the Offshore EIA Report and Onshore EIA Report are illustrated in Figure 1.4. The onshore elements of the Project are not considered further in this Offshore EIA Report, except where it has been necessary to address intertidal elements or other relevant inter-related effects. The onshore Proposed Development is assessed as a cumulative project with the offshore Proposed Development.

Purpose of the offshore EIA

26. This Offshore EIA Report has been prepared by the Applicant to accompany applications for consent as detailed in paragraph 4, section 1.1. The Offshore EIA Report is required to fulfil the requirements of the following regulations (collectively referred to hereafter as the EIA Regulations):
- in respect to the Section 36 consent application: The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended by The Town and Country Planning and Electricity Works (EU Exit) (Scotland) (Miscellaneous Amendments) Regulations 2019); and
 - in respect to the marine licence applications: The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended by The Marine Environment (EU Exit) (Scotland) (Amendment) Regulations 2019).
27. The Offshore EIA Report provides a description of the Proposed Development and presents the environmental information which has been gathered in order to carry out an assessment of the likely significant environmental effects of the Proposed Development (seaward of MHWS) on the receiving environment.
28. The Offshore EIA Report specifically:
- provides statutory and non-statutory consultees with technical information to facilitate understanding of the Proposed Development;
 - presents the existing environmental baseline information, established from desktop studies, site-specific surveys and/or consultation;
 - describes the EIA methodology used for the assessments;
 - presents the potential environmental impacts arising from the Proposed Development, based on baseline information and data gathered, and the analysis and impact assessments completed as part of the EIA process;
 - outlines any limitations encountered during the compilation of the environmental information, including where any data gaps or deficiencies exist, and the level of confidence in the information gathered;
 - suggests designed in mitigation measures to avoid, prevent, reduce or, where possible, offset any identified significant adverse effects on the environment, and where appropriate, proposed monitoring arrangements to validate findings of the EIA Report. Where additional mitigation measures have been identified, the residual significance of effect has also been presented; and

- provides a description of the reasonable alternatives considered for the Proposed Development, and an indication of the main reasons for site-selection.

29. The Non-Technical Summary (NTS) provides an overview, in non-technical language, of the findings of the Offshore EIA Report. Both the Offshore EIA Report and the NTS are available for download: <https://www.berwickbank.com>.

Scope of the assessment

30. In August 2020, the Applicant submitted a 2020 Berwick Bank Wind Farm Offshore Scoping Report to MS-LOT to support a request for a formal Scoping Opinion from Scottish Ministers in relation to the 2020 Berwick Bank Wind Farm Offshore Scoping Report (SSER, 2020). The intention at this time was that the Marr Bank project would be scoped separately. The Scoping Opinion for the 2020 Berwick Bank project was received in March 2021, which helped inform the proposed scope of the current assessment for the Proposed Development and guided the Applicant in progressing with the Offshore EIA Report.
31. In response to advice received from stakeholders on the 2020 Berwick Bank Wind Farm Scoping Report (SSER, 2020), the Applicant started to explore options to combine Marr Bank and Berwick Bank into one single project (the 'Berwick Bank Wind Farm'). A request for a formal Scoping Opinion from Scottish Ministers in relation to the single project (Berwick Bank Wind Farm) was subsequently submitted to MS-LOT in October 2021. The Scoping Opinion for the Berwick Bank Wind Farm was received in February 2022 (MS-LOT, 2022).
32. The Scoping Opinion for the Berwick Bank Wind Farm (MS-LOT, 2022) set out the proposed scope of the assessment and guided the Applicant in progressing with this Offshore EIA Report. As far as responses provided in relation to 2020 Berwick Bank are relevant to the Proposed Development, or the Applicant has been directed to refer to them, the Applicant has relied on these responses to guide the scope of this Offshore EIA Report. Such responses are categorised within the term "relevant consultation undertaken to date".
33. Based on the Scoping Opinion received and discussions with stakeholders, this Offshore EIA Report focuses on the following topic areas:
- Physical Processes;
 - Subsea Noise;
 - Benthic Subtidal and Intertidal Ecology;
 - Fish and Shellfish Ecology;
 - Marine Mammals;
 - Offshore and Intertidal Ornithology;
 - Commercial Fisheries;
 - Shipping and Navigation;
 - Aviation, Military and Communications;
 - Seascape, Landscape, Visual Resources;
 - Cultural Heritage;
 - Infrastructure and Other Users;
 - Offshore Socio-economics and Tourism;
 - Major Accidents and Disasters; and
 - Water Quality.
34. An Effects on Climate Assessment (through greenhouse gas emissions), Climate Vulnerability Assessment and an assessment of In-Combination Climate Impacts (ICCI) have also been completed. The results of these are presented in a Technical Appendix, with results from the assessments used, where relevant, to inform the impacts assessments listed above.

35. Throughout the offshore EIA process, the Applicant has undertaken extensive consultation with statutory and non-statutory stakeholders, and actively engaged with the public at Public Consultation Events. Details of the consultation with statutory and non-statutory stakeholders and public consultation events is presented in volume 1, chapter 5, together with a full list of stakeholders who were consulted. A summary of topic specific consultation is also provided in each topic chapter (see volume 2, chapters 7 to 21).

Structure of the Offshore EIA Report and offshore EIA consultant

36. The Offshore EIA Report relates to those impacts and receptors associated with the offshore environment (seaward of MHWS), including potential impacts of offshore infrastructure on onshore and offshore receptors (i.e. impacts from infrastructure seaward of MHWS).

37. The Offshore EIA Report is divided into four volumes:

- volume 1 – Introductory Chapters;
- volume 2 – Offshore EIA Report Technical Assessments;
- volume 3 – Offshore EIA Technical Reports; and
- volume 4 – Outline Management Plans.

38. Table 1.2 provides a breakdown of the contents of each of the Offshore EIA Report volumes and the organisations that have contributed to them.

39. Table 1.3 provides details on the qualifications and experience of the competent experts involved in the Offshore EIA Report.

Table 1.2: Structure and Content of the Offshore EIA Report

Chapter Number	Chapter Title	Lead Author
Non-Technical Summary		
-	Non-Technical Summary	RPS and The Applicant
Volume 1 – Introductory Chapters		
-	Table of Contents	RPS
-	Glossary	RPS
-	Acronyms	RPS
1	Introduction	RPS
2	Policy and Legislation	RPS
3	Project Description	RPS and The Applicant
4	Site Selection and Consideration of Alternatives	The Applicant
5	Stakeholder Engagement and Consultation	RPS
6	Environmental Impact Assessment Methodology	RPS
Volume 2 – Offshore EIA Report Specialist Assessments		
7	Physical Processes	RPS
8	Benthic Subtidal and Intertidal Ecology	RPS
9	Fish and Shellfish Ecology	RPS
10	Marine Mammals	RPS
11	Offshore and Intertidal Ornithology	Pelagica/Cork Ecology
12	Commercial Fisheries	Brown & May Marine Ltd
13	Shipping and Navigation	Anatec Limited
14	Aviation, Military and Communications	Coleman Aviation Ltd
15	Seascape, Landscape and Visual Resources	OPEN
16	Cultural Heritage	RPS
17	Infrastructure and Other Users	RPS
18	Offshore Socio-Economics and Tourism	Hardisty Jones Associates
19	Water Quality	RPS
20	Inter-Related Effects	RPS
21	Major Accidents and Disasters	RPS
Volume 3 – Technical Reports		
Appendix 5.1	Audit Document for Post-Scoping	RPS
Appendix 6.1	Scoping Report	RPS
Appendix 6.2	Scoping Opinion	RPS
Appendix 6.3	Enhancement, Mitigation, and Monitoring Commitments	RPS and The Applicant
Appendix 6.4	Cumulative Effects Appendix	RPS
Appendix 6.5	Cumulative Effects – Location of Projects and Plans	RPS
Appendix 6.6	Transboundary Impacts Screening	RPS
Appendix 7.1	Physical Processes Technical Report	RPS
Appendix 8.1	Benthic Subtidal and Intertidal Ecology Technical Report	RPS
Appendix 8.2	Benthic Ecology, Physical Process and Fish and Shellfish Road Map	RPS
Appendix 9.1	Fish and Shellfish Ecology Technical Report	RPS
Appendix 10.1	Subsea Noise Technical Report	Seiche Ltd
Appendix 10.2	Marine Mammals Technical Report	RPS
Appendix 10.3	Marine Mammal Road Map	RPS
Appendix 10.4	iPCoD Modelling Report	RPS
Appendix 10.5	Marine Mammals Conversion Factor Supporting Information	RPS
Appendix 11.1	Ornithology Baseline Report	HiDef
Appendix 11.2	Ornithology Intertidal Survey Report	RPS
Appendix 11.3	Ornithology Collision Risk Model Technical Report	HiDef
Appendix 11.4	Ornithology Displacement Technical Report	HiDef
Appendix 11.5	Ornithology Apportioning Technical Report	HiDef
Appendix 11.6	Ornithology Population Viability Assessment Technical Report	HiDef
Appendix 11.7	Ornithology Boat Based Survey Report	RPS

	Onshore EIA Report	Offshore EIA Report	
Physical Environment	Geology, Hydrology, Soils and Flood Risk	Physical Processes	
	Effects on Climate and Climate Vulnerability	Water Quality	
Biological Environment	Ecology	Effects on Climate and Climate Vulnerability	
	Ornithology	Benthic Subtidal and Intertidal Ecology	
		Fish and Shellfish Ecology	
Marine Mammals			
Human Environment	Traffic and Transportation	Offshore and Intertidal Ornithology	
	Landscape and Visual	Commercial Fisheries	
		Cultural Heritage	Shipping and Navigation
		Land Use, Tourism and Recreation	Aviation, Military and Communications
	Socio-economics	Seascape, Landscape and Visual Resources	
	Noise	Cultural Heritage	
	Accidents and Disasters (considered in relevant onshore chapters)	Infrastructure and Other Users	
		Socio-Economics and Tourism	
		Noise (addressed in offshore biological environment topics)	
		Major Accidents and Disasters	

Figure 1.4: Extent of the Onshore and Offshore EIA Reports

Chapter Number	Chapter Title	Lead Author
Appendix 11.8	Offshore Ornithology Road Map	The Applicant
Appendix 12.1	Commercial Fisheries Technical Report	Brown & May Marine Ltd
Appendix 13.1	Shipping and Navigation Navigational Risk Assessment (NRA)	Anatec Ltd
Appendix 13.2	Shipping and Navigation Road Map	Anatec Ltd
Appendix 14.1	Aviation, Military and Communications Technical Report	Coleman Aviation Ltd and RPS
Appendix 15.1	Seascape, Landscape, and Visual Resources (SLVIA) Technical Report	OPEN
Appendix 15.2	SLVIA Visual Representations	OPEN
Appendix 16.1	Cultural Heritage Technical Report	RPS
Appendix 18.1	Offshore Socio-Economics and Tourism Impact Report	BVG Associates
Appendix 18.2	Socio-Economics and Tourism Stakeholder Consultation	Hardisty Jones Associates
Appendix 18.3	Socio-Economics Local Study Area Definition – Analysis	Hardisty Jones Associates
Appendix 18.4	Impact Industries Definitions	Hardisty Jones Associates
Appendix 18.5	Tourism Region Definitions	Hardisty Jones Associates
Appendix 19.1	Water Framework Directive Report	RPS
Appendix 20.1	Inter-Related Effects Technical Report	RPS
Appendix 21	Climate Assessments Report	Atkins/The Applicant (text on blue carbon)
Volume 4 – Outline Management Plans		
Appendix 22	Outline Environmental Management Plan (EMP)	RPS
Appendix 23	Outline Marine Mammal Mitigation Protocol (MMMP)	RPS
Appendix 24	Outline Fisheries Management and Mitigation Strategy (FMMS)	Brown & May Marine Ltd
Appendix 25	Outline Navigational Safety and Vessel Management Plan (NSVMP)	Anatec Ltd
Appendix 26	Outline Aid to Navigation Management Plan (ANMP)	Anatec Ltd
Appendix 27	Outline Lighting and Marking Plan (LMP)	RPS

Table 1.3: Qualifications and Experience of the Offshore EIA Report Competent Experts

Expert	Qualifications	Relevant Experience
RPS: Ruth De Silva	BSc, PGCE	Ruth is an Associate Director with over 20 years' experience as an environmental practitioner in the environmental field, including as both a statutory stakeholder and a consultant. Ruth worked as a statutory stakeholder at NatureScot for nine years. Ruth holds a honours degree in Ecology (BSc). Ruth has worked on numerous offshore wind, wave and tidal projects throughout the UK as Project Manager and a technical specialist. This includes management of budgets, resource, technical resource, programme and consenting approach. Ruth also has significant experience leading technical advice on HRA.
RPS: Dr Naomi Shannon	PhD, MSc, Beng, PGCHET	Naomi is a RPS Senior Engineer and holds a doctorate in Computational Fluid Dynamics, a masters degree in Engineering Computation and an honours degree in Civil Engineering. Naomi has over 20 years' post-doctoral experience in computational modelling of a wide range of hydraulic processes in the coastal, river and estuarine environment and also in the undertaking of EIAs (including screening, scoping, and preparation of EIA Reports and technical appendices). This experience includes being a key member in a number of projects relating to estuarine hydrodynamics and sediment transport such as offshore wind farms, dredging plume modelling, aggregate extraction, and sea dumping for EIAs for major port developments.

Expert	Qualifications	Relevant Experience
RPS: Anna Prior	BA Biological Sciences, MSc Marine Environmental Protection	Over 13 years of experience in the UK. Anna joined RPS in 2011, and has specialised in providing marine ecology (benthic, fish and shellfish and marine mammal) inputs to the EIA process in support of a number of DCO and Marine Licence applications. Expertise in HRA, including the preparation of LSE screening reports and Reports to Inform Appropriate Assessment. Anna has acted as a marine ecology technical lead on a number of offshore wind farms projects including Hornsea Projects One and Two, Hornsea Three and the Berwick Bank offshore wind farms. Anna has acted as the HRA lead on the Marine Energy Test Area (META) project and is currently leading on the HRA for the Berwick Bank offshore wind farm. Prior to joining RPS, Anna worked for the Environment Agency for four years as a Marine Survey Officer in the National Marine Monitoring Service.
RPS: Dr Kevin Linnane	BSc, PhD, ACIEEM	Dr Kevin Linnane is an Associate Director with over 13 years' experience as a marine consultant working in the offshore renewables field. Kevin has a PhD in marine ecology and specialises on the fish and shellfish ecology and benthic subtidal and intertidal ecology, including mapping and assessment of protected and sensitive habitats, EIA, Ecological Impact Assessment (EiA) and Habitats Regulations Assessment for a wide range of industries and developments, particularly offshore renewables and cables. Kevin recently completed a study on offshore electrical cable installation, protection and seabed recovery on behalf of the Crown Estate to inform future leasing rounds. Kevin has also acted as expert witness at hearings for a number of offshore wind farms in the UK, giving evidence on the impact of construction and operation of wind farm infrastructure on seabed habitats, including Annex I habitats of European sites. As a fish and shellfish ecology specialist, Kevin has undertaken detailed mapping of spawning and nursery habitats for a range of fish and shellfish species in offshore and nearshore environments. This has included herring, which are known to be particularly sensitive to underwater noise. These detailed spawning assessments have been used to support impact assessments on the effects of direct disturbance (e.g. cable installation, aggregate extraction) and underwater noise effects (e.g. from piling) on sensitive fish species. Kevin has also undertaken numerous assessments to consider the effect of underwater noise on migratory fish species, including those designated as features of Special Areas of Conservation (SACs). Kevin has provided expert witness evidence at hearings on the topic of underwater noise on fish spawning and migration and has worked with stakeholders to develop appropriate mitigation strategies to reduce impacts to an acceptable level.

Expert	Qualifications	Relevant Experience
RPS: Dr Tessa McGarry	PhD, Mres, BSc (Hons)	Tessa is a Principal Marine Ecologist at RPS and has specific project experience as a lead marine mammal advisor for a number of offshore wind farm developments, both in the UK and overseas. With experience throughout a project lifecycle – from planning through to post-consent – Tessa has authored technical reports, EIAs, Habitats Regulations Appraisals (HRAs), European Protected Species (EPS) applications, consenting strategies and compliance reports. Tessa has provided support during the Examination stage as a marine mammal Expert Witness. Tessa has been heavily involved in the development of marine mammal mitigation strategies for the offshore sector and has also led field-based research studies on testing suitable mitigation approaches, including the use of Acoustic Deterrent Devices (ADDs), under the Offshore Renewables Joint Industry Programme (ORJIP) research programme. Recently, Tessa co-authored a reference report on behalf of Joint Nature Conservation Committee (JNCC) for use by UK statutory consultees on ADD availability, technical capacity and effectiveness in deterring marine mammals from injury zones.
HiDef Aerial Surveying Ltd: Martin Scott	BSc	Martin is an ornithological expert with a wealth of project management and development experience over 18 years. Prior to joining HiDef in 2016 he worked for RSPB and two major consultancies and advised a Canadian Non-governmental organisation on bird and wind farm interactions. Martin has worked on offshore/marine EIA productions in all four UK nations and Ireland, including HRA and detailed Technical Appendices leading to offshore ornithology chapters of the EIA Report. He has also produced support documentation for Planning Inspectorate inquiries. Clients include Marine Scotland Licencing and Operations Team and Marine Scotland Science, NatureScot and Natural England in addition to numerous commercial offshore developers. Martin has worked on bird and offshore wind research projects (including ProBIRD in Germany and sCRM) providing detailed inputs to projects to further industry knowledge.
Cork Ecology: Colin Barton	BSc (Hons)	Colin has provided ornithological support for nine offshore wind projects off the coast of Ireland, and five offshore wind projects in UK waters. Key inputs into offshore wind farm projects include writing baseline and assessment EIA Report chapters on birds and input into HRA chapters, seabird survey design, planning and management, provision of European Seabirds at Sea (ESAS) surveyors and equipment, ESAS training, data input and validation, database management, data analysis.
Pelagica Environmental Consultancy Ltd: Phil Bloom	BSc (Hons)	Over 25 years' experience as either a regulator, environmental consultant or for a statutory nature conservation body, with 19 years' experience in the consenting of offshore wind farms. Phil has had significant involvement in the consenting of twenty UK offshore wind farm developments focussed on undertaking HRA's and assessing the potential impacts on birds and marine mammals. Since 2005, Phil has prepared 57 HRAs, over half of which have been related to offshore wind farm projects and undertaken EIAs relating to either birds, marine mammals and bats for five offshore wind farm projects.
Brown and May Marine: Sara Xoubanova	BSc, MSc	Sara is a marine environmental and fisheries specialist with 15 years of experience working on marine projects in the UK and Europe. She has delivered work for over 30 offshore wind farms, including numerous projects in Scotland, and has an extensive track record in the undertaking and review of commercial fisheries and fish ecology EIA chapters and technical reports in support of offshore wind farm applications. In addition, Sara has been appointed as an expert witness during the examination phase for various offshore wind farms and provides ongoing technical advice and support in respect of the discharge of consent conditions in relation to commercial fishing and fish ecology issues for many projects.

Expert	Qualifications	Relevant Experience
Anatec: Samantha Westwood	BSc	Over 22 years' experience within the maritime industry dealing with port and vessel operations as well as offshore installations including time at sea and in Vessel Traffic Services. Following time at the MCA working as part of the Navigation Safety Branch Samantha joined the maritime consultancy industry specialising in marine navigation safety risk. For the 13 years' Samantha has been actively involved in the majority of offshore renewable projects in the UK, projects in the US and European sites from both marine operations and HSE aspects including production of Navigation Risk Assessments.
Coleman Aviation: Mike Coleman (RAF) (Retd).	Wing Commander	Coleman Aviation Ltd was set up by Wing Commander Mike Coleman Royal Air Force (RAF) (Retd) to provide independent consultancy services to the wind farm industry on aviation issues. Wing Commander Coleman retired from the RAF in December 2012 after 27 years' service. His last appointment was as Head of the Air Traffic Control and Air Defence operational teams responsible for assessing the impact of wind farms on Ministry of Defence operations. In this role, he defined RAF policy for dealing with the operational impact of wind turbines on ATC radars and was pivotal in deciding whether objections against wind farms should be lodged. During his RAF career, he was employed at every level within the ATC specialisation from operational controller through to Head of the RAF ATC Standards organisation. Prior to converting to ATC, he completed operational tours as a fast-jet navigator compiling nearly 1,000 flying hours on the Tornado GR1. Since leaving the RAF, he has worked for over eight years as an aviation consultant and provided advice to numerous wind farm developers in resolving a variety of wind farm related aviation issues.
Simon Martin Optimised Environments Ltd (OPEN)	MA Hons Landscape Planning and Management; Chartered Member of the Landscape Institute (CMLI)	Simon is an Associate of OPEN with 20 years' professional experience in landscape practice, specializing in landscape and visual impact assessment (LVIA) of development, including offshore wind farms. During his professional landscape practice, Simon has gained considerable expertise in the fields of LVIA; including seascape, landscape and visual impact assessment (SLVIA), landscape planning and feasibility; and the wider environmental impact assessment (EIA) process. Over recent years, Simon has been the lead assessor for the SLVIAs for several offshore wind farms in UK waters, including projects in the Moray Firth in Scotland and a number of Nationally Significant Infrastructure Projects (NSIP) off the southern and eastern coasts of England. These have included site survey works, viewpoint photography, impact assessment reporting, stakeholder consultations and giving evidence during examination at issue specific hearings.
RPS: Richard Conolly	MA(Hons), Archaeology MCIfA, FSA Scot	Richard has 25 years' professional experience. He has been responsible for the cultural heritage elements of numerous EIAs, with particularly extensive experience in relation to wind farms. He was responsible for the cultural heritage setting assessments for the Beatrice and Moray Offshore Wind Farms, European Offshore Wind Deployment Centre and was involved in the assessments for the Neart na Gaoithe and Seagreen 1. In 2018, Richard authored guidance on cultural heritage and EIA on behalf of Historic Environment Scotland.
RPS: Stuart Sharp	MSc Environmental Science, BSc Ocean Sciences, Chartered Environmentalist (Cenv), Chartered Scientist (Csci)	Stuart has 15 years' experience in the energy sector including: UK offshore permitting, ESIA (UK and international), Oil pollution emergency plans (UK and international), Emergency response planning and HSE Management Systems.

Expert	Qualifications	Relevant Experience
Hardisty Jones Associates: Stuart Hardisty	BSc Econ (Hons), MIED	Stuart has 21 years' experience of socio economic development consultancy for public and private sector clients. Stuart has authored and contributed to a wide variety of socio economic assessments for EIA and as standalone reports across a range of sectors including energy, residential, commercial, employment, education, health and infrastructure.
BVG Associates Ltd: Alun Roberts	BSc, PhD	Alun is an Associated Director for BVG Associated Ltd. His experience includes building economic impact models for offshore wind sector and leading analyses of impacts in Europe, Asia and North America.
Seiche: Simon Stephenson	CEng, BSc (Hons) Physics, MIOA, ASA	Simon is a specialist acoustic consultant with a wide range of experience gained over 24 years. He has led subsea noise modelling and assessment studies on a wide range of projects, including offshore wind farms, tidal energy developments, wave energy convertors, ports, harbours, geophysical surveys, interconnectors, pipelines and offshore oil and gas developments.
Atkins: Daniel George	BSc Environmental Sciences IEMA Practitioner Member	Daniel is an Environmental Consultant with three years of experience in delivering environmental screening, scoping and environmental statement chapters for a range of major infrastructure projects. He has been responsible for undertaking the carbon modelling assessment for the climate change (sometimes known as climate effects) chapters of Environmental Statements using a variety of modelling tools to assess the amounts of CO2e emissions that a scheme will produce during the construction, operation and decommissioning phases of its life. Daniel has also worked extensively with design and engineering teams to identify ways to reduce and mitigate the carbon impacts of a project. Daniel has worked across a range of schemes that have required such assessments, including M5 J10.
Atkins: Latina Percheva	MSc Environmental Sciences	Latina is a Senior Consultant with seven years of experience in delivering climate risk, adaptation and climate finance projects to a wide variety of clients. She works with Multilateral Development Banks (MDBs), International Finance Institutions (IFIs), national and local governments on ensuring the resilience of infrastructure projects to physical climate change risks.
Royal HaskoningDHV: Murray Grant	BSc (hons), PhD	Murray is the Technical Director for ornithology at Royal HaskoningDHV. He has over 25 years' experience as an applied ornithologist, with a science background and expertise in HRA and EIA gained from leading and managing a wide range of projects concerned with assessing and advising on the ornithological impacts of (primarily) offshore renewables developments. This has included the EIA and HRA productions and provision of post-consent support for a range of major offshore wind farm projects. Murray also provided technical support for the Judicial Review (and subsequent appeal) of the Forth and Tay wind farms, has provided Expert Witness and technical support for Public Inquiries, and represented projects at Planning Inspectorate Hearings. He has published widely in the peer reviewed scientific literature, as well as being a contributory author for several books on ornithology and ecology. Prior to working in consultancy he was a Principal Conservation Scientist at RSPB.

Expert	Qualifications	Relevant Experience
RPS: Suzanne Gailey	BA (Hons), MA Practical Archaeology	Suzanne has over 18 years of experience as a heritage professional. She has extensive experience in a range of sectors including energy and infrastructure and in providing appropriate and proportionate input into Environmental Impact Assessments and supporting Technical reports in accordance with legal requirements and all relevant policies, standards and guidance including acting as technical lead for Marine Archaeology in relation to an offshore windfarm in Ireland managed by RPS and the technical lead for Marine Archaeology in relation to the new port terminal at Tilbury, Essex in England in addition to her current role for Berwick Bank.



1.4. REFERENCES

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