Muir Mhòr Offshore Wind Farm

Environmental Impact Assessment Report

Volume 2, Chapter 19: Infrastructure and Other Users

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Contents

19. Infrastructure and Other Users 1

19.1. Introduction 1
19.2. Purpose of the Chapter 1
19.3. Legislation and Policy Context 2
19.4. Consultation 6
19.5. Baseline Environment 10

Study Area 10
Methodology for Establishing the Baseline 12
Description of Baseline Environment 13
Future Baseline Conditions 25
Data Limitations and Assumptions 26

19.6. Infrastructure and Other Users Assessment Methodology 27

Guidance 27
Criteria for Assessment 27
Embedded Commitments 29
Impacts Scoped out of the Assessment 32
Worst Case Design Scenario 33

19.7. Assessment of Likely Significant Effects 36

Construction Phase 36
Operation and Maintenance 44
Decommissioning 51
Proposed Monitoring 57

19.8. Whole Project Assessment 57
19.9. Cumulative Effects Assessment 57

CEA Methodology 57
Worst Case Design Scenario CEA 61
Construction CEA 64
Operation and Maintenance CEA 76
Decommissioning CEA 89
Proposed Monitoring for Cumulative Effects 89

19.10. Transboundary Effects 89
19.11. Inter-Related Effects 89
19.12. Assessment Summary 91
19.13. References 95

Figures

Figure 19-1 Infrastructure and Other Users study area 11
Figure 19-2 Offshore renewable energy developments within the IOU study area 14
Figure 19-3 Subsea cables and utilities within the IOU study area 17
Figure 19-4 Disposal sites within the IOU study area 18
Figure 19-5 Oil and gas licence blocks and other infrastructure in the IOU study area 23
Figure 19-6 Marine recreational activities within the IOU study area 24
Figure 19-7 Other Plan/Projects relevant to the Infrastructure and Other Users CEA 59

Tables

Table 19-1 Legislation relevant to IOU 3
Table 19-2 Policy relevant to IOU 4
Table 19-3 Consultation relevant to IOU 7
Table 19-4 Key sources of IOU literature and data 12
Table 19-5 Pipelines within the IOU study area 19
Table 19-6 Subsea structures within the IOU study area 20
Table 19-7 Impact magnitude criteria for IOU 28
Table 19-8 Receptor sensitivity criteria for IOU 28
Table 19-9 Matrix used for the assessment of significance of the effect 29
Table 19-10 Embedded commitment measures of relevance to IOU 30
Table 19-11 Impacts scoped out of the IOU assessment 32
Table 19-12 Worst case design scenarios with respect to the IOU assessment 34
Table 19-13 Significance of temporary obstruction to other OWFs (construction) 37
Table 19-14 Significance of temporary obstruction to subsea cables and utilities developments and associated activities (construction) 39
Table 19-15 Significance of temporary obstruction to licensed marine disposal sites and associated activities (construction) 40
Table 19-16 Significance for temporary obstruction to oil and gas developments and associated activities (construction) 42
Table 19-17 Significance for loss of recreational resource (construction) 44
Table 19-18 Significance of temporary obstruction to other OWFs (O&M) 45
Table 19-19 Significance of temporary obstruction to subsea cables and utilities developments and associated activities (O&M) 47
Table 19-20 Significance of temporary obstruction to licensed marine disposal sites and associated activities (O&M) 48
Table 19-21 Significance of temporary obstruction to oil and gas developments and associated activities (O&M) 49
Table 19-22 Significance of loss of recreational resource (O&M) 51

Table 19-23 Significance of temporary obstruction to other OWFs (decommissioning) 52

Table 19-24 Significance of temporary obstruction to subsea cables and other utilities developments and associated activities (decommissioning) 53

Table 19-25 Significance of temporary obstruction to marine disposal sites and associated activities (decommissioning) 54

Table 19-26 Significance for temporary obstruction to oil and gas developments and associated activities (decommissioning) 55

Table 19-27 Significance for loss of recreational resource (decommissioning) 56

Table 19-28 Other Plans/Projects included in the IOU CEA 60

Table 19-29 Worst Case Design Scenarios with respect to the IOU CEA 61

Table 19-30 Construction CEA - Tier 1 – Significance of temporary obstruction to other OWFs 65

Table 19-31 Construction CEA - Tier 2 – Significance of temporary obstruction to other OWFs 65

Table 19-32 Construction CEA - Tier 3 – Significance of temporary obstruction to other OWFs 66

Table 19-33 Construction CEA - Tier 1 – Significance of temporary obstruction to subsea cables and utilities developments and associated activities 67

Table 19-34 Construction CEA - Tier 3 – Significance of temporary obstruction to subsea cables and utilities developments and associated activities 68

Table 19-35 Construction CEA - Tier 1 – Significance of temporary obstruction to licensed marine disposal sites and associated activities 69

Table 19-36 Construction CEA - Tier 2 – Significance of temporary obstruction to licensed marine disposal sites and associated activities 70

Table 19-37 Construction CEA - Tier 3 – Significance of temporary obstruction to licensed marine disposal sites and associated activities 71

Table 19-38 Construction CEA - Tier 1 – Significance of temporary obstruction to oil and gas developments and associated activities 72

Table 19-39 Construction CEA - Tier 3 – Significance of temporary obstruction to oil and gas developments and associated activities 73

Table 19-40 Construction CEA - Tier 1 – Significance of loss of recreational resource 74

Table 19-41 Construction CEA - Tier 2 – Significance of loss of recreational resource 75

Table 19-42 Construction CEA - Tier 3 – Significance of loss of recreational resource 76

Table 19-43 O&M CEA - Tier 1 – Significance of temporary obstruction to other OWFs 77

Table 19-44 O&M CEA - Tier 2 – Significance of temporary obstruction to other OWFs 77

Table 19-45 O&M CEA - Tier 3 – Significance of temporary obstruction to other OWFs 78

Table 19-46 O&M CEA - Tier 1 – Significance of temporary obstruction to subsea cables and utilities developments and associated activities 79

Table 19-47 O&M CEA - Tier 3 – Significance of temporary obstruction to subsea cables and utilities developments and associated activities 80

Table 19-48 O&M CEA - Tier 1 – Significance of temporary obstruction to licensed marine disposal sites and associated activities 82

Table 19-49 O&M CEA - Tier 2 – Significance of temporary obstruction to licensed marine disposal sites and associated activities 82

Table 19-50 O&M CEA - Tier 3 – Significance of temporary obstruction to licensed marine disposal sites and associated activities 83

Table 19-51 O&M CEA - Tier 1 – Significance of temporary obstruction to oil and gas developments and associated activities 84

Table 19-52 O&M CEA - Tier 3 – Significance of temporary obstruction to oil and gas developments and associated activities 85

Table 19-53 O&M CEA - Tier 1 – Significance of loss of recreational resource 87

Table 19-54 O&M CEA - Tier 2 – Significance of loss of recreational resource 88

Table 19-55 O&M CEA - Tier 3 – Significance of loss of recreational resource 88

Table 19-56 Inter-related effects of IOU 90

Table 19-57 Summary of assessment of effects on IOU 92

Table 19-58 Summary of assessment of cumulative effects on IOU 94

Glossary

Term	Definition
Array Area	The area in which the generation infrastructure (including Wind Turbine Generators and associated foundations and inter-array cables), Offshore Electrical Platform(s), and an interconnector cable will be located.
Baseline	The status of the environment at the time of assessment without the development in place.
Cumulative effect	The combined effect of the Proposed Development acting cumulatively with the effects of a number of different projects, on the same single receptor/resource.
Cumulative impacts	Impacts that result from changes caused by other past, present or reasonably foreseeable actions together with the Proposed Development.
Developer	Muir Mhòr Offshore Wind Farm Limited.
EIA Regulations	Collectively the term used to refer to The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, The Marine Works (Environmental Impact Assessment) Regulations 2007, and The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017.
Embedded Commitment	Mitigation measures to avoid or reduce environmental effects that are directly incorporated into the design for the Proposed Development.
Floating Foundations	The floating structures on which the Wind Turbine Generators are installed.
Foundation anchors	The mooring structures which anchor the Floating Foundations to the seabed, connected to the foundation mooring.
Foundation mooring	The mooring structures which connect the Floating Foundations to the anchors.
Inter-array cables	Cables which link the wind turbines generators to each other and the Offshore Electrical Platform(s).
Interconnector cable	Cable which links the Offshore Electrical Platforms to one another, allowing for power to be transferred between the platforms.
Landfall	The area between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS) where the offshore export cables are brought onshore.
Offshore Electrical Platform (OEP)	Offshore platform consisting of High Voltage Alternating Current (HVAC) equipment, details depending on the final electrical set up of the Project.
Offshore Export Cable Corridor (ECC)	The area within which the offshore export cables will be installed.
Offshore export cables	The subsea electricity cable circuits running from the Offshore Electrical Platform(s) to the landfall which will transmit the electricity generated by the offshore wind farm to the onshore export cables for transmission onwards to the onshore substation and the national electrical transmission system along with auxiliary cables such as fibre optic cables.
Offshore transmission infrastructure	The proposed transmission infrastructure comprising: Offshore Electrical Platform(s) and associated foundations and substructures; the offshore export cables; and the landfall area up to Mean High Water Springs (MHWS).
Project	Muir Mhòr Offshore Wind Farm – comprises the wind farm and all associated offshore and onshore components.
Proposed Development	The offshore Muir Mhòr Offshore Wind Farm project elements to which this Offshore EIA Report relates.
Safety Zone	An area of water around or adjacent to an offshore renewable energy installation from which certain or all classes of vessels are excluded and within which activities can be regulated.

Term	Definition
Wind Turbine Generator (WTG)	The wind turbines that generate electricity consisting of tubular towers and blades attached to a nacelle housing mechanical and electrical generating equipment.

Acronyms

Term	Definition
AfL	Agreement for Lease
AIS	Automatic Identification System
CAA	Civil Aviation Authority
CaP	Cable Plan
CBRA	Cable Burial Risk Assessment
CCUS	Carbon Capture, Utilisation and Storage
CEA	Cumulative Effects Assessment
CES	Crown Estate Scotland
CMS	Construction Method Statement
CNSFTC	Central North Sea Fibre Telecommunications Company
COLREGs	International Regulations for Preventing Collisions
DGC	Defence Geographic Centre
DP	Decommissioning Programme
DSLP	Development Specification and Layout Plan
EBA	European Boating Association
ECC	Export Cable Corridor
EEA	European Economic Area
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EGL2	Eastern Green Link 2
EOWDC	European Offshore Wind Deployment Centre
ERCoP	Emergency Response and Cooperation Plan
ESCA	European Subsea Cables Association
GW	Gigawatt
HSE	Health and Safety Executive
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
ICPC	International Cable Protection Committee
IMO	International Maritime Organization
INTOG	Innovation and Targeted Oil and Gas
IOU	Infrastructure and Other Users
KIS-ORCA	Kingfisher Information Service – Offshore Renewable & Cable Awareness
LMP	Lighting and Marking Plan
LSE	Likely Significant Effect
MoD	Ministry of Defence
MCA	Maritime and Coastal Agency
MD-LOT	Marine Directorate – Licensing Operations Team
MGN	Marine Guidance Note
MHWS	Mean High Water Springs

Term	Definition
MLWS	Mean Low Water Springs
MW	Megawatt
NLB	National Lighthouse Board
NMP	National Marine Plan
NSP	Navigational Safety Plan
NSTA	North Sea Transition Authority
OEP	Offshore Electrical Platform
OGA	Oil and Gas Authority
OLA	Option for Lease
O&M	Operation and Maintenance
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OREI	Offshore Renewable Energy Installation
OWF	Offshore Wind Farm
PLGR	Pre-Lay Grapnel Run
RYA	Royal Yachting Association
SAR	Search and Rescue
SOLAS	Convention for the Safety of Life at Sea
UKHO	United Kingdom Hydrographic Office
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UXO	Unexploded Ordnance
VMNSP	Vessel Management and Navigational Safety Plan
WTG	Wind Turbine Generator
ZoI	Zone of Influence

19. INFRASTRUCTURE AND OTHER USERS

19.1. INTRODUCTION

19.1.1. Muir Mhòr Offshore Wind Farm Limited (hereafter referred to as 'the Developer') is proposing to develop the Muir Mhòr Offshore Wind Farm (hereafter 'the Project'). The Project is made up of both offshore and onshore components. The subject of this offshore Environmental Impact Assessment Report (EIAR) is the offshore infrastructure of the Project seaward of Mean High-Water Springs (MHWS) which is hereafter referred to as 'the Proposed Development'.

19.1.2. The Muir Mhòr Array Area covers an area of approximately 200 km^2 and is located approximately 63 km east of Peterhead on the east coast of Scotland. The offshore infrastructure of the Proposed Development includes Wind Turbine Generators (WTGs) and associated floating foundations, the Offshore Electrical Platform(s) (OEP(s)) and associated foundations, the inter-array cables, an interconnector cable, offshore export cables and landfall.

19.1.3. This Chapter of the EIAR presents an assessment of the potential impacts and associated Likely Significant Effects (LSE) to Infrastructure and Other Users (IOU) from the Proposed Development and discusses appropriate mitigation and monitoring as required to address any significant effects.

19.1.4. This Chapter should be read alongside the following other Chapters:

- Volume 2, Chapter 7 (Marine and Coastal Processes);
- Volume 2, Chapter 13 (Commercial Fisheries);
- Volume 2, Chapter 14 (Shipping and Navigation);
- Volume 2, Chapter 16 (Military and Civil Aviation); and
- Volume 2, Chapter 17 (Socio-Economics, Tourism and Recreation).

19.1.5. This Chapter refers to the design of the Proposed Development as described in Volume 1, Chapter 3 (Project Description) of the EIAR.

19.1.6. This Chapter has been prepared by GoBe Consultants Limited.

19.2. PURPOSE OF THE CHAPTER

19.2.1. The primary purpose of the EIAR is defined in Volume 1, Chapter 1 (Introduction).

19.2.2. The key objective of this Chapter is to provide Scottish Ministers and statutory and non-statutory stakeholders, the information required to assess for LSE on IOU. This assessment will consider those effects from the Proposed Development in isolation, and also cumulative effects (the effects of the Proposed Development combined with the effects from other plans and projects).

19.2.3. This Chapter presents the following:

- A detailed description of current environmental baseline conditions relevant to IOU. These have been established from literature reviews and desk studies shown in Table 19-3 and consultation with stakeholders;

- Discussion of assumptions and any limitations with respect to the information used to define the baseline;
- Identification of potential impacts and any resulting LSE on IOU related to Proposed Development activities. This process is informed by the application of embedded commitments;
- Consideration of the need for any 'secondary' mitigation measures (in addition to embedded commitments) to avoid, minimise, reduce, or offset LSE on IOU from the Proposed Development;
- Consideration of any residual effects following application of secondary mitigation; and
- Identification of monitoring measures to support proposed mitigation.

19.3. LEGISLATION AND POLICY CONTEXT

19.3.1. Overarching legislation, policy, and guidance in relation to the EIAR for the Proposed Development is provided in Volume 1, Chapter 2 (Legislation and Policy Context). Below is provided a summary of legislation, policy, and guidance directly relevant to IOU.

19.3.2. All legislation and policy directly applicable to IOU is illustrated in Table 19-1 and Table 19-2, respectively.

Table 19-1 Legislation relevant to IOU

Legislation	Summary	How Chapter has considered this
United Nations Convention on the Law of the Sea (UNCLOS) – Article 79: Submarine cables and pipelines on the continental shelf (United Nations (UN), 1982)	Article 79 of UNCLOS protects submarine cables and requires signatories to have due regard for any existing cables or pipelines in position and not prejudice the possibilities of repair.	Existing cables or pipelines have been presented in the baseline environment (Section 19.5) and considered in the assessment of potential effects (Section 19.7) and the cumulative effects assessment (Section 19.9).
UNCLOS – Article 113: High Sea Areas	Article 113 states that a punishable offence will be implemented if an existing submarine or power cable is broken or injured. If any cables or pipelines are damaged during the laying or repairing of another cable, the Developer will be required to compensate the repair costs.	Existing cables or pipelines have been presented in the baseline environment (Section 19.5) and considered in the assessment of potential effects (Section 19.7) and the cumulative effects assessment (Section 19.9).
The Submarine Telegraph Act (1885)	The Submarine Telegraph Act 1885 was a piece of British legislation that regulated submarine telegraph cables, particularly to ensure their protection and efficient use. The Act was created in response to the growing importance of international communication via submarine cables and aligned with the 1884 International Convention for the Protection of Submarine Cables. The Act contributed to safeguarding the integrity of global communications by providing a legal framework for the protection of submarine telegraph cables, which were crucial for commerce, diplomacy, and global connectivity during that period.	Existing subsea cables have been presented in the baseline environment (Section 19.5) and considered in the assessment of potential effects (Section 19.7) and the cumulative effects assessment (Section 19.9).
The Energy Act 2004	The Energy Act 2004 makes provisions for, among other aspects, the development, regulation, and encouragement of the use of renewable energy sources and giving effect to international agreements relating to pipelines and offshore installations. Safety zones can be created by Scottish Ministers, under section 95 of the Energy Act 2004. This will ensure the safety of the renewable energy installation or other installations in the vicinity during construction, operation, extension, or decommissioning. Safety zones may create exclusion zones for non-Offshore Wind Farm (OWF) vessels from navigating	The use of safety zones as part of the embedded commitments, are detailed in Table 19-10. The provision of a decommissioning programme is an embedded commitment (C-09), as detailed in Table 19-10, with the assumptions underpinning the decommissioning assessment (Section 19.7 and 19.9) set out in Table 19-12.

Legislation	Summary	How Chapter has considered this
	through a designated area for a specific period. Sections 105 to 114 of the Energy Act 2004 make provision for the Scottish Ministers to require a decommissioning programme for an offshore renewable energy installation in Scottish Waters to be approved by the Scottish Ministers.	

Table 19-2 Policy relevant to IOU

Policy	Summary	How/Where Chapter Has Considered This
Sectoral Marine Plan for Offshore Wind Energy (Scottish Government, 2020)	General Policies Minimise the potential adverse effects on other marine users and economic sectors resulting from further commercial scale offshore wind development.	Any potential effects on IOU are considered in Section 19.7 and Section 19.9. Economic sectors are discussed in Volume 2, Chapter 17 (Socio-Economics, Tourism and Recreation) and Volume 3, Appendix 17.1 (Socio-Economics, Tourism and Recreation Technical Report).
	Community and Stakeholder Engagement Developers will be expected to undertake further and ongoing engagement with the renewables, commercial fishing, shipping, defence and aviation stakeholders. Engagement should have a particular focus on cumulative assessment, socio-economic impacts and commercial fisheries.	Other renewable projects are discussed in paragraph 19.5.9 *et seq*. Commercial fisheries are discussed in Volume 2, Chapter 13 (Commercial Fisheries) and Volume 3, Appendix 13.1 (Commercial Fisheries Technical Report). Shipping is discussed in Volume 2, Chapter 14 (Shipping and Navigation) and Volume 3, Appendix 14.1 (Navigational Risk Assessment). Defence and aviation are discussed in Volume 2, Chapter 16 (Military And Civil Aviation) and Volume 3, Appendix 16.1 (Military and Civil Aviation Technical Report). Cumulative effects are discussed in Section 19.9.
	Cumulative and In-combination Effects Further assessment work will be required to identify and address cumulative and in combination effects of offshore wind developments. Scheduling of work will need to be carefully monitored and addressed at a project-level. In addition, there is the need to ensure that project-level and strategic-level cumulative and in-combination effects are taken into account as part of project-level assessment and the iterative plan review process.	Cumulative and in combination effects of offshore wind developments are discussed in Section 19.9 of this Chapter with schedules and effects at a project level addressed in Table 19-28.
Scottish National	Oil and Gas OIL & GAS Policies 1-6.	Oil and gas interests have been identified through a desktop study and are discussed in paragraph 19.5.19 *et seq.* The oil and gas policies have been

Policy	Summary	How/Where Chapter Has Considered This
Marine Plan (NMP) (Scottish Government, 2015)		considered by way of a robust assessment of the impact of the Proposed Development on oil and gas assets and operations in Section 19.7 and 19.9, from a project alone and cumulative perspective, respectively.
	Offshore Wind, Wave and Tidal Projects RENEWABLES Policies 1-10.	Offshore renewable energy projects have been identified through a desktop study and are discussed in paragraph 19.5.9 *et seq.* The renewables policies have been considered by way of a robust assessment of the impact of the Proposed Development on other offshore wind projects and operations in Section 19.7 and 19.9, from a project alone and cumulative perspective, respectively.
	Submarine Cables CABLES Policies 1-4.	Subsea cables have been presented in the baseline environment (Section 19.5) and considered in the assessment of potential effects (Section 19.7) and the cumulative effects assessment (Section 19.9). The submarine cables policies have been considered by way of a robust assessment of the impact of the Proposed Development on submarine cable assets and operations in Section 19.7 and 19.9, from a project alone and cumulative perspective, respectively.
United Kingdom Marine Policy Statement (HM Government, 2011)	When considering potential benefits and impacts of proposals, decision makers should take into account any multiple and cumulative impacts of proposals, in the light of other projects and activities.	Cumulative effects are discussed in Section 19.9.
	There is equitable access for those who want to use and enjoy the coast, seas and their wide range of resources and assets and recognition that for some island and peripheral communities the sea plays a significant role in their community.	The IOU baseline is set out in Section 19.5 and potential effects considered in Section 19.7 and Section 19.9.

19.4. CONSULTATION

19.4.1. Ongoing statutory and non-statutory consultation and incorporation of feedback is an integral part of developing a robust EIAR. The Offshore Scoping Report for the Proposed Development (Volume 3, Appendix 5.1 (Offshore Scoping Report)) was submitted to the Marine Directorate – Licensing Operations Team (MD-LOT) in June 2023. A detailed response to the Scoping Report's content and questions was provided from MD-LOT, and multiple additional consultees in the September 2023 Scoping Opinion (Volume 3, Appendix 5.2 (Offshore Scoping Opinion)).

19.4.2. Table 19-3 provides a summary of the stakeholder consultation activities specific to IOU**.** The issues raised and actions to address and incorporate this feedback into the EIAR are outlined.

19.4.3. Further detail on the Proposed Development's overall EIA (Environmental Impact Assessment) stakeholder consultation process and actions is presented in Volume 1, Chapter 5 (Consultation) and Volume 3, Appendix 20 (Pre-Application Consultation Report).

Table 19-3 Consultation relevant to IOU

Date	Consultee and Type of Consultation	Description/ Issues Raised	How this has been considered in this Chapter
September 2023	MD-LOT, Scoping Opinion	The Scottish Ministers are content with the study area identified in Section 19.2 of the Scoping Report.	Noted.
September 2023	MD-LOT, Scoping Opinion	The Scottish Ministers are also content with the data sources listed in Table 19-1 of the Scoping Report, the data used to inform the baseline environment in Section 19.3 and the potential receptors outlined in Section 19.4.	Noted.
September 2023	MD-LOT, Scoping Opinion	The Scottish Ministers highlight the additional sources of information provided in the Royal Yachting Association (RYA) Scotland representation referenced in paragraph 5.9.3 of this Scoping Opinion.	The data sources used in this Chapter are set out in Table 19-4 which include the information suggested by RYA Scotland.
September 2023	MD-LOT, Scoping Opinion	The Scottish Ministers are broadly in agreement with the potential impacts scoped into the EIA Report detailed in Table 19-3. Obstruction impacts to other offshore wind projects has been scoped in at the construction, operation and maintenance, and decommissioning stages of the Proposed Development. The Scottish Ministers welcome this and encourage ongoing engagement with developers of other offshore projects, including ScotWind and Innovation and Targeted Oil & Gas ("INTOG") projects, throughout all phases of the Proposed Development.	Noted. Potential impacts on other offshore wind projects that form the current IOU baseline are considered in Section 19.7. Additionally, The Developer will ensure ongoing engagement with other developers of these ScotWind and INTOG projects.
September 2023	MD-LOT, Scoping Opinion	We highlight the representations from the Green Volt and Cenos offshore windfarms which request further engagement regarding potential impacts to these projects.	The Developer will ensure ongoing engagement with other developers of these projects. It is important to note that Green Volt and Cenos OWFs do not form part of the baseline for the Proposed Development in relation to IOU as they were not constructed at the time of writing. Since Green Volt is consented, the export cabling associated with project has been

Date	Consultee and Type of Consultation	Description/ Issues Raised	How this has been considered in this Chapter
			considered as a receptor in the assessment in Section 19.7 and Section 19.9 (Green Volt array area is not within the IOU study area). As an application for consent for Cenos has not been submitted at the time of writing, the project has not been considered a receptor in the context of this IOU assessment. Consideration of both of these projects is given in the future baseline section (paragraph 19.5.35 *et seq.*). Additionally, potential cumulative effects on IOU as a result of proposed ScotWind and INTOG projects are considered in Section 19.9.
September 2023	MD-LOT, Scoping Opinion	We also refer the Developer to 5.9.9 of this Scoping Opinion for UKCoS comments in relation to this and potential cumulative impacts.	Potential cumulative effects on IOU as a result of proposed ScotWind and INTOG projects are considered in Section 19.9.
September 2023	Green Volt Offshore Windfarm Limited, Scoping Response	EIAR should consider impacts on the offshore elements of the Green Volt OWF in relation to both increased vessel traffic and the physical presence of Muir Mhòr infrastructure. Green Volt OWF has an operational target date of 2027 and should be included in any cumulative assessments.	The export cabling associated with Green Volt has been considered as a receptor in the assessment in Section 19.7 and Section 19.9 (Green Volt array area is not within the IOU study area). Additionally, potential cumulative effects on IOU as a result of ScotWind and INTOG projects are considered in Section 19.9. The potential overlapping construction timelines of the Proposed Development and Green Volt OWF is considered in the cumulative effects assessment (Section 19.9).
September 2023	Cenos Offshore Wind Farm, Scoping Response	EIAR should consider impacts on the offshore elements of the Cenos OWF in relation to both increased vessel traffic and the physical presence of Muir Mhòr infrastructure. Cenos OWF has an operational target date of 2028 and should be included in any cumulative assessments	It is important to note that Cenos OWF does not form part of the baseline for the Proposed Development in relation to IOU as an application for consent has not been submitted at the time of writing. As such, the project has not been considered a receptor in the context of this IOU assessment. Consideration of this project is given in the future baseline section (paragraph 19.5.35 *et seq.*). Potential cumulative effects on IOU as a result of proposed ScotWind and

Date	Consultee and Type of Consultation	Description/ Issues Raised	How this has been considered in this Chapter
			INTOG projects are considered in Section 19.9. The potential overlapping construction timelines of the Proposed Development and Cenos OWF is considered in the cumulative effects assessment (Section 19.9).
September 2023	North Sea Transition Authority (NSTA)	The document has identified that there is potential for the cable corridor to interact with active pipelines as part of Forties C to Cruden Bay (PL8 & PL721); The applicant should engage with pipeline owners about any interactions at the earliest possible point, this will allow pipeline owners to approach the NSTA and the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to check what updates to existing pipeline consents may be required where interactions occur; and There are three oil and gas license blocks that overlap with the IOU study area (20/11a, 20/12a and 20/6c). The NSTA is currently reviewing applications with the ambition to start giving awards in Q3/2023, depending on the outcomes further exploration licenses may fall within IOU study area.	Potential impacts on active pipelines such as Forties C to Cruden Bay (PL8 & PL721 are considered in Section 19.7 and Section 19.9. The Developer will ensure ongoing engagement with pipeline owners throughout the development of the Proposed Development. Oil and gas blocks are further discussed in Section 19.5. The future baseline scenario and potential for future licensing of oil and gas activities is discussed in paragraph 19.5.35 *et seq*.

19.5. BASELINE ENVIRONMENT

19.5.1. This section presents a summary of the IOU study area, the methodology for establishing the baseline, baseline conditions, the future baseline, and limitations and assumptions of the data used.

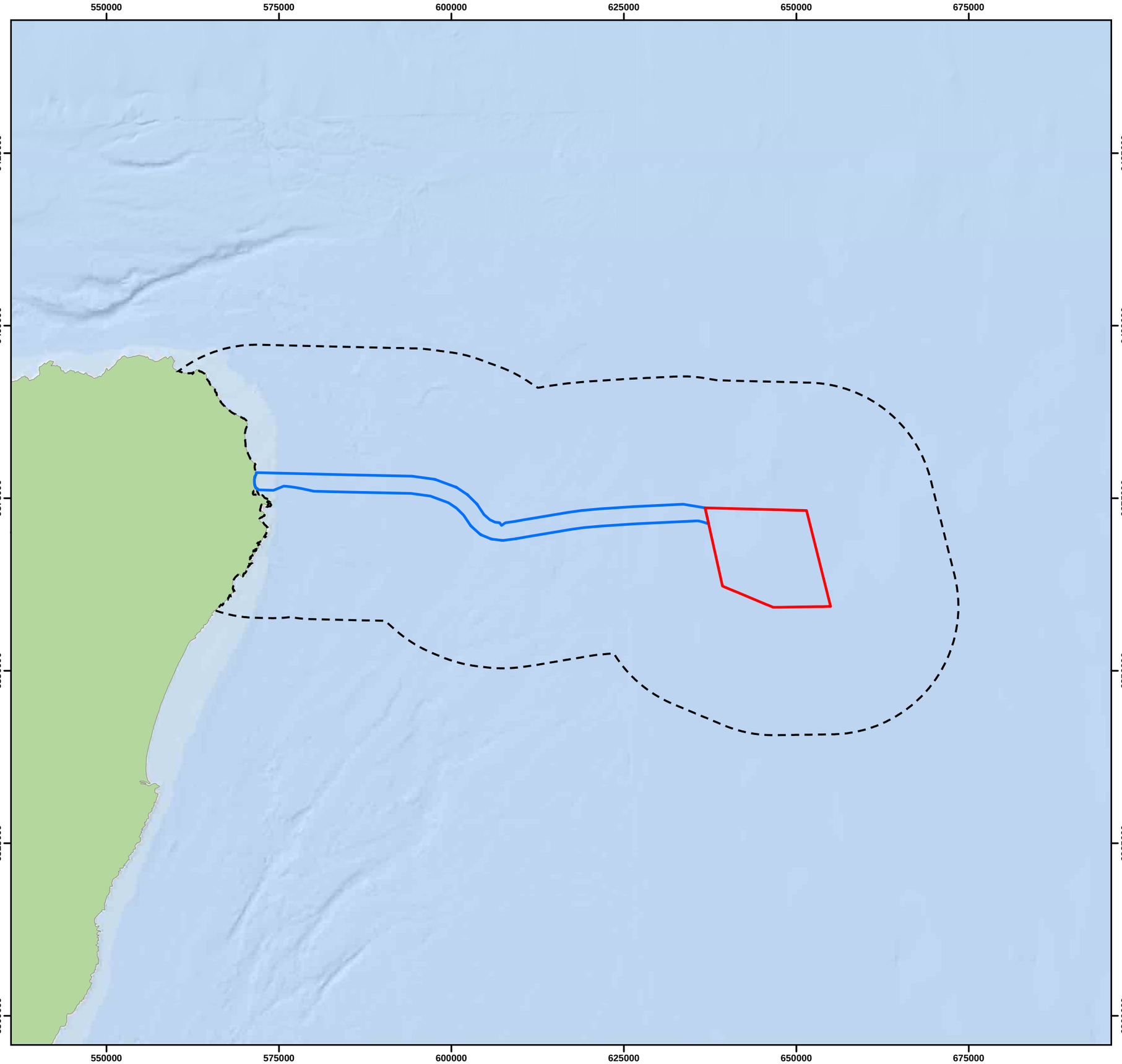
19.5.2. The following sections provide a summary of the IOU baseline including offshore renewable energy projects, subsea cables, oil and gas operations (including pipelines, platforms and subsea structures), and marine recreational activities within the IOU study area.

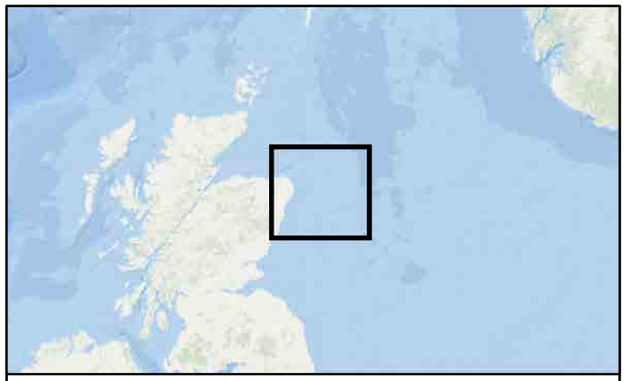
19.5.3. Various user groups were scoped out of assessment in the Offshore Scoping Opinion (Volume 3, Appendix 5.2 (Offshore Scoping Opinion)) and are therefore not considered further in this Chapter. These user groups are as follows:

- Wave and tidal renewable energy developments;
- Carbon Capture, Utilisation and Storage (CCUS) projects;
- Nuclear projects;
- Marine aggregate dredging activities; and
- Aquaculture activities.

STUDY AREA

19.5.4. The IOU study area (Figure 19-1) is defined as the boundaries of the Proposed Development plus a buffer of 10 nautical miles (nm) or 18.52 km. This is to ensure that the IOU study area is aligned with that defined within Volume 2, Chapter 14 (Shipping and Navigation) and considers the movement of other marine activities.





Legend:

- Array Area
- Offshore Export Cable Corridor
- Infrastructure and Other Users Study Area

Project:	Report:
Muir Mhòr	Environmental Impact Assessment Report

Infrastructure and Other Users Study Area

Figure: 19.1	Drawing No: GoBe-0046		
Revision:	Date:	Drawn:	Checked:
01	13/11/24	EV	BPHB

Map scale 1:550,000 @ A3

0 10 20 km

Co-ordinate system: ETRS 1989 UTM Zone 30N **EPSG:** 25830

MUIR MHÒR OFFSHORE WIND FARM

A joint venture between Fred. Olsen Seawind & Vattenfall

Service Layer Credits: Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

METHODOLOGY FOR ESTABLISHING THE BASELINE

19.5.5. A desk-based review was undertaken using relevant data sources to inform the assessment. These existing datasets and literature relevant to the IOU study area are presented in Table 19-4.

Table 19-4 Key sources of IOU literature and data

Source, Author, and Year	Summary	Coverage of IOU study area
Marine Themes Vector – OceanWise, 2024	Spatial data layers of offshore cables and pipelines.	Full coverage of the IOU study area.
Kingfisher Information Service – Offshore Renewable & Cable Awareness (KIS-ORCA), 2024	Spatial data layers of offshore renewable infrastructure and subsea cables.	Full coverage of the IOU study area.
Marine Scotland National Marine Plan Interactive (NMPi), 2024	Spatial data layers of marine tourism, offshore energy, subsea cables and pipelines, and disposal sites.	Full coverage of the IOU study area.
Crown Estate Scotland (CES) Spatial Hub, 2024	Spatial data layers for aquaculture, cables and pipelines, offshore renewable energy and mineral resources.	Full coverage of the IOU study area.
NSTA Open Data – Data Centre (nstauthority.co.uk)	Spatial data layers of offshore oil and gas activity and developments in the North Sea.	Full coverage of the IOU study area.
UK Coastal Atlas of Recreational Boating, RYA, (2019a)	Heat map of Automatic Identification System (AIS) data of recreational boating activity.	Full coverage of the IOU study area.
Scottish Marine Recreation and Tourism Survey. Marine Scotland (now Marine Directorate)	Spatial data layers of marine recreation and tourism activities.	Full coverage of the IOU study area.

19.5.6. No site-specific surveys have been undertaken to inform the EIA for IOU. This is because receptor information and data related to this topic can be readily collected through desk-based review, consultation with relevant stakeholders, and is currently available due to suitable data throughout the east Scotland region.

19.5.7. It should be noted, however, that vessel traffic surveys were completed to inform the Navigational Risk Assessment in compliance with Marine Guidance Note (MGN) 654 (Maritime and Coastguard Agency (MCA), 2021). Further information can be found in Volume 2, Chapter 14 (Shipping and Navigation) and Volume 3, Appendix 14.1 (Navigational Risk Assessment).

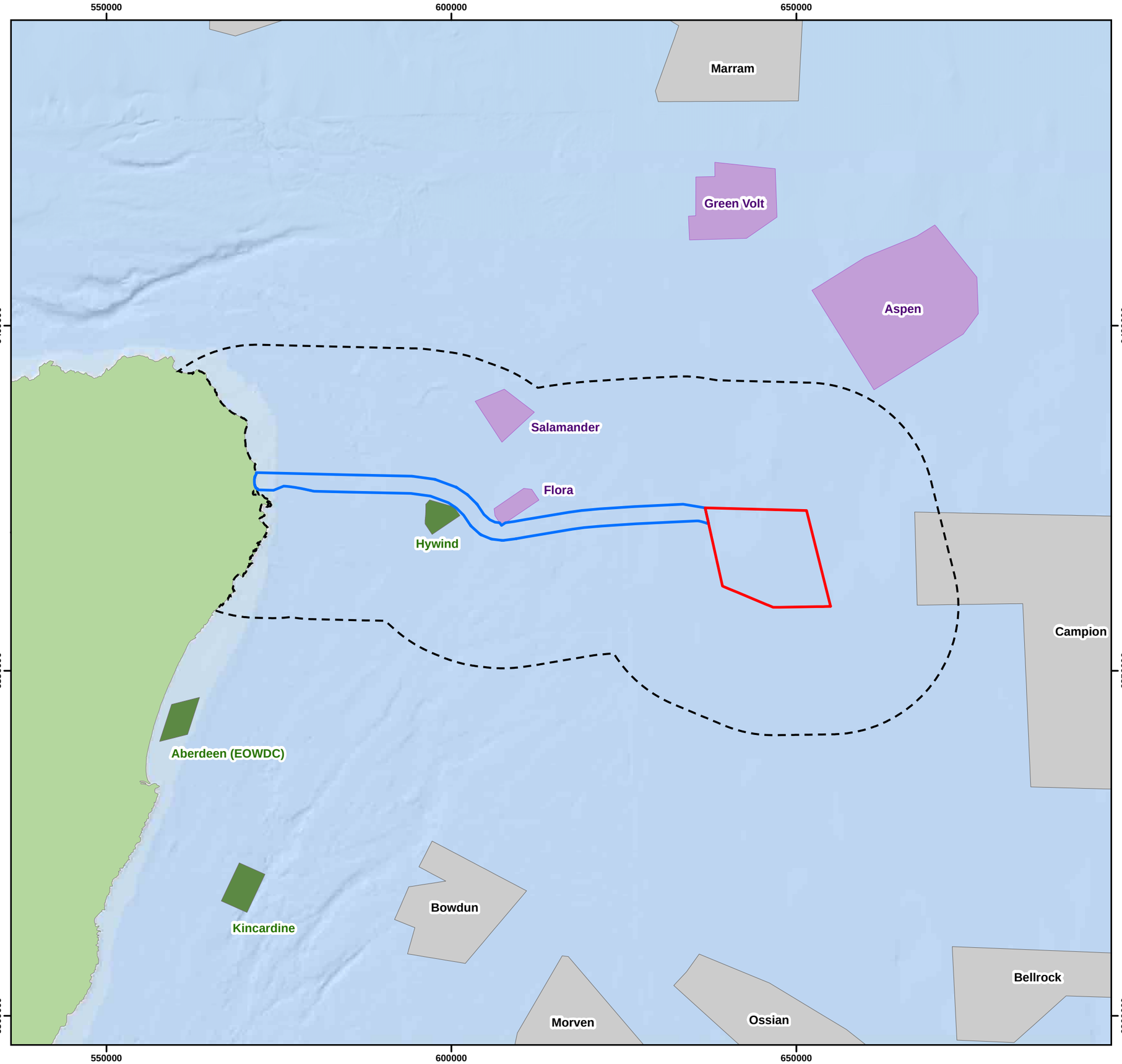
DESCRIPTION OF BASELINE ENVIRONMENT

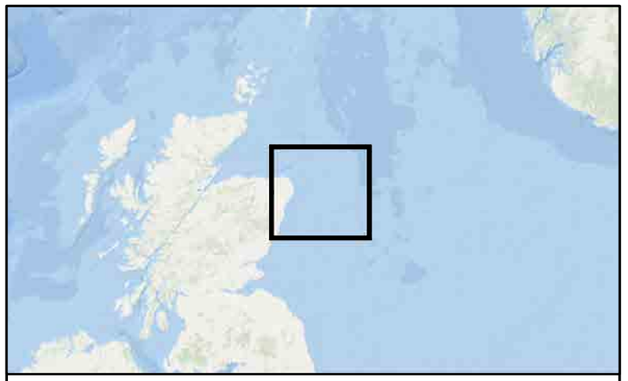
19.5.8. A summary of the IOU baseline environment is provided in the following sections.

OFFSHORE RENEWABLE ENERGY PROJECTS

19.5.9. There is only one operational offshore renewable energy project within the IOU study area. This is illustrated in Figure 19-2. The Hywind Scotland Pilot Park has an installed capacity of 30 Megawatts (MW) and covers approximately 4 km^2. The Hywind array area is 0.06 km south of the offshore Export Cable Corridor (ECC) and 35.56 km west from the Array Area (Figure 19-2).

19.5.10. There are also several offshore renewable energy projects within the IOU study area that are currently in the planning stages and as such, do not form part of the IOU baseline but are discussed in the future baseline section (paragraph 19.5.35 *et seq.*) and illustrated in Figure 19-2 for context. These include two INTOG sites (Flora and Salamander OWFs) and a ScotWind project (CampionWind OWF).





Legend:

- Array Area
- Offshore Export Cable Corridor
- Infrastructure and Other Users Study Area
- Operational Wind Farm
- Concept/Early Planning Wind Farm
- INTOG Application Areas

Project:	Report:
Muir Mhòr	Environmental Impact Assessment Report

Offshore Renewable Energy Developments within the Infrastructure and Other Users Study Area

Figure: 19.2	Drawing No: GoBe-0047		
Revision:	Date:	Drawn:	Checked:
01	13/11/24	EV	BPHB

Map scale 1:550,000 @ A3

0 10 20 km

Co-ordinate system: ETRS 1989 UTM Zone 30N **EPSG:** 25830

MUIR MHÒR OFFSHORE WIND FARM

A joint venture between Fred. Olsen Seawind & Vattenfall

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SUBSEA CABLES

19.5.11. There are two *in situ* operational subsea cables in the IOU study area, as shown in Figure 19-3. These cables are used for telecommunications, and the export of power from an OWF to shore. These are shown below:

- Tampnet Central North Sea Fibre Telecommunications Company (CNSFTC) fibre optic cable; and
- Hywind Scotland Pilot Park export cables.

19.5.12. The Tampnet CNSFTC fibre-optic telecommunications cable is an active cable that crosses the offshore ECC for the Proposed Development and is located 10.75 km from the Array Area at its closest point. This cable connects the Forties Charlie Platform, the North Everest Platform and the Ula Platform with Cruden Bay.

19.5.13. The offshore export cables for Hywind Scotland Pilot Park are currently active and cross the offshore ECC for the Proposed Development and are located 36.61 km from the Array Area (Figure 19-3).

19.5.14. There are several proposed subsea cables within the IOU study area that are currently in the planning stages and as such, do not form part of the IOU baseline but are discussed in the future baseline section (paragraph 19.5.35 *et seq.*) and illustrated in Figure 19-3 for context. These include a power to shore cable from the Buchan oil field, the NorthConnect interconnector between Scotland and Norway, and the Eastern Green Link 2 (EGL2) subsea High Voltage Direct Current (HVDC) link between Peterhead and Drax in North Yorkshire. Additionally, export cable corridors for INTOG projects such as Salamander OWF (proposed) and Green Volt OWF (consented but not yet constructed) overlap with the offshore ECC for the Proposed Development, and the export cables for MarramWind OWF could be proposed within the IOU study area.

19.5.15. Although the Green Volt export cabling is not yet installed, the project has consent and the export cabling will be installed within the IOU study area and as such, this aspect of the Green Volt OWF has been considered a receptor for the purposes of the assessment within this Chapter. The Green Volt OWF export cables will be located within the offshore ECC for the Proposed Development, and 29.4 km from the Array Area, as shown in Figure 19-3.

DISPOSAL SITES

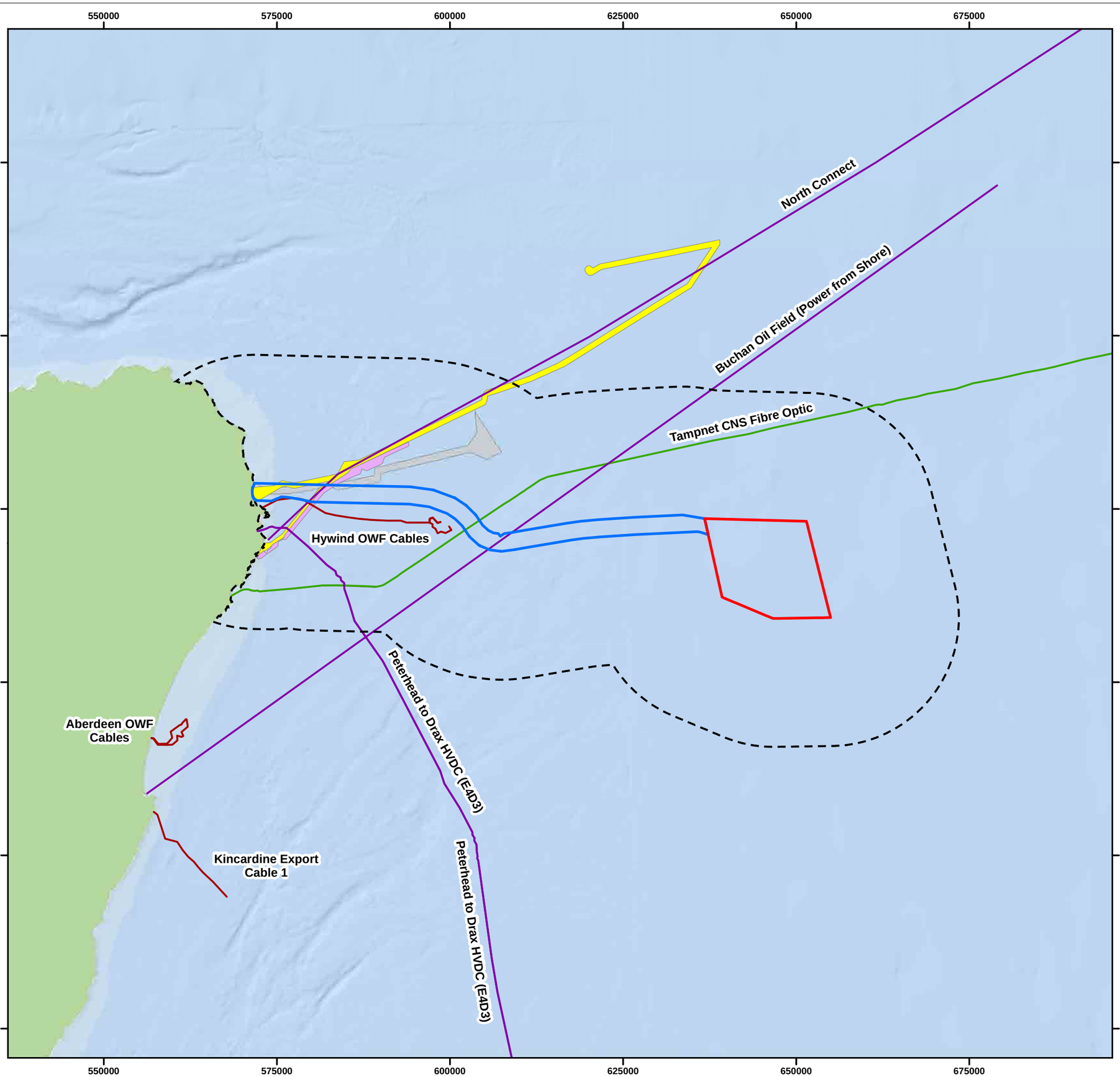
19.5.16. The following ten disposal sites are located within the IOU study area (Figure 19-4):

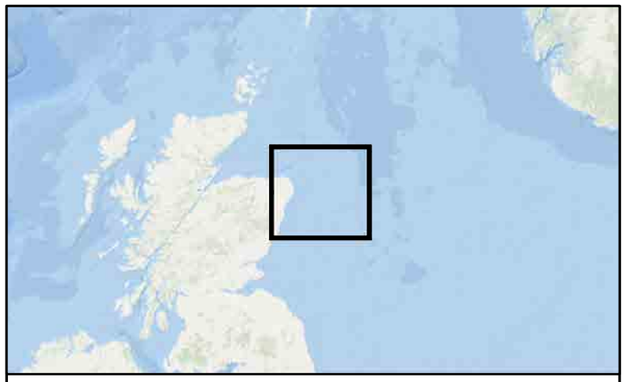
- Middle Buchan Ness (CR090) - Closed;
- Middle Buchan Ness B (CR095) - Closed;
- Peterhead (CR070) - Open;
- North Buchan Ness (CR080) - Open;
- Stonehaven (FO003) – Open;
- Stonehaven B (FO007) – Open;
- South Buchan Ness (CR100) - Closed;
- South Buchan Ness B (CR105) - Closed;
- Aberdeen (CR110) – Open; and
- Fraserburgh (CR060) - Open.

19.5.17. Three of these sites are within 1 km of the offshore ECC (Middle Buchan Ness (CR090), North Buchan Ness (CR080) and Peterhead (CR070). Of these sites, two are currently open,

Peterhead (CR070) which islocated 0.57 km from the offshore ECC, and North Buchan Ness (CR080) which is located 1.00 km from the offshore ECC.

19.5.18. No current or historic munitions disposal sites are located within the IOU study area therefore these are not considered further.





Legend:

- Array Area
- Offshore Export Cable Corridor
- Infrastructure and Other Users Study Area
- CES Cable Agreement - North Connect
- Salamander Application Offshore ECC
- Green Volt Consented Offshore ECC

Subsea Cable (Type - Status)

- Power - Active
- Power - Proposed
- Telecom - Active

Project:	Report:
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Subsea Cables and Utilities within the Infrastructure and Other Users Study Area

Figure:	Drawing No:
19.3	GoBe-0048

Revision:	Date:	Drawn:	Checked:
01	13/11/24	EV	BPHB

Map scale 1:550,000 @ A3

0 2 4 6 8 10 12 km

Co-ordinate system: ETRS 1989 UTM Zone 30N **EPSG:** 25830

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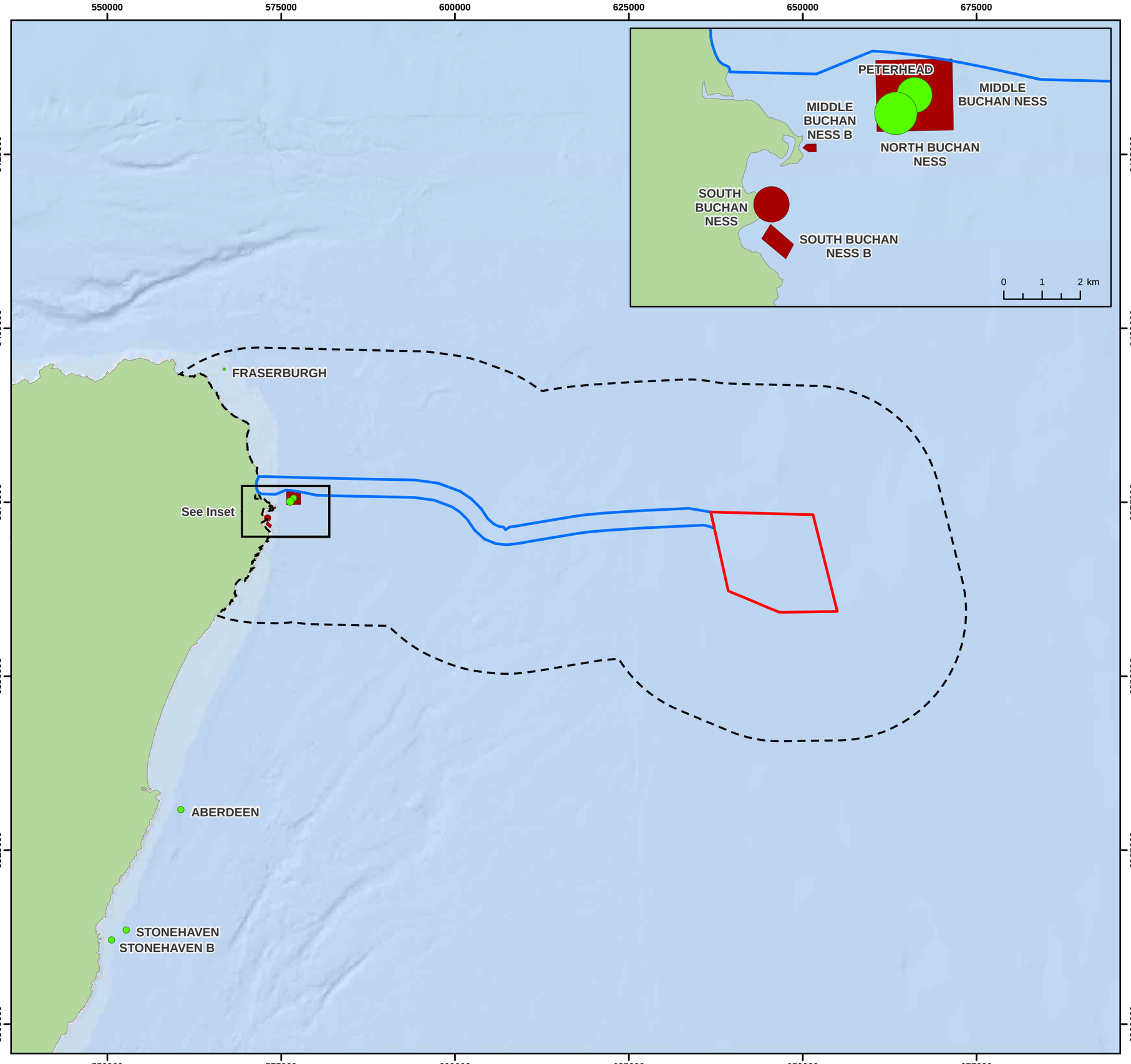

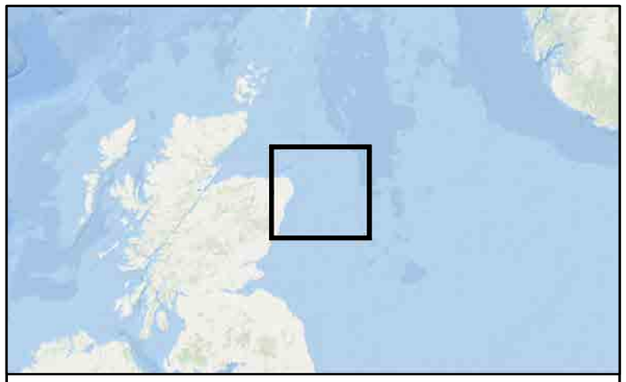

Legend:

- Array Area
- Offshore Export Cable Corridor
- Infrastructure and Other Users Study Area
- Open Disposal Site
- Closed Disposal Site

Project:	Report:
Muir Mhòr	Environmental Impact Assessment Report

Disposal Sites within the Infrastructure and Other Users Study Area

Figure: 19.4	Drawing No: GoBe-0049		
Revision:	Date:	Drawn:	Checked:
01	13/11/24	EV	BPHB

Map scale 1:550,000 @ A3

0 10 20 km

Co-ordinate system: ETRS 1989 UTM Zone 30N **EPSG:** 25830

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OIL AND GAS

LICENCES

19.5.19. Licences for the exploration and extraction of oil and gas on the UK Continental Shelf (UKCS) have been offered since 1964 and are granted by the NSTA (formally the Oil and Gas Authority (OGA)). These licences are granted for identified geographical United Kingdom Hydrographic Office (UKHO) areas (blocks and part-blocks) in consecutive rounds.

19.5.20. There are two extant oil and gas licences blocks which overlap with the IOU study area (Figure 19-5). The oil and gas licence blocks are: 20/11a and 20/12a and the licenses were issued as part of the 32nd UK Offshore Licensing Round in 2020. The equity holders to each of these blocks are Dana Petroleum (E&P) Limited and Finder Energy UK Limited. The 20/11a licence block is located 14.05 km away from the offshore ECC and 15.48 km from the Array Area and 20/12a is located 14.03 km from the offshore ECC and 14.66 km from the Array Area.

PIPELINES

19.5.21. The pipelines present in the IOU study area are detailed in Table 19-5 and Figure 19-5.

Table 19-5 Pipelines within the IOU study area

Pipeline	Information and Status	Distance to offshore ECC (km)	Distance to Array Area (km)
Forties C to Cruden Bay (PL8)	32” Oil Pipeline (Not In Use) Will be crossed by the offshore export cables for the Proposed Development	0.00	10.76
Forties C to Cruden Bay (PL721)	32” Oil Pipeline (Active) Will be crossed by the offshore export cables for the Proposed Development	0.00	10.82
20” Gas Fulmar A – St Fergus (PL208)	20” Gas Pipeline (Active)	0.45	1.46
Miller To St. Fergus (PL720)	30” Gas Pipeline (Not In Use)	0.99	40.30
32” MCP01 Bypass Bundle to St Fergus Gas Plant (PL6S)	32” Gas Pipeline (Active)	1.58	50.03
HFC to St. Fergus South (PL7S)	Gas Pipeline (Active)	1.60	50.10
36" Gas Brent A - St. Fergus (FLAGS)	36” Gas Pipeline (Active)	1.72	55.14
Service St. Fergus – Goldeneye (PL1979)	Chemical Pipeline (Not In Use)	1.79	40.18
20" Gas Goldeneye - St. Fergus	20" Gas Pipeline (Not In Use)	1.79	40.20
16" Gas Atlantic Manifold - St. Fergus	16” Gas Pipeline (Abandoned)	1.82	46.20
4" MEG St. Fergus - Atlantic Manifold	4” Chemical Pipeline (Abandoned)	1.82	46.20
Britannia to St Fergus	28” Gas Pipeline (Active)	2.66	27.69

Pipeline	Information and Status	Distance to offshore ECC (km)	Distance to Array Area (km)
Sage Pipeline	30" Gas Pipeline (Active)	2.71	40.36
PL2074 FHT Spool	18" Oil Pipeline (Active)	7.11	13.95
Buzzard (P) to Forties Hot Tap (PL2074)	10" Oil Pipeline (Active)	7.17	13.96

SURFACE STRUCTURES/PLATFORMS

19.5.22. There are no oil and gas surface structures or platforms present within the IOU study area

SUBSEA STRUCTURES

19.5.23. Figure 19-5 shows the 17 subsea structures present in the IOU study area, including manifolds, wellheads, riser bases, and towheads. Of those 17 structures, seven are active, two are abandoned and eight are not in use. These subsea structures are detailed in Table 19-6 and Figure 19-5.

Table 19-6 Subsea structures within the IOU study area

Pipeline	Information and Status	Distance to offshore ECC (km)	Distance to Array Area (km)
Birch Well Z5 (Spirit Energy)	Wellhead (Not In Use)	0.00	53.27
Sycamore Main Towhead (Spirit Energy)	Towhead (Not In Use)	0.00	56.57
Brynhild Riser Base Manifold (Aker BP ASA)	Manifold (Abandoned)	2.90	65.31
Brynhild Riser Base Manifold (Aker BP ASA)	Manifold (Abandoned)	2.94	65.10
Pierce FPSO Riser Base (Shell plc)	Riser Base (Active)	2.95	64.97
Pierce Satellite SWI-1 (B4A) LB1A (Shell plc)	Wellhead (Not In Use)	4.63	53.09
Pierce Satellite B2 (SP5) (Shell plc)	Wellhead (Not In Use)	4.64	53.02
Pierce SDS Manifold (Shell plc)	Manifold (Active)	4.66	52.91
Pierce Satellite B1 (SP1) (Shell plc)	Wellhead (Not In Use)	4.66	52.85
SAL Base (Ithaca Energy)	Riser Base (Not In Use)	4.92	51.68
Stella MDC Manifold (Ithaca Energy)	Manifold (Active)	4.94	51.63
Machar Production Manifold (BP Exploration)	Manifold (Active)	7.18	13.95
30/06A-A1 (Ithaca Energy)	Wellhead (Active)	8.60	48.36
30/06A-A2 (Ithaca Energy)	Wellhead (Active)	8.63	48.33
Pierce B5 (Shell plc)	Wellhead (Not In Use)	8.64	48.33
Pierce MDS WI Manifold (Shell plc)	Manifold (Active)	18.01	42.54

Pipeline	Information and Status	Distance to offshore ECC (km)	Distance to Array Area (km)
Pierce Main MWI-1 (A7 SG2) (Shell plc)	Wellhead (Not In Use)	18.03	42.53

OIL AND GAS TRANSPORTATION

19.5.24. The following services are associated with the oil and gas industry:

- Helicopters: the oil and gas industry rely on helicopters for personnel transfer and emergency evacuation. Helicopter and associated aviation considerations are addressed separately in Volume 2, Chapter 16 (Military and Civil Aviation); and
- Vessels: the oil and gas industry require supply or support vessels for its operations. Vessels and associated navigational considerations are addressed separately in Volume 2, Chapter 14 (Shipping and Navigation).

MARINE RECREATIONAL ACTIVITY

19.5.25. The socio-economic tourism and recreation baseline is set out in Volume 2, Chapter 17 (Socioeconomics, Tourism and Recreation) and this section focuses on the marine activities associated with tourism and recreation.

19.5.26. There is high recreational activity in the east coast of Scotland. In a 2015 survey of 279 businesses involved in marine recreation and tourism, general recreation, sailing and other forms of boating was reported as the second largest category that the businesses serve (Marine Scotland, 2016).

19.5.27. In relation to vessel traffic surveys undertaken for the Proposed Development in the vicinity of the Array Area, it was found that recreational vessels were highly seasonal with no vessels recorded during the winter survey period. This is expected given the distance offshore and less favourable weather conditions expected in the winter months. During the summer survey period an average of one unique recreational vessel was recorded per day within the vicinity of the Array Area. An average of one unique recreational vessel intersected the Array Area every two days.

19.5.28. In relation to the offshore ECC, an average of five to six unique recreational vessels were recorded per day during the summer data period with an average of three per day crossing the offshore ECC. Only two unique recreational vessels were recorded during the winter data period with both transits south of the offshore ECC entering/exiting Peterhead Bay and did not cross the offshore ECC. The majority of recreational vessels were transiting close to the coast and entering/exiting Peterhead Bay.

19.5.29. Low to medium recreational and tourism activity levels are observed along the northeast coast of Aberdeen, in comparison to the highest levels which are observed along the west coast of Scotland (Marine Scotland, 2016). Tourism and recreational activities are highly seasonal; with the peak tourist period occurring between June to August (Marine Scotland, 2016), during which the Scottish Marine Recreation and Tourism Survey (2015) assessed marine activity levels to be highest largely within 10 km of the coastline. Several recreational activities have been identified of particular importance along the northeast coast, these are highlighted below:

- Yachting, sailing and motor cruising;
- Sea angling;
- Canoeing and kayaking;

- Surfing, wind and kite surfing;
- Paddleboarding;
- SCUBA diving; and
- Bird and wildlife watching.

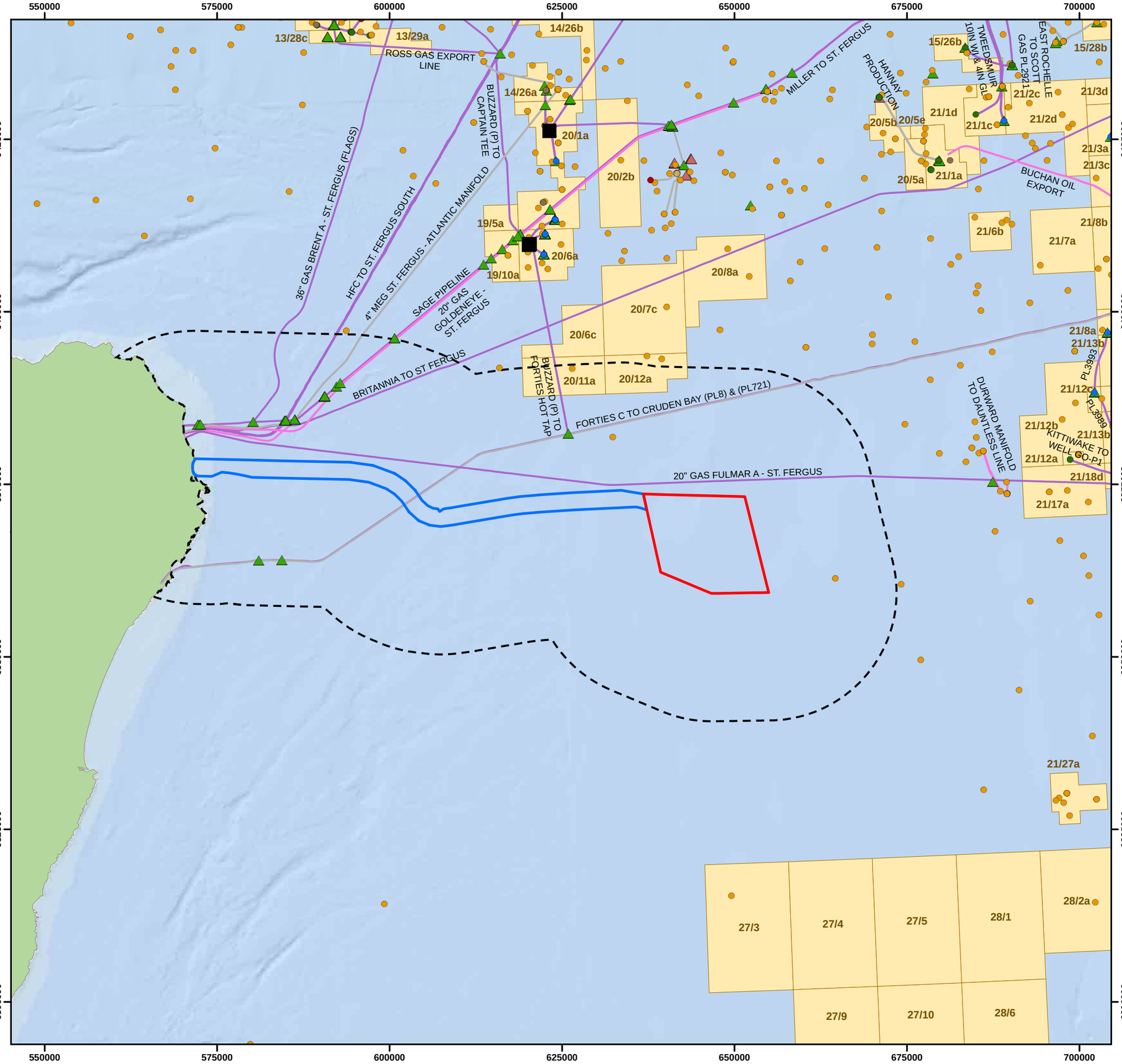
19.5.30. The major port in the IOU study area is located at Peterhead with several smaller harbours identified to the south, including Boddam and Cruden Bay harbours. Recreational vessel density, including recreational sailing and motor cruising, is generally highest around the port of Peterhead and within 10 km of the coastline. Two high density passenger vessel routes which extend northwards from Aberdeen Harbour and travel along the coastline are identified to cross the offshore ECC. It should be noted that recreational sailing and motor cruising are considered in Volume 3, Appendix 14.1 (Navigational Risk Assessment) in relation to a specific vessel size category, and this Chapter considers receptors undertaking recreational sailing and motor cruising as an activity only.

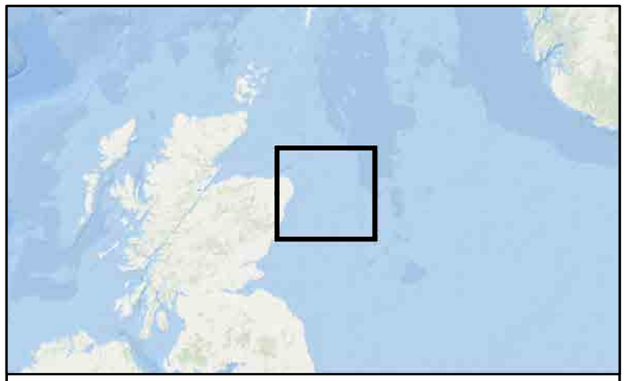
19.5.31. Sea angling from the shore and angling trips occur at high densities year round at Peterhead, St Fergus and Cruden Bay (Marine Scotland, 2016). Recreational sea anglers target cod, ling and coley at these areas (Visit Scotland, 2024).

19.5.32. The Scottish Marine Recreation & Tourism Survey 2015 used a heat-mapping technique to indicate where the greatest concentrations of marine recreational activity were recorded. Data from the heat-mapping exercise is presented in Figure 19-6 which shows coastal and inshore recreational activities such as SCUBA diving, canoeing, kayaking, surfing, windsurfing and kite surfing and beach users.

19.5.33. There are four popular surfing beaches along the northeast coast: Fraserburgh, St Combs to Inverallochy, Sandford Bay at Peterhead and Cruden Bay.

19.5.34. Seabird watching from the coast is also another popular activity, particularly around the Bullers of Buchan, 10 km south of Peterhead (Aberdeenshire Scotland, 2024). Additionally, a number of whale and dolphin watching tours are provided off the Aberdeenshire coast, due to its status as one of the best places in Europe for sightings of bottlenose dolphins.





Legend:

- Array
- Offshore Export Cable Corridor
- Infrastructure and Other Users Study Area
- Active Oil and Gas Platform
- Oil and Gas Licensed Blocks

Oil and Gas Pipelines (Status)

- Pipeline,
- Pipeline, Not In Use
- Pipeline

Subsea Structure (Status)

- Active
- Abandoned

Well (Status)

- Abandoned Phase 1
- Abandoned Phase 2
- Abandoned Phase 3
- Completed (Operating)
- Completed (Shut In)
- Drilling
- Plugged

Project:	Report:
Muir Mhòr	Environmental Impact Assessment Report

Oil and Gas Licence Blocks and Other Infrastructure in the Infrastructure and Other Users Study Area

Figure: 19.5	Drawing No: GoBe-0050		
Revision:	Date:	Drawn:	Checked:
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Map scale 1:550,000 @ A3

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N

Co-ordinate system: ETRS 1989 UTM Zone 30N **EPSG:** 25830

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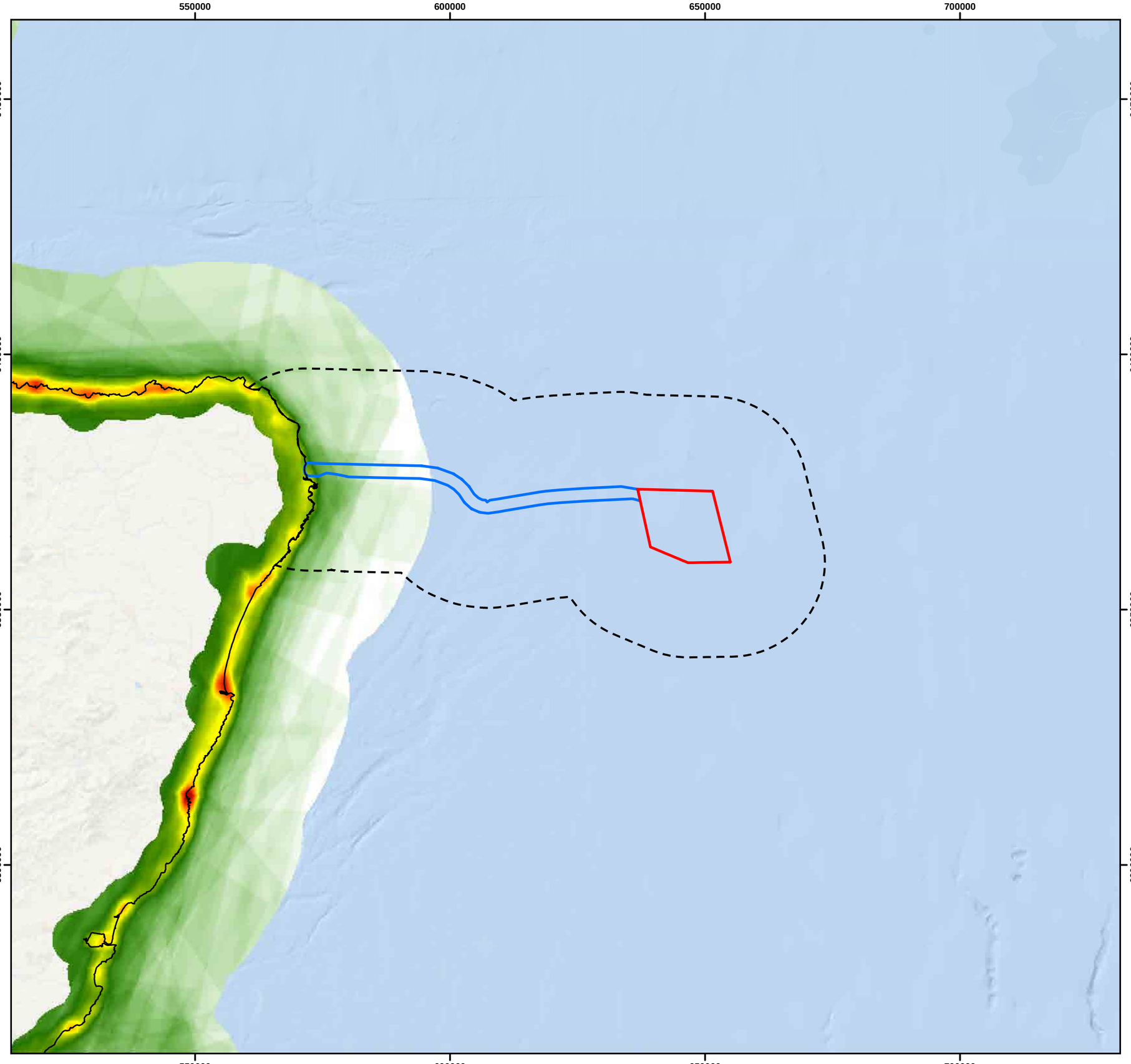

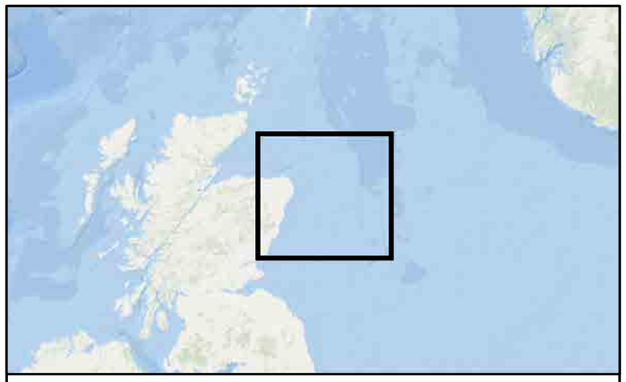

Legend:

- Array Area
- Offshore Export Cable Corridor
- Infrastructure and Other Users Study Area

Marine Scotland Recreation Survey 2015

- High : 80
- Low : 0

Project:	Report:
Muir Mhòr	Environmental Impact Assessment Report

Marine Recreational Activities within the Infrastructure and Other Users Study Area

Figure: 19.6	Drawing No: GoBe-0175		
Revision:	Date:	Drawn:	Checked:
01	13/11/24	BPHB	EV

Map scale 1:750,000 @ A3

0 10 20 km

Co-ordinate system: ETRS 1989 UTM Zone 30N **EPSG:** 25830

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FUTURE BASELINE CONDITIONS

19.5.35. In line with the EIA regulations, this EIAR requires a *"description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort, on the basis of the availability of environmental information and scientific knowledge"*. This reflects how the baseline relevant to IOU is expected to evolve without the Proposed Development.

19.5.36. If the Proposed Development does not come forward then an assessment of the future baseline conditions has been carried out and is described within this section.

19.5.37. Oil and gas are vital to Scotland and were responsible for nearly 90% of the country's primary energy in 2015 (Scottish Government, 2017). Although the sector is seen as a critical and integral component to the economy, support for oil and gas programs moving forward will be conditional on the sector's actions to facilitate sustainable energy transitions for the future (Scottish Government, 2017). Oil and gas is expected to remain an important part of the energy security as the Scottish Government transitions towards net zero emissions by 2045 (Scottish Government, 2023). As there is a shift towards more utilisation of renewable sources of energy, the baseline environment for oil and gas activity in the vicinity of Proposed Development is unlikely to change. However there may be a possibility of developments in oil and gas blocks in the future.

19.5.38. There is potential for significant growth in offshore wind energy within Scotland, with the Scottish Government setting out plans to increase offshore wind capacity to 11 Gigawatts (GW) of energy installed by 2030. In June 2020, CES launched the first ScotWind Leasing Round for commercial scale offshore wind energy projects within Scottish waters (Scottish Government, 2020). As part of the ScotWind Leasing Round, 20 potential development sites, including the Proposed Development, were awarded Options for Lease agreements, with a total generating capacity of just under 27.6 GW. Specifically within the IOU study area, CampionWind OWF, another floating ScotWind project owned by Shell and ScottishPower, is in the early planning stages of development.

19.5.39. The Innovation and Targeted Oil and Gas Decarbonisation (INTOG) leasing round allowed developers to apply for seabed rights to develop offshore wind projects that either reduce emissions from the North Sea oil and gas sector (by supplying renewable electricity directly to oil and gas infrastructure (TOG)) or consists of small-scale innovation projects (IN) of 100 MW or less. There are two INTOG sites (Flora and Salamander OWFs) located within the IOU study area. Flora OWF is being developed by bp and is in the early planning stages. Salamander OWF is being developed by Ørsted, Simply Blue Group and Subsea7 and consent applications were submitted to MD-LOT in April 2024 in relation to the project and are awaiting determination.

19.5.40. In response to the issues raised in consultation related to the Proposed Development, the Developer will ensure ongoing engagement with other developers of ScotWind and INTOG projects.

19.5.41. In relation to the future baseline for subsea cables, there is potential for export cables from ScotWind and INTOG projects such as Salamander OWF (awaiting consent determination), Green Volt OWF (consented), MarramWind OWF (in planning), and CampionWind (in planning) to be located within the IOU study area. Additionally, there is a power to shore cable from the Buchan oil field (in planning), the NorthConnect interconnector between Scotland and Norway, and the EGL2 subsea HVDC link between Peterhead and Drax in North Yorkshire. The NorthConnect interconnector and the EGL2 project have been consented but offshore works have yet to commence at the time of writing.

19.5.42. There are currently no active licences for marine aggregate extraction in the IOU study area and therefore the baseline environment for marine aggregates mining activity in proximity to the Proposed Development is unlikely to change. However, there is currently potential for marine aggregate extraction to increase in line with the increased demand for aggregate utilisation in gravity bases for marine renewable energy infrastructure and in coastal defence construction (Scottish Government, 2015). The future baseline scenario for marine disposal sites is subject to gradual changes as new projects and/or sites are further identified.

19.5.43. The future baseline scenario for recreational activities is considered unlikely to change substantially from that presented in paragraph 19.5.25 *et seq.*, in the absence of the Proposed Development. The future baseline scenario for recreational sailing and motor cruising, recreational fishing and other recreational activities is likely to gradually increase in line with population growth in Scotland, however, this is unlikely to represent a substantial change in the short term.

DATA LIMITATIONS AND ASSUMPTIONS

19.5.44. The IOU Chapter has captured all relevant, available and up-to-date data publicly available and is detailed in Table 19-4. The data are therefore limited by what is available and by what has been made available, at the time of writing the EIAR. It is considered that the data applied in the assessment are considered sufficiently detailed to inform a robust assessment of the presented effects.

19.6. INFRASTRUCTURE AND OTHER USERS ASSESSMENT METHODOLOGY

19.6.1. Assessment of impacts in this Chapter has followed the general approach outlined in Volume 1, Chapter 6 (Environmental Impact Assessment Methodology) of the EIAR.

19.6.2. The IOU specific assessment criteria and recognised guidance on assessing IOU are provided below.

GUIDANCE

19.6.3. In addition to the general approach and guidance outlined in Volume 1, Chapter 6 (Environmental Impact Assessment Methodology), this report also considers the following guidance documents applicable to IOU:

- Assessment of Impact of Offshore Wind Energy Structures on the Marine Environment (Marine Institute, 2000);
- European Subsea Cables Association (ESCA) Guideline No.6. The Proximity of Offshore Renewable Energy Installations and Submarine Cable Infrastructure in UK Waters (ESCA, 2016);
- International Cable Protection Committee (ICPC) recommendations (ICPC, 2021):
- The Crown Estate: Submarine cables and offshore renewable energy installation – Proximity study (The Crown Estate, 2012);
- The RYA Scotland's Position on Offshore Renewable Energy Developments: Paper 1 (of 4) – Wind Energy, June 2019 (RYA, 2019b);
- European Boating Association (EBA) Position Statement, Offshore Wind Farms (EBA, 2019); and
- Guidance on Environmental Impact Assessment of Offshore Renewable Energy Development on Surfing Resources and Recreation (Surfers Against Sewage, 2009).

CRITERIA FOR ASSESSMENT

19.6.4. The process for determining the significance of effects is a two-stage process that involves defining the magnitude of the potential impacts and the sensitivity of the receptors. This section describes the criteria applied in this Chapter to assign values to the magnitude of potential impacts and the sensitivity of the receptors.

19.6.5. The terms used to define magnitude of impact and receptor sensitivity for IOU are based on those described in further detail in Volume 1, Chapter 6 (Environmental Impact Assessment Methodology) of the EIAR.

MAGNITUDE OF IMPACT

19.6.6. The magnitude criteria for IOU are provided in Table 19-7. In determining magnitude, each assessment considered the spatial extent, duration, frequency, and reversibility of impact and these are outlined within the magnitude section of each assessment of impact (e.g., a duration of hours or days would be considered for most receptors to be of short-term duration, which is likely to result in a low magnitude of impact).

Table 19-7 Impact magnitude criteria for IOU

Magnitude Value	Description
Negligible	Very slight change from baseline condition and/or physical extent of impact is negligible and/or short-term duration (i.e. less than two years) and/or frequency of repetition is negligible to continuous and/or effect is reversible.
Low	Minor shift away from baseline, leading to a reduction in level of activity that may be undertaken and/or physical extent of impact is low and/or short to medium-term duration (i.e. construction period) and/or frequency of repetition is low to continuous and/or effect is not reversible for development phase.
Medium	Loss or alteration to significant portions of key components of current activity and/or physical extent of impact to moderate and/or medium-term duration (i.e. operational period) and/or frequency of repetition is medium to continuous and/or effect is not reversible for development phase.
High	Total loss of ability to carry on activities and/or impact is of extended physical extent and/or long-term duration (i.e. total lifetime of Proposed Development) and/or frequency of repetition is continuous and/or effect is not reversible for the Proposed Development.

SENSITIVITY

19.6.7. The sensitivity criteria for IOU receptors are provided in Table 19-8.

Table 19-8 Receptor sensitivity criteria for IOU

Sensitivity Value	Description
Negligible	Receptor or the activities of the receptor is of negligible value to the local, regional or national economy and/or the receptor or the activities of the receptor is not vulnerable to impacts that may arise from the Proposed Development and/or has recoverability.
Low	Receptor or the activities of the receptor is of low value to the local, regional or national economy and/or the receptor or the activities of the receptor is not generally vulnerable to impacts that may arise from the Proposed Development and/or has high recoverability.
Medium	Receptor or the activities of the receptor is of moderate value to the local, regional or national economy and/or the receptor or the activities of the receptor is somewhat vulnerable to impacts that may arise from the Proposed Development and/or has moderate to high levels of recoverability.
High	Receptor or the activities of the receptor is of high value to the local, regional or national economy and/or the receptor or the activities of the receptor is generally vulnerable to impacts that may arise from the Proposed Development and/or recoverability is slow and/or costly.

SIGNIFICANCE OF EFFECT

19.6.8. By assigning and combining magnitude of impact and sensitivity criteria, overall effect significance upon IOU receptors can be determined (Table 19-9).

Table 19-9 Matrix used for the assessment of significance of the effect

MUIR MHÒR OFFSHORE WIND FARM A joint venture between Fred. Olsen Seawind & Vattenfall		Magnitude of Impact			
		Negligible	**Low**	**Medium**	**High**
Sensitivity of Receptor	**Negligible**	Negligible	Negligible	Negligible	Negligible
	Low	Negligible	Negligible	Minor	Minor
	Medium	Negligible	Minor	Moderate	Moderate
	High	Negligible	Minor	Moderate	Major

19.6.9. A level of effect of moderate or more will be considered a 'significant' effect for the purpose of the EIA. A level of effect of minor or less will be considered 'not significant'. Effects of moderate significance or above are therefore considered important in the decision-making process, whilst effects of minor significance or less warrant little, if any, weight in the decision-making process.

EMBEDDED COMMITMENTS

19.6.10. As part of the Proposed Development design process, several designed-in measures have been proposed to reduce the potential for effects on environmental receptors. As there is a commitment to implementing these measures, they are considered inherently part of the design of the Proposed Development and have therefore been considered in the assessment (i.e., the determination of magnitude of impact and therefore significance of effect assumes implementation of these measures). These measures are considered standard industry practice for this type of development. The embedded commitments relevant to IOU are presented in Table 19-10. Volume 3, Appendix 6.1 (Commitments Register), provides additional information on how these commitments are secured.

19.6.11. The embedded commitments (C-02, C-09, C-16, C-17, C-18, C-19, C-21, C-22, C-24, C-25, C-26, C-27, C-29, C-36, C-41 and C-42) collectively aim to mitigate the impact of the Proposed Development on IOU receptors. Marking of the Proposed Development on charts (C-16, C-25), appropriate lighting and marking of the Proposed Development (C-24 C-36, C-42), and the promulgation of about construction, operation and maintenance (O&M) and decommissioning activities (C-16, C-19) will ensure that IOU receptors can plan activities accordingly. Commitments such as cable burial (C-29) safeguard seabed integrity, preventing scour and erosion of the seabed avoiding, where possible, affecting any infrastructure in the vicinity of the Proposed Development. Adherence to plans like the Cable Plan (CaP) (C-02) will ensure that cable installation, routing, and construction are optimised to minimise disruption to IOU receptors. The use of guard vessels (C-18) and Safety Zones (C-17) will

work to mitigate risks to surface navigation during construction, maintenance and decommissioning phases. Protection of crossings (C-41) and the development of crossing and proximity agreements with known existing cable and pipeline operators (C-27) will minimise impacts on these assets and will include the ability of a cable/pipeline operator to access their infrastructure as far as practical and will ensure close communication and planning between the affected parties to ensure disruption of activities is minimised. A Decommissioning Program (DP) will ensure that any measures required for IOU receptors during the decommissioning phase are considered.

Table 19-10 Embedded commitment measures of relevance to IOU

Code	Commitment	Type (Primary, Secondary or Tertiary)	How Commitment Secured
C-02	Development of and adherence to a cable plan (CaP). The CaP will confirm planned cable routing, installation methods, cable specifications and any additional protection and requirement for any post installation monitoring.	Tertiary	CaP
C-04	The infrastructure will be designed in such a way to minimise the impacts and will be within the key parameters set out in the EIA Project Description and EIAR.	Primary	Development Specification and Layout Plan (DSLP)
C-09	Development of and adherence to a Decommissioning Program (DP). The DP will outline measures for the decommissioning of the Proposed Development .	Tertiary	DP
C-16	Development of and adherence to a Navigational Safety Plan (NSP - forming part of the Vessel Management and Navigational Safety Plan (VMNSP)). The NSP will describe measures put in place by the Proposed Development related to navigational safety, including information on Safety Zones, charting, construction buoyage, temporary lighting and marking, and means of notification of Proposed Development activity to other sea users (e.g. via Notice to Mariners).	Tertiary	NSP Safety Zone Application (undertaken post-consent)
C-17	Applications to be made, where appropriate, for Safety Zones (500 m) for construction and major maintenance works, and for pre commissioning works (50 m).	Secondary	NSP Safety Zone Application (undertaken post-consent)
C-18	Use of guard vessels where deemed appropriate to ensure adherence with Safety Zones or advisory passing distances, as defined by risk assessment, to mitigate any impact which poses a risk to surface navigation during construction, maintenance and decommissioning phases. Such impacts may include partially installed structures or cables, extinguished navigation lights or other unmarked hazards.	Secondary	NSP Safety Zone Application (undertaken post-consent)
C-19	Advance warning and accurate location	Tertiary	NSP

Code	Commitment	Type (Primary, Secondary or Tertiary)	How Commitment Secured
	details of construction, maintenance and decommissioning operations, associated Safety Zones and advisory passing distances will be given via Notices to Mariners and Kingfisher Bulletins.		Safety Zone Application (undertaken post-consent)
C-21	Compliance with Maritime and Coastguard Agency (MCA) Marine Guidance Note (MGN) 654 (MCA, 2021) and its annexes where applicable (including consideration of a Search and Rescue (SAR) checklist, an Emergency Response and Cooperation Plan (ERCoP) and Under Keel Clearance. Consideration will also be given to MGN 543 SAR Annex 5 (MCA, 2018).	Tertiary	CaP Construction Method Statement (CMS) Development Specification and Layout Plan (DSLP)
C-22	Compliance of all project vessels with international marine regulations as adopted by the Flag State, notably the International Regulations for Preventing Collisions at Sea (COLREGs) (IMO, 1974) and the International Convention for the Safety of Life at Sea (SOLAS) (IMO, 1974).	Tertiary	NSP
C-24	Aids to navigation (marking and lighting) will be deployed in accordance with the latest relevant available standard industry guidance and as advised by the Northern Lighthouse Board (NLB), MCA and Civil Aviation Authority (CAA) and Ministry of Defence (MoD) as appropriate. This will include a buoyed construction area around the Array Area in consultation with NLB.	Tertiary	NSP Lighting and Marking Plan (LMP)
C-25	Appropriate marking of the Proposed Development on Admiralty and aeronautical charts. This will include provision of the positions and heights of structures to the UK Hydrographic Office (UKHO), Civil Aviation Authority (CAA), MoD and Defence Geographic Centre (DGC).	Tertiary	NSP LMP
C-26	Compliance with regulatory expectations on moorings for floating wind and marine devices published by MCA and the Health and Safety Executive (HSE).	Tertiary	CMS
C-27	Crossing and proximity agreements with known existing pipeline and cables operators will be sought.	Tertiary	Secured by commercial agreements with pipeline and cable operators.
C-29	Where practicable, cable burial will be the preferred means of cable protection. Cable burial will be informed by the cable burial risk assessment (CBRA) and detailed within the CaP. In areas where CBRA deems burial not feasible, suitable implementation and monitoring of cable protection will be	Primary	CaP

Code	Commitment	Type (Primary, Secondary or Tertiary)	How Commitment Secured
	employed.		
C-36	Development of and adherence to an LMP (forming part of the VMNSP). The LMP will confirm compliance with legal requirements with regards to shipping, navigation and aviation marking and lighting.	Tertiary	LMP
C-41	Where offshore export cables must cross third party infrastructure, such as existing cables and pipelines, both the third-party asset and the installed cables will be protected.	Tertiary	LMP
C-42	Lighting and marking failures appropriately reported/rectified as soon as possible and interim hazard warnings put in place as required.	Tertiary	LMP

IMPACTS SCOPED OUT OF THE ASSESSMENT

19.6.12. Relevant stakeholder consultation (see Section 19.4), the Offshore Scoping Report (Volume 3, Appendix 5.1 (Offshore Scoping Report)), the Scoping Opinion (MD-LOT, 2023 - Volume 3, Appendix 5.2 (Offshore Scoping Opinion)), along with understanding of worst case design scenarios and environmental baseline conditions has informed the decision to scope these IOU impacts out for further consideration in the EIA.

19.6.13. Table 19-11 describes the impacts that have been scoped out of this IOU assessment.

Table 19-11 Impacts scoped out of the IOU assessment

Impact Scoped Out	Justification
Construction, Operation and Maintenance, and Decommissioning	
Temporary obstruction to wave and tidal renewable energy developments and associated activities.	There are no wave or tidal renewable developments in the IOU study area.
Temporary obstruction to CCUS developments and associated activities.	There are no current plans to develop CCUS projects in the IOU study area.
Temporary obstruction to nuclear activities.	There are no nuclear activities in the IOU study area.
Temporary obstruction to marine aggregate activities.	There are no marine aggregate dredging activities in the IOU study area.
Temporary obstruction to aquaculture activities.	There are no aquaculture sites in the IOU study area.
Temporary obstruction to INTOG activities.	There are no operational INTOG projects within the IOU study area that form part of the baseline. INTOG projects within the IOU study area are currently in the planning stages. These projects are discussed in the future baseline section (paragraph 19.5.43 *et seq.*) and potential cumulative effects on IOU receptors as a result of proposed INTOG projects are considered in Section 19.9.
	The export cabling associated with Green Volt

Impact Scoped Out	Justification
	OWF is the only consented INTOG project element within the IOU study area. This aspect of the project is considered under Impact 2, 7 and 12: 'Temporary obstruction to subsea cables and utilities developments and associated activities'.

WORST CASE DESIGN SCENARIO

19.6.14. The Developer has adopted a design envelope approach to impact assessment (also known as a 'Rochdale Envelope'). In line with guidance from the Scottish Government (2022), the design envelope approach offers flexibility in the EIA process by enabling impact assessment to be carried out against several potential design options.

19.6.15. The assessment of IOU impacts has been undertaken with respect to the details provided in Volume 1, Chapter 3 (Project Description). A 'worst case' design scenario has been selected for each impact which would lead to the greatest impact for all receptors or receptor groups, when selected from a range of values. Greater adverse significance of effects are not predicted to arise should any other development scenario, based on details within Volume 1, Chapter 3 (Project Description) (e.g., different infrastructure layout), to that assessed here, be taken forward in the final design scheme.

19.6.16. Table 19-12 presents the worst-case design scenario for each impact associated with LSE assessment on IOU along with justification.

Table 19-12 Worst case design scenarios with respect to the IOU assessment

Impact	Embedded Commitment	Worst Case Design Scenario	Justification
Construction			
Impact 1: Temporary obstruction to other OWFs	C-02, C-16, C-17, C-18, C-19, C-21, C-22, C-24, C-26, C-27, C-29, C-36, C-41, C-42	**Maximum extent of proposed works** • Single phase offshore construction of approximately four years; • Construction of up to 67 floating WTGs built out to the maximum extent of the Array Area (200 km^2); • Up to 3 km of interconnector cable; • Up to three export cables, each 90 km in length; • Up to two OEP(s); and • Up to 250 km of inter-array cables including use of dynamic cable sections. **Pre-construction activities** • Geophysical, geotechnical, and environmental surveys over a maximum duration of six months prior to start of construction period; • Unexploded Ordnance (UXO) clearance is anticipated to take place from the year prior to offshore construction commencing, potentially running concurrently with the first year of offshore construction. • The primary method of UXO clearance will be low-order deflagration, but high-order clearance is assessed as the realistic worst-case scenario. • Seabed preparation method for cable installation = Pre-Lay Grapnel Run (PLGR) • Boulder clearance required prior to installation of foundations **Vessels** • Maximum number of return trips for vessels over the construction period: 1,711; • Maximum number of vessels on site at one time over the construction period: 21; and • The realistic number of vessels expected to be on site at the same time: 10. **Safety Zones** • Use of 500 m construction safety zones and 50 m pre-commissioning safety zones.	The greatest amount of infrastructure, the greatest number of vessels and the greatest extent of safety zones, over the longest construction period. It is important to note that the licensing of UXO clearance works will be subject to a standalone Marine Licence.
Impact 2: Temporary obstruction to subsea cables and utilities developments and associated activities	C-02, C-16, C-17, C-18, C-19, C-21, C-22, C-24, C-26, C-27, C-29, C-36, C-41, C-42		
Impact 3: Temporary obstruction to licensed marine disposal sites and associated activities	C-02, C-16, C-17, C-18, C-19, C-21, C-22, C-24, C-26, C-29, C-36, C-42		
Impact 4: Temporary obstruction to oil and gas developments and associated activities	C-02, C-16, C-17, C-18, C-19, C-21, C-22, C-24, C-26, C-27, C-29, C-36, C-41, C-42.		
Impact 5: Displacement of recreational sailing and motor cruising, recreational fishing and other recreational activities due to infrastructure, safety zones, and construction vessels in relation to the Proposed Development may result in a loss of recreational resource			
Operation and Maintenance			
Impact 6: Temporary obstruction to other OWFs	C-16, C-17, C-18, C-19, C-21, C-22, C-24, C-25, C-26, C-27, C-29, C-36, C-41, C-42	**Maximum extent of proposed works** • Operational life of approximately 35 years; • Up to 67 floating WTGs, built out to the maximum extent of the Array Area (200 km^2); • Up to 3 km of onterconnecgtor cable; • Up to three export cables, each up to 90 km in length; • Up to two OEP(s); and • Up to 250 km of inter-array cables including use of dynamic cable sections. **Maintenance activities** • WTG maintenance six visits per WTG per year; • WTG troubleshooting eight visits per WTG per year; • OEP maintenance three visits per year; • Use of 500 m major maintenance safety zones; • Up to seven inter-array cable failures assumed throughout the lifetime of the wind farm, with 7,000 m km (length) x 5 m (width) (35,000 m^2) disrupted per repair, placement for a total impacted area of 245,000 m^2 over the lifetime of the Proposed Development (35 years); • Export cable repair = 1 repair per cable every 5 years, 7 repairs per cable over lifetime of	The greatest amount of infrastructure, the greatest number of vessels and the greatest extent of safety zones, over the operational period.
Impact 7: Temporary obstruction to subsea cables and utilities developments and associated activities	C-16, C-17, C-18, C-19, C-21, C-22, C-24, C-25, C-26, C-27, C-29, C-36, C-41, C-42		
Impact 8: Temporary obstruction to licensed marine disposal sites and associated activities	C-16, C-17, C-18, C-19, C-21, C-22, C-24, C-25, C-26, C-27, C-29, C-36, C-41, C-42		
Impact 9: Temporary obstruction to oil and gas developments and associated activities	C-16, C-17, C-18, C-19, C-21, C-22, C-24, C-26, C-27, C-29, C-36, C-41, C-42		
Impact 10: Displacement of recreational sailing and motor cruising, recreational			

Impact	Embedded Commitment	Worst Case Design Scenario	Justification
fishing and other recreational activities due to infrastructure, safety zones, and construction vessels in relation to the Proposed Development may result in a loss of recreational resource		the windfarm (35 years) x 3 export cables = 21 repairs in total; • Area per repair = 1,000 m * 50 m = 50,000m² per repair; • Total = 21 x 50,000 m² = 1,050,000 m² # and • Interconnector cable repair/reburial: one repair every five years. **Vessels** • Maximum of 12 vessels for O&M works on site at any one time, with a total of up to 509 round trips to port per year.	
Decommissioning			
Impact 11: Temporary obstruction to other OWFs	C-09, C-16, C-17, C-18, C-19, C-20, C-22, C-24, C-25, C-26, C-36, C-40, C-42	Impact over a decommissioning period of approximately three years. Decommissioning is likely to include removal of all of the wind turbine components and part of the foundations (those above seabed level) and removal of all other surface infrastructure. Some or all of the inter-array cables and offshore export cables may be removed. Scour and cable protection would likely be left *in situ*. The removal of cables and rock protection is considered the worst-case design scenario, however the necessity to remove cables and rock protection will be reviewed at the time of decommissioning. In the absence of detailed information regarding decommissioning works, the implications for IOU are considered analogous with or likely less than those of the construction phase. Therefore, the worst-case parameters defined for the construction phase also apply to decommissioning. The approach to decommissioning is set out in Volume 1, Chapter 3 (Project Description).	The greatest amount of infrastructure, the greatest number of vessels and the greatest extent of safety zones, over the decommissioning period.
Impact 12: Temporary obstruction to subsea cables and utilities developments and associated activities	C-09, C-16, C-17, C-18, C-19, C-20, C-22, C-24, C-25, C-26, C-27, C-29, C-36, C-40, C-41, C-42		
Impact 13: Temporary obstruction to licensed marine disposal sites and associated activities	C-09, C-16, C-17, C-18, C-19, C-20, C-22, C-24, C-25, C-26, C-36, C-40, C-42		
Impact 14: Temporary obstruction to oil and gas developments and associated activities	C-09, C-16, C-17, C-18, C-19, C-20, C-22, C-24, C-25, C-26, C-27, C-36, C-40, C-42		
Impact 15: Displacement of recreational sailing and motor cruising, recreational fishing and other recreational activities due to infrastructure, safety zones, and construction vessels in relation to the Proposed Development may result in a loss of recreational resource	C-09, C-15, C-17, C-18, C-19, C-20, C-22, C-24, C-25, , C-33, C-36, C-40, C-42		

19.7. ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

19.7.1. Assessment of LSE on IOU has been undertaken for all phases of the Proposed Development. A detailed description of each impact, informed by Volume 1, Chapter 3 (Project Description), baseline conditions and desktop study information is provided below.

CONSTRUCTION PHASE

IMPACT 1: TEMPORARY OBSTRUCTION TO OTHER OWFS

19.7.2. The presence of partially constructed infrastructure and safety zones during the construction phase as well as pre-construction activities such as UXO clearance and surveys may result in the temporary obstruction to existing OWFs within the vicinity of the Proposed Development. Depending on the port chosen as an engineering and construction base, movements of vessels contracted to undertake construction activities associated with the Proposed Development have the potential to interfere with the routine operations and activities of existing OWFs.

19.7.3. As outlined in Section 19.5, the Hywind Scotland Pilot Park is located 0.06 km south of the offshore ECC and 35.56 km west from the Array Area.

MAGNITUDE OF IMPACT

19.7.4. Pre-construction activities such as UXO clearance and surveys, construction activities, partially installed infrastructure and increased numbers of vessels in the vicinity of the offshore ECC may lead to effects on the development or operation of the Hywind Scotland Pilot Park including effects on, or restriction of access to, infrastructure for maintenance activities. This could occur for the duration of the pre-construction and construction period for the Proposed Development, although works within the offshore ECC are the main works likely to interfere with Hywind Scotland Pilot Park. Offshore export cabling installation is likely to be complete in less than a year. During construction, there may be up to 21 vessels on site at any one time, although the majority of these vessels will be transiting to, or working within the Array Area and will pose less of a disruption to any works at the Hywind Scotland Pilot Park located closer inshore.

19.7.5. As described in Table 19-10, Notices to Mariners will be issued regularly during the pre-construction and construction phases, advising of the location, nature and timing of activities associated with the Proposed Development, ensuring that activities at Hywind Scotland Pilot Park can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development.

19.7.6. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to the Hywind Scotland Pilot Park for a short to medium term duration. The frequency of repetition is continuous although temporary during the construction phase. The magnitude is therefore considered to be low.

SENSITIVITY OF RECEPTOR

19.7.7. The array area of the Hywind Scotland Pilot Park abuts the offshore ECC for the Proposed Development. The project is of high value to the national economy, and as the OWF is operational, it is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

SIGNIFICANCE OF EFFECT

19.7.8. The magnitude of the impact is deemed to be low and the sensitivity of the receptor is high. The effect will therefore be of minor significance, which is not significant in EIA terms (Table 19-13).

Table 19-13 Significance of temporary obstruction to other OWFs (construction)

Receptor/Location	Magnitude	Sensitivity	Significance
Hywind Scotland Pilot Park	Low	High	Minor

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.7.9. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

IMPACT 2: TEMPORARY OBSTRUCTION TO SUBSEA CABLES AND UTILITIES DEVELOPMENTS AND ASSOCIATED ACTIVITIES

19.7.10. In addition to obstruction of other subsea cable maintenance activities due to safety zones and increased vessel traffic, there is also a risk of damage to other subsea cables where cable crossings are expected to occur.

19.7.11. As set out in Section 19.5, there are two operational subsea cables within the IOU study area, with the offshore ECC for the Proposed Development required to cross the Tampnet CNSFTC fibre-optic telecommunications cable. Although there is an overlap of the offshore ECC of the Proposed Development and the offshore export cables for Hywind Scotland Pilot Park, the Developer can confirm that the Hywind Scotland Pilot Park cables will not be crossed.

19.7.12. Although the Green Volt OWF export cabling is not yet installed, the project has consent and the export cabling will be installed within the IOU study area and as such, this aspect of the Green Volt OWF has been considered a receptor for the purposes of the assessment. The Green Volt OWF export cables will be located within the offshore ECC for the Proposed Development, and 29.4 km from the Array Area, as shown in Figure 19-3. As Green Volt OWF is proposed to be constructed in advance of the Proposed Development, there is potential that the offshore export cables for the Proposed Development may need to cross the Green Volt OWF export cables but this will be subject to the final cable routing for both projects.

MAGNITUDE OF IMPACT

19.7.13. Pre-construction activities such as UXO clearance and surveys, construction activity, and increased numbers of vessels in the vicinity of the offshore ECC may lead to effects on the O&M of the export cables associated with the Hywind Scotland Pilot Park and Green Volt OWF export cables and the Tampnet CNSFTC cable including effects on, or restriction of access to, infrastructure for maintenance activities as well as potential damage to cables. The design and methodology of the cable crossings of the export cables associated with the Tampnet CNSFTC cable and Green Volt OWF export cables will be confirmed in agreement with the asset owners, however it is likely that a berm of rock will be placed over the existing asset for protection, known as a pre-lay berm, or separation layer. The export cable for the Proposed Development will then be laid across this, at an angle close to 90 degrees which will then be covered by a second post lay berm to ensure that the export cable remains protected and in place.

19.7.14. The impacts to these other subsea cables could occur for the duration of the pre-construction and construction period for the Proposed Development, although works within the offshore

ECC are the main works likely to interfere with these other subsea cables. Offshore export cabling installation is likely to be complete in less than a year. During construction, there may be up to 21 vessels on site (within the boundaries of the Array Area and offshore ECC) at any one time, although the majority of these vessels will be transiting to, or working within the Array Area so the number of vessels in the offshore ECC will be much lower than 21 and will pose less of a disruption to any works on the other subsea cables located closer inshore.

19.7.15. As described in Table 19-10, cables to be crossed by the export cables associated with the Proposed Development would be covered by a crossing agreement with the relevant operator so that there would not be an impediment to asset maintenance operations. This is a formal arrangement that establishes the responsibilities and obligations of both parties and to allow operations to be managed safely.

19.7.16. Additionally, Notices to Mariners will be issued regularly during the construction phase, advising of the location, nature and timing of activities associated with the Proposed Development, ensuring that maintenance activities at Hywind Scotland Pilot Park, Green Volt OWF, and associated with the Tampnet CSNFTC cable can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development.

19.7.17. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to the Hywind Scotland Pilot Park and Green Volt OWF export cables and the Tampnet CNSFTC fibre-optic telecommunications cable, and for a short to medium term duration. The frequency of repetition is continuous although temporary during the construction phase. The magnitude is therefore considered to be low.

SENSITIVITY OF RECEPTOR

19.7.18. The Tampnet CNSFTC fibre-optic telecommunications cable is of high commercial value to the national economy, and as the cable is operational, it is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

19.7.19. As stated in paragraph 19.7.7, the Hywind Scotland Pilot Park is of high value to the national economy, and as the OWF is operational, it is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

19.7.20. The ECC for the Green Volt OWF overlaps with the offshore ECC for the Proposed Development and a crossing has been considered as the worst case assumption (subject to final cable routing for both projects). The project is of high value to the national economy, and as the OWF will likely be operational by the time the Proposed Development enters construction, it is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

SIGNIFICANCE OF EFFECT

19.7.21. The magnitude of the impact is deemed to be low and the sensitivity of the receptor is high. The effect will therefore be of minor significance, which is not significant in EIA terms (Table 19-14).

Table 19-14 Significance of temporary obstruction to subsea cables and utilities developments and associated activities (construction)

Receptor/Location	Magnitude	Sensitivity	Significance
Tampnet CNSFTC fibre-optic telecommunications cable	Low	High	Minor
Offshore export cables for Hywind Scotland Pilot Park	Low	High	Minor
Offshore export cables for Green Volt OWF	Low	High	Minor

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.7.22. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

IMPACT 3: TEMPORARY OBSTRUCTION TO LICENSED MARINE DISPOSAL SITES AND ASSOCIATED ACTIVITIES

19.7.23. The construction of the Proposed Development has the potential to interact with the vessel operations of the existing marine disposal sites, with these sites focused within the inshore area. As such, this potential interaction is likely to be associated with the installation of the export cables within the nearshore area.

19.7.24. As set out in Section 19.5, there are ten marine disposal sites within the IOU study area, three within 1 km of the Proposed Development. These three sites are scoped into the assessment with the other eight sites located at distances greater than 1 km from the Proposed Development scoped out as disposal works are expected to be spatially discrete. This is as there will be no physical overlap between the Proposed Development (including any safety zones) and the marine disposal activities and no activities.

19.7.25. Of the three sites within 1 km of the Proposed Development, the Peterhead (CR070) and North Buchan Ness (CR080) sites are currently open. As such, only these two sites are taken forward into the assessment.

MAGNITUDE OF IMPACT

19.7.26. Wind farm pre-construction (e.g. surveys and UXO clearance) and construction activities (such as cable installation) have the potential to impact on the operation of disposal sites. This may occur through sediment dispersed by activities for the Proposed Development settling within these sites, or vessel traffic and infrastructure related to the Proposed Development interfering with existing vessel traffic routes to such sites.

19.7.27. The impacts to this disposal site could occur for the duration of the pre-construction and construction period for the Proposed Development, although offshore export cable installation is likely to be complete in less than a year. During construction, there may be up to 21 vessels on site at any one time, although the majority of these vessels will be transiting to, or working within the Array Area and will pose less of a disruption to any works within the disposal site.

19.7.28. As described in Table 19-10, Notices to Mariners will be issued regularly during the construction phase, advising of the location, nature and timing of activities associated with the Proposed Development, ensuring that maintenance activities at the disposal site can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development.

19.7.29. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to the disposal site, and for a short to medium term duration. The frequency of repetition is continuous although temporary during the construction phase. The magnitude is therefore considered to be low.

SENSITIVITY OF RECEPTOR

19.7.30. Open disposal sites can be nationally important as they provide an area where waste dredge material can be deposited of, however, it is challenging to give an economic value to disposal sites as the trends are sporadic. It has been reported that between the period 2014-2018, disposal site licence revenue came to a total of approximately £554,820 (Marine Scotland, 2020).

19.7.31. Peterhead (CR070) is licensed by Peterhead Port Authority so it has been assumed that this site is being used for the deposition of dredged spoil material, including dredged harbour material from Peterhead Port.

19.7.32. The disposal site is of high regional value due to the likely importance of navigational dredging to the maintenance and operation of Peterhead Port. The disposal site is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

19.7.33. North Buchan Ness (CR080) has been used for the deposition of dredged spoil material, including dredged harbour material from Peterhead and / or Boddam Harbour. The disposal site is of high regional value due to the importance of navigational dredging to the maintenance and operation of Peterhead and Boddam Harbour. The disposal site is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

SIGNIFICANCE OF EFFECT

19.7.34. The magnitude of the impact is deemed to be low and the sensitivity of the receptor is high. The effect will therefore be of minor significance, which is not significant in EIA terms (Table 19-15).

Table 19-15 Significance of temporary obstruction to licensed marine disposal sites and associated activities (construction)

Receptor/Location	Magnitude	Sensitivity	Significance
Peterhead (CR070) open disposal site	Low	High	Minor
North Buchan Ness (CR080) open disposal site	Low	High	Minor

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.7.35. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

IMPACT 4: TEMPORARY OBSTRUCTION TO OIL AND GAS DEVELOPMENTS AND ASSOCIATED ACTIVITIES

19.7.36. Activities associated with the construction phase of the Proposed Development may lead to the reduction or restriction of access to active hydrocarbon licence blocks, pipelines and subsea structures (such as wells and manifolds) by oil and gas operators.

19.7.37. The nearest extant oil and gas licence block is 14.03 km from the Proposed Development and as such, the assessment of effects on these blocks are scoped out. This is as there will be no physical overlap between the Proposed Development (including any safety zones during construction) and the licence blocks (including the 500 m safety zones which are typically implemented around oil and gas infrastructure during construction and certain periods of maintenance).. Additionally, it is considered the distance between the licence blocks and the Proposed Development allows significant sea room for vessels.

19.7.38. In relation to oil and gas pipelines, there are four located within 1 km of the Proposed Development, two of which will require to be crossed by the offshore export cables for the Proposed Development (Forties C to Cruden Bay (PL8) and Forties C to Cruden Bay (PL721)). The other two pipelines are 20" Gas Fulmar A – St Fergus (PL208) and Miller To St. Fergus (PL720) which are located 0.45 km and 0.99 km from the offshore ECC, respectively. These four pipelines are scoped in to the assessment presented below. Other pipelines located at distances greater than 1 km from the Proposed Development are scoped out of further assessment, based on the lack of physical overlap between the Proposed Development (including any safety zones during construction) and the pipelines (including the 500 m safety zones which are typically implemented around oil and gas infrastructure during construction and certain periods of maintenance)..

19.7.39. Of the subsea structures detailed in paragraph 19.5.23 *et seq.*, only two of these are located within 1 km of the Proposed Development, namely the Birch Well Z5 wellhead and the Sycamore Main Towhead, both operated by Spirit Energy. Both of these structures are considered to be 'Not In Use' and as such, as scoped out of further assessment based on the reasons outlined in the paragraphs above.

MAGNITUDE OF IMPACT

19.7.40. In addition to obstruction of pipeline maintenance activities due to safety zones and increased vessel traffic, there is also a risk of damage to pipelines where these need to be crossed by the export cables for the Proposed Development.

19.7.41. Pre-construction and construction activity, and associated increased numbers of vessels in the vicinity of the offshore ECC may lead to effects on the development or operation of the pipelines, including effects on, or restriction of access to, infrastructure for maintenance activities as well as potential damage to these pipelines. The design and methodology of any pipeline crossings will be confirmed in agreement with the asset owners, however it is likely that a berm of rock will be placed over the existing asset for protection, known as a pre-lay berm, or separation layer. The export cable for the Proposed Development will then be laid across this, at an angle close to 90 degrees which will then be covered by a second post lay berm to ensure that the export cable remains protected and in place.

19.7.42. The impacts to these pipelines could occur for the duration of the pre-construction and construction period for the Proposed Development, although works within the offshore ECC are the main works likely to interfere with these pipelines. Offshore export cabling installation is likely to be complete in less than a year. During construction, there may be up to 21 vessels on site at any one time, although the majority of these vessels will be transiting to, or working within the Array Area and will pose less of a disruption to any works on the pipelines located closer inshore.

19.7.43. As described in Table 19-10, pipelines to be crossed by the export cables associated with the Proposed Development would be covered by a crossing agreement with the relevant operator so that there would not be an impediment to asset maintenance operations. This is a formal arrangement that establishes the responsibilities and obligations of both parties and to allow operations to be managed safely.

19.7.44. Additionally, Notices to Mariners will be issued regularly during the construction phase, advising of the location, nature and timing of activities associated with the Proposed Development, ensuring that maintenance activities in relation to the pipelines can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development.

19.7.45. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to the pipelines, and for a short to medium term duration. The frequency of repetition is continuous although temporary during the construction phase. The magnitude is therefore considered to be low.

SENSTIVITY OF THE RECEPTOR

19.7.46. There are potential safety issues regarding disruption of oil and gas pipelines during construction works and high costs associated with pipeline repair.

19.7.47. The pipelines are of high commercial value to the national economy, and as the pipelines are operational, they are somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high, particularly given the difficulty and costs associated with pipeline repair.

SIGNIFICANCE OF EFFECT

19.7.48. The magnitude of the impact is deemed to be low and the sensitivity of the receptor is high. The effect will therefore be of minor significance, which is not significant in EIA terms (Table 19-16).

Table 19-16 Significance for temporary obstruction to oil and gas developments and associated activities (construction)

Receptor/Location	Magnitude	Sensitivity	Significance
Forties C to Cruden Bay (PL8)	Low	High	Minor
Forties C to Cruden Bay (PL721)	Low	High	Minor
20” Gas Fulmar A – St Fergus (PL208)	Low	High	Minor
Miller To St. Fergus (PL720)	Low	High	Minor

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.7.49. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

IMPACT 5: DISPLACEMENT OF RECREATIONAL SAILING AND MOTOR CRUISING, RECREATIONAL FISHING AND OTHER RECREATIONAL ACTIVITIES DUE TO INFRASTRUCTURE, SAFETY ZONES, AND CONSTRUCTION VESSELS IN RELATION TO THE PROPOSED DEVELOPMENT MAY RESULT IN A LOSS OF RECREATIONAL RESOURCE

19.7.50. Pre-construction and construction activities may lead to displacement of recreational sailing and motor cruising, recreational fishing and other recreational activities due to the presence

of the infrastructure and their associated safety zones and construction vessels in relation to the Proposed Development and may result in a displacement of recreational resource.

MAGNITUDE OF IMPACT

19.7.51. The installation of Proposed Development infrastructure within the Array Area and along the offshore ECC may displace recreational activities from the footprint of the Proposed Development and from any areas subject to safety zones and construction vessels, resulting in a loss of recreational resource.

19.7.52. The worst case design scenario is represented by the installation of up to 67 floating WTGs built out to the maximum extent of the Array Area, with up to three export cables, each 90 km in length, up to two OEP(s), up to 3 km of interconnector cable, and up to 250 km of inter-array cables including use of dynamic cable sections, with associated safety zones, over a period of up to four years. There may be up to 21 vessels within the boundary of the Proposed Development during the construction phase.

19.7.53. As described in paragraph 19.5.25 *et seq.*, there are a number of recreational activities occurring in the vicinity of the Proposed Development, although with most activities occurring closer to shore and overlapping with the nearshore sections of the offshore ECC rather than within the Array Area. Recreational vessel density, including recreational sailing and motor cruising, is generally highest around the port of Peterhead and within 10 km of the coastline. Sea angling from the shore and angling trips occur at high densities year round at Peterhead, St Fergus and Cruden Bay (Marine Scotland, 2016). Other activities occurring in proximity to the Proposed Development include SCUBA diving, canoeing, kayaking, surfing, windsurfing and kite surfing, wildlife watching, and beach users.

19.7.54. The spatial extent of the impact on boating activities will be relatively small in the context of the available sailing and sea angling areas in the vicinity of the Proposed Development. There will be potential for localised displacement of recreational marine craft from the individual 500 m safety zones around the structures being actively installed within the Array Area. Additionally, there may be the application of advisory minimum passing distances as defined by risk assessment where safety zones do not apply (e.g. around cable installation vessels operating within the Array Area and along the offshore ECC). The impact of safety zones is mostly reversible, as once each structure has been installed and commissioned, these will be removed. Advisory passing distances around cable installation vessels operating along the offshore ECC will be transient as the vessel progressively installs the cable along the route from the Array Area to the landfall. The spatial extent of potential displacement will be greater along the offshore ECC compared with the Array Area, due to most recreational activity taking place along the coastline, although a small number of vessels and sailing events may be displaced from the Array Area and the immediate vicinity temporarily during the construction phase.

19.7.55. As described in Table 19-10, Notices to Mariners will be issued regularly during the construction phase, advising of the location, nature and timing of recreational activities can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development.

19.7.56. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction in the level of recreational activity that may be undertaken for a short to medium term duration. The frequency of repetition is continuous although temporary during the construction phase. The magnitude is therefore considered to be low.

SENSTIVITY OF THE RECEPTOR

19.7.57. Recreational boating and sea angling vessels are able to alter their route or transit (dependent on their target destination) past installation activities and associated safety zones and advisory safe passing distances, given the adequate sea room around the offshore ECC and Array Area. There are other locations available for recreational sailing and motor cruising, recreational fishing and other recreational activities such that alternatives are available if required during installation works.

19.7.58. The receptor is deemed to be of medium value to the local economy and recreational activities are not generally vulnerable to impacts that may arise from the Proposed Development and recoverability is high. The sensitivity of the receptor is therefore considered to be medium.

SIGNIFICANCE OF EFFECT

19.7.59. The magnitude of the impact is deemed to be low and the sensitivity of the receptor is medium. The effect will therefore be of minor significance, which is not significant in EIA terms (Table 19-17).

Table 19-17 Significance for loss of recreational resource (construction)

Receptor/Location	Magnitude	Sensitivity	Significance
Recreational receptors	Low	Medium	Minor

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.7.60. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

OPERATION AND MAINTENANCE

IMPACT 6: TEMPORARY OBSTRUCTION TO OTHER OWFS

19.7.61. The presence of infrastructure may result in the obstruction to the Hywind Scotland Pilot Park within the vicinity of the Proposed Development. Depending on the port chosen as the operations and maintenance base, movements of vessels contracted to undertake O&M activities associated with the Proposed Development have the potential to interfere with the routine operations and activities of the Hywind Scotland Pilot Park. Major maintenance activities may be necessary and may require the use of large vessels and the use of temporary safety zones (500 m).

MAGNITUDE OF IMPACT

19.7.62. Operation and maintenance activity, infrastructure and increased numbers of vessels in the vicinity of the offshore ECC may lead to effects on the O&M of the Hywind Scotland Pilot Park including effects on, or restriction of access to, infrastructure for maintenance activities. This could occur for the duration of the approximately 35 year operational life of the Proposed Development, although any O&M works associated with the offshore export cables are the main works likely to interfere with Hywind Scotland Pilot Park.

19.7.63. During the O&M phase, there may be up to one offshore export cable repair every five years. In the event that these offshore export cable repairs are required, associated impacts would be similar in nature to the construction impacts but limited to specific locations and often shorter in duration. Major maintenance activity may be required and may necessitate the use

of large vessels and the use of a temporary 500 m safety zone and advisory passing distances.

19.7.64. There will be a maximum of 12 vessels for O&M works on site at any one time, with a total of up to 509 round trips to port per year, although the majority of these vessels will be transiting to, or working within the Array Area and will pose less of a disruption to any works at the Hywind Scotland Pilot Park located closer inshore.

19.7.65. As described in Table 19-10, Notices to Mariners will be issued regularly during the O&M phase, advising of the location, nature and timing of activities associated with the Proposed Development, ensuring that activities at Hywind Scotland Pilot Park can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development.

19.7.66. With the embedded commitments in place, the impact is predicted to cause a very slight change from the baseline. The frequency of repetition is intermittent with high reversibility. The magnitude is therefore considered to be negligible.

SENSITIVITY OF RECEPTOR

19.7.67. The array area of the Hywind Scotland Pilot Park abuts the offshore ECC for the Proposed Development. The project is of high value to the national economy, and as the OWF is operational, it is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

SIGNIFICANCE OF EFFECT

19.7.68. The magnitude of the impact is deemed to be negligible and the sensitivity of the receptor is high. The effect will therefore be of negligible significance, which is not significant in EIA terms (Table 19-18).

Table 19-18 Significance of temporary obstruction to other OWFs (O&M)

Receptor/Location	Magnitude	Sensitivity	Significance
Hywind Scotland Pilot Park	Negligible	High	Negligible

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.7.69. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

IMPACT 7: TEMPORARY OBSTRUCTION TO SUBSEA CABLES AND UTILITIES DEVELOPMENTS AND ASSOCIATED ACTIVITIES

19.7.70. Operations and maintenance activities associated with the Proposed Development, as well as any temporary safety zones around major maintenance activities (for example removal and replacement of cables), and increased vessel traffic have the potential to lead to the temporary reduction of access to the Tampnet CNSFTC fibre-optic telecommunications cable and the offshore export cables for Hywind Scotland Pilot Park and Green Volt OWF.

MAGNITUDE OF IMPACT

19.7.71. During the operation and maintenance phase, major maintenance activities associated with the Proposed Development and associated presence of safety zones and advisory passing

distances, may restrict access for repair or maintenance to the offshore export cables for Hywind Scotland Pilot Park, as well as the Tampnet CNSFTC fibre-optic telecommunications cable and the Green Volt OWF export cables that are likely to have been crossed by the offshore export cables for the Proposed Development.

19.7.72. During the O&M phase, there may be up to one offshore export cable repair every five years. In the event that these offshore export cable repairs are required, associated impacts would be similar in nature to the construction impacts but limited to specific locations and often shorter in duration. Major maintenance activities may be required and may necessitate the use of large vessels and the use of a temporary 500 m safety zone.

19.7.73. Any restriction of access to the other subsea cables due to maintenance activities associated with the Proposed Development is considered to be temporary, limited in spatial extent, and infrequent over the lifetime of the Proposed Development.

19.7.74. As described in Table 19-10, cables to be crossed by the export cables associated with the Proposed Development would be covered by a crossing agreement with the relevant operator so that there would not be an impediment to asset maintenance operations.

19.7.75. Additionally, Notices to Mariners will be issued regularly during the O&M phase, advising of the location, nature and timing of activities associated with the Proposed Development, ensuring that maintenance activities at Hywind Scotland Pilot Park, Green Volt OWF and associated with the Tampnet CSNFTC cable can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development.

19.7.76. The impact is predicted to cause a very slight change from the baseline. The frequency of repetition is intermittent with high reversibility. The magnitude is therefore considered to be negligible.

SENSITIVITY OF RECEPTOR

19.7.77. The Tampnet CNSFTC fibre-optic telecommunications cable is of high commercial value to the national economy, and as the cable is operational, it is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

19.7.78. As stated in paragraph 19.7.7, the Hywind Scotland Pilot Park is of high value to the national economy, and as the OWF is operational, it is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

19.7.79. Green Volt OWF is of high value to the national economy, and as the OWF will be operational, it is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

SIGNIFICANCE OF EFFECT

19.7.80. The magnitude of the impact is deemed to be negligible and the sensitivity of the receptor is high. The effect will therefore be of negligible significance, which is not significant in EIA terms (Table 19-19).

Table 19-19 Significance of temporary obstruction to subsea cables and utilities developments and associated activities (O&M)

Receptor/Location	Magnitude	Sensitivity	Significance
Tampnet CNSFTC fibre-optic telecommunications cable	Negligible	High	Negligible
Offshore export cables for Hywind Scotland Pilot Park	Negligible	High	Negligible
Offshore export cables for Green Volt OWF	Negligible	High	Negligible

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.7.81. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

IMPACT 8: TEMPORARY OBSTRUCTION TO LICENSED MARINE DISPOSAL SITES AND ASSOCIATED ACTIVITIES

19.7.82. The O&M phase of the Proposed Development has the potential to interact with the vessel operations of the open Peterhead (CR070) and North Buchan Ness (CR080) disposal sites, with these site located within the inshore area. As such, this potential interaction is likely to be associated with the operation and maintenance activities in relation to the offshore export cables within the nearshore area.

MAGNITUDE OF IMPACT

19.7.83. Increased vessel traffic (transiting crew, monitoring surveys and maintenance vessels) has potential to disrupt vessels accessing marine disposal sites. Vessel traffic during operation and maintenance is unconfirmed at this stage as it will depend on the technologies used for the turbines, substructures and mooring systems.

19.7.84. During the O&M phase, there may be up to one offshore export cable repair every five years. In the event that these offshore export cable repairs are required, associated impacts would be similar in nature to the construction impacts but limited to specific locations and often shorter in duration. Major maintenance activities may be required and may necessitate the use of large vessels and the use of a temporary 500 m safety zone.

19.7.85. There will be a maximum of 12 vessels for O&M works within the boudnaries of the Proposed Development at any one time, with a total of up to 509 round trips to port per year, although the majority of these vessels will be transiting to, or working within the Array Area and will pose less of a disruption to any works at the Peterhead site located closer inshore.

19.7.86. As described in Table 19-10, Notices to Mariners will be issued regularly during the O&M phase, advising of the location, nature and timing of activities associated with the Proposed Development, ensuring that maintenance activities at the disposal site can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development.

19.7.87. The impact is predicted to cause a very slight change from the baseline. The frequency of repetition is intermittent with high reversibility. The magnitude is therefore considered to be negligible.

SENSITIVITY OF RECEPTOR

19.7.88. Peterhead (CR070) is licensed by Peterhead Port Authority so it has been assumed that this site is being used for the deposition of dredged spoil material, including dredged harbour material from Peterhead Port.

19.7.89. The disposal site is of high regional value due to the likely importance of navigational dredging to the maintenance and operation of Peterhead Port. The disposal site is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

19.7.90. North Buchan Ness (CR080) has been used for the deposition of dredged spoil material, including dredged harbour material from Peterhead and / or Boddam Harbour. The disposal site is of high regional value due to the importance of navigational dredging to the maintenance and operation of Peterhead and Boddam Harbour. The disposal site is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

SIGNIFICANCE OF EFFECT

19.7.91. The magnitude of the impact is deemed to be negligible and the sensitivity of the receptor is high. The effect will therefore be of negligible significance, which is not significant in EIA terms (Table 19-20).

Table 19-20 Significance of temporary obstruction to licensed marine disposal sites and associated activities (O&M)

Receptor/Location	Magnitude	Sensitivity	Significance
Peterhead (CR070) open disposal site	Negligible	High	Negligible
North Buchan Ness (CR080) open disposal site	Negligible	High	Negligible

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.7.92. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

IMPACT 9: TEMPORARY OBSTRUCTION TO OIL AND GAS DEVELOPMENTS AND ASSOCIATED ACTIVITIES

19.7.93. Operations and maintenance activities associated with the Proposed Development, as well as any temporary safety zones around major maintenance activities (for example, export cable repair/burial activities), and increased vessel traffic have the potential to lead to the temporary reduction of access to the Forties C to Cruden Bay (PL8) and Forties C to Cruden Bay (PL721) pipelines which will be crossed by the offshore export cable for the Proposed Development as well as the 20” Gas Fulmar A – St Fergus (PL208) and Miller To St. Fergus (PL720) pipelines which are located within 1 km of the Proposed Development.

MAGNITUDE OF IMPACT

19.7.94. During the operation and maintenance phase, major maintenance activities associated with the Proposed Development and associated presence of safety zones and advisory passing distances, may restrict access for repair or maintenance to the pipelines that will have been crossed by the offshore export cable for the Proposed Development and those in the immediate vicinity of the cables.

19.7.95. During the O&M phase, there may be up to one offshore export cable repair every five years. In the event that these offshore export cable repairs are required, associated impacts would be similar in nature to the construction impacts but limited to specific locations and often shorter in duration. Major maintenance activities may be required and may necessitate the use of large vessels and the use of a temporary 500 m safety zone.

19.7.96. Any restriction of access to the pipelines due to maintenance activities associated with the Proposed Development is considered to be temporary, limited in spatial extent, and infrequent over the lifetime of the Proposed Development.

19.7.97. As described in Table 19-10, pipelines to be crossed by the export cables associated with the Proposed Development would be covered by a crossing agreement with the relevant operator so that there would not be an impediment to asset maintenance operations.

19.7.98. Additionally, Notices to Mariners will be issued regularly during the O&M phase, advising of the location, nature and timing of activities associated with the Proposed Development, ensuring that maintenance activities at pipelines can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development.

19.7.99. The impact is predicted to cause a very slight change from the baseline. The frequency of repetition is intermittent with high reversibility. The magnitude is therefore considered to be negligible.

SENSTIVITY OF THE RECEPTOR

19.7.100. There are potential safety issues regarding disruption of oil and gas pipelines during O&M works and high costs associated with pipeline repair.

19.7.101. The pipelines are of high commercial value to the national economy, and as the pipelines are operational, they are somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high, particularly given the difficulty and costs associated with pipeline repair.

SIGNIFICANCE OF EFFECT

19.7.102. The magnitude of the impact is deemed to be negligible and the sensitivity of the receptor is high. The effect will therefore be of negligible significance, which is not significant in EIA terms (Table 19-21).

Table 19-21 Significance of temporary obstruction to oil and gas developments and associated activities (O&M)

Receptor/Location	Magnitude	Sensitivity	Significance
Forties C to Cruden Bay (PL8)	Negligible	High	Negligible
Forties C to Cruden Bay (PL721)	Negligible	High	Negligible
20” Gas Fulmar A – St Fergus (PL208)	Negligible	High	Negligible
Miller To St. Fergus (PL720)	Negligible	High	Negligible

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.7.103. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

IMPACT 10: DISPLACEMENT OF RECREATIONAL SAILING AND MOTOR CRUISING, RECREATIONAL FISHING AND OTHER RECREATIONAL ACTIVITIES DUE TO INFRASTRUCTURE, SAFETY ZONES, AND CONSTRUCTION VESSELS IN RELATION TO THE PROPOSED DEVELOPMENT MAY RESULT IN A LOSS OF RECREATIONAL RESOURCE

19.7.104. Operation and maintenance activities may lead to displacement of recreational sailing and motor cruising, recreational fishing and other recreational activities due to the presence of the infrastructure and their associated safety zones and maintenance vessels in relation to the Proposed Development and may result in a loss of recreational resource.

MAGNITUDE OF IMPACT

19.7.105. The presence of Proposed Development infrastructure and/or operation and maintenance activities within the Array Area and along the offshore ECC may displace recreational activities from the footprint of the Proposed Development and from any areas subject to temporary advisory safety zones or advisory clearance distances, resulting in a loss of recreational resource.

19.7.106. The worst case design scenario is represented by the installation of up to 67 floating WTGs built out to the maximum extent of the Array Area, with up to three export cables, each 90 km in length, up to two OEP(s), up to 3 km of interconnector cable, and up to 250 km of inter-array cables including use of dynamic cable sections, with associated safety zones, over an operational life of approximately 35 years. There will be a maximum of 12 vessels for O&M works within the boundaries of the Proposed Development at any one time, with a total of up to 509 round trips to port per year, although the majority of these vessels will be transiting to, or working within the Array Area and will pose less of a disruption to recreational activity which is focused in the inshore area.

19.7.107. As described in paragraph 19.5.25 *et seq.*, there are a number of recreational activities occurring in the vicinity of the Proposed Development, although with most activities occurring closer to shore and overlapping with the nearshore sections of the offshore ECC rather than within the Array Area. Recreational vessel density, including recreational sailing and motor cruising, is generally highest around the port of Peterhead and within 10 km of the coastline. Sea angling from the shore and angling trips occur at high densities year round at Peterhead, St Fergus and Cruden Bay (Marine Scotland, 2016). Other activities occurring in proximity to the Proposed Development include SCUBA diving, canoeing, kayaking, surfing, windsurfing and kite surfing, wildlife watching, and beach users.

19.7.108. The spatial extent of the impact on boating activities will be relatively small in the context of the available sailing and sea angling areas in the vicinity of the Proposed Development. There will be potential for localised displacement of recreational marine craft from area around the individual structures within the Array Area. Additionally, there will be advisory passing distances around installation vessels operating within the Array Area and along the offshore ECC.

19.7.109. During the O&M phase, there may be the need for repairs to cables or component replacement or repair. In the event that these works are required, associated impacts would be similar in nature to the construction impacts but limited to specific locations and often shorter in duration. Major maintenance activities may be required and may necessitate the use of large vessels and the use of a temporary 500 m safety zone.

19.7.110. Any displacement of recreational activities due to maintenance activities associated with the Proposed Development is considered to be temporary, limited in spatial extent, and infrequent over the lifetime of the Proposed Development.

19.7.111. As described in Table 19-10, Notices to Mariners will be issued regularly during the construction phase, advising of the location, nature and timing of recreational activities can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development.

19.7.112. The impact is predicted to cause a very slight change from the baseline. The frequency of repetition is intermittent with high reversibility. The magnitude is therefore considered to be negligible.

SENSTIVITY OF THE RECEPTOR

19.7.113. Recreational boating and sea angling vessels are able to alter their route or transit (dependent on their target destination) past installation activities and associated safety zones and advisory safe passing distances, given the adequate sea room around the offshore ECC and Array Area. There are other locations available for recreational sailing and motor cruising, recreational fishing and other recreational activities such that alternatives are available if required during installation works.

19.7.114. The receptor is deemed to be of medium value to the local economy and recreational activities are not generally vulnerable to impacts that may arise from the Proposed Development and recoverability is high. The sensitivity of the receptor is therefore considered to be medium.

SIGNIFICANCE OF EFFECT

19.7.115. The magnitude of the impact is deemed to be negligible and the sensitivity of the receptor is medium. The effect will therefore be of negligible significance, which is not significant in EIA terms (Table 19-22).

Table 19-22 Significance of loss of recreational resource (O&M)

Receptor/Location	Magnitude	Sensitivity	Significance
Recreational receptors	Negligible	Medium	Negligible

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.7.116. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

DECOMMISSIONING

19.7.117. Decommissioning is likely to include removal of all of the wind turbine components and part of the foundations (those above seabed level) and removal of all other surface infrastructure. Some or all of the inter-array cables and offshore export cables may be removed. Scour and cable protection would likely be left *in situ*. The removal of cables and rock protection is considered the worst-case design scenario, however the necessity to remove cables and rock protection will be reviewed at the time of decommissioning.

19.7.118. The decommissioning details will be kept under review depending on current legislation and guidance requirements, best practice and other options may be required.

19.7.119. It is important to note that some of the existing IOU assets could also be decommissioned ahead of the decommissioning of the Proposed Development, and therefore, there would be no impact.

IMPACT 11: TEMPORARY OBSTRUCTION TO OTHER OWFS

19.7.120. The presence of partially decommissioned infrastructure may result in the obstruction to the Hywind Scotland Pilot Park within the vicinity of the Proposed Development. Movements of vessels contracted to undertake decommissioning activities and the associated decommissioning works related to the Proposed Development have the potential to interfere with the routine operations and activities of the Hywind Scotland Pilot Park.

19.7.121. Hywind Scotland Pilot Park is set to undergo decommissioning in 2038. As a result, the project is likely to no longer be present at the time of decommissioning of the Proposed Development and therefore no impacts would be predicted to occur . It is possible that the project could be repowered at the end of its operational life and as such, the presence of the project is considered a worst case for assessment.

MAGNITUDE OF IMPACT

19.7.122. The effects of decommissioning activities associated with the Proposed Development are expected to be the same or similar to the effects from construction.

19.7.123. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to the Hywind Scotland Pilot Park for a short to medium term duration. The frequency of repetition is continuous although temporary during the decommissioning phase. The magnitude is therefore considered to be low.

SENSITIVITY OF RECEPTOR

19.7.124. The array area of the Hywind Scotland Pilot Park abuts the offshore ECC for the Proposed Development. The project is of high value to the national economy, and as the OWF may be operational (as a worst case), it is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

SIGNIFICANCE OF EFFECT

19.7.125. The magnitude of the impact is deemed to be low and the sensitivity of the receptor is high. The effect will therefore be of minor significance, which is not significant in EIA terms (Table 19-23).

Table 19-23 Significance of temporary obstruction to other OWFs (decommissioning)

Receptor/Location	Magnitude	Sensitivity	Significance
Hywind Scotland Pilot Park	Low	High	Minor

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.7.126. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

IMPACT 12: TEMPORARY OBSTRUCTION TO SUBSEA CABLES AND UTILITIES DEVELOPMENTS AND ASSOCIATED ACTIVITIES

19.7.127. Decommissioning activities associated with the Proposed Development and increased vessel traffic have the potential to lead to the temporary reduction of access to the Tampnet CNSFTC fibre-optic telecommunications cable and the offshore export cables for Hywind Scotland Pilot Park and Green Volt OWF if these cables are still operational at the time of the decommissioning of the Proposed Development.

MAGNITUDE OF IMPACT

19.7.128. The effects of decommissioning activities associated with the Proposed Development are expected to be the same or similar to the effects from construction.

19.7.129. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to the Hywind Scotland Pilot Park and Green Volt OWF cables and the Tampnet CNSFTC fibre-optic telecommunications cable, and for a short to medium term duration. The frequency of repetition is continuous although temporary during the decommissioning phase. The magnitude is therefore considered to be low.

SENSITIVITY OF RECEPTOR

19.7.130. The Tampnet CNSFTC fibre-optic telecommunications cable is of high commercial value to the national economy, and as the cable may be operational (as a worst case), it is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

19.7.131. The Hywind Scotland Pilot Park is of high value to the national economy, and as the OWF may be operational (as a worst case), it is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

19.7.132. Green Volt OWF is of high value to the national economy, and as the OWF may be operational (as a worst case), it is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

SIGNIFICANCE OF EFFECT

19.7.133. The magnitude of the impact is deemed to be low and the sensitivity of the receptor is high. The effect will therefore be of minor significance, which is not significant in EIA terms (Table 19-24).

Table 19-24 Significance of temporary obstruction to subsea cables and other utilities developments and associated activities (decommissioning)

Receptor/Location	Magnitude	Sensitivity	Significance
Tampnet CNSFTC fibre-optic telecommunications cable	Low	High	Minor
Offshore export cables for Hywind Scotland Pilot Park	Low	High	Minor
Offshore export cables for Green Volt OWF	Low	High	Minor

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.7.134. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

IMPACT 13: TEMPORARY OBSTRUCTION TO LICENSED MARINE DISPOSAL SITES AND ASSOCIATED ACTIVITIES

19.7.135. The decommissioning phase of the Proposed Development has the potential to interact with the vessel operations of the open Peterhead (CR070) and North Buchan Ness (CR080) disposal sites, with these sites located within the inshore area. As such, this potential interaction is likely to be associated with potential decommissioning activities in relation to the offshore export cables within the nearshore area.

MAGNITUDE OF IMPACT

19.7.136. The effects of decommissioning activities associated with the Proposed Development are expected to be the same or similar to the effects from construction.

19.7.137. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to the disposal site (if still operational which is considered the worst case), and for a short to medium term duration. The frequency of repetition is continuous although temporary during the decommissioning phase. The magnitude is therefore considered to be low.

SENSITIVITY OF RECEPTOR

19.7.138. Peterhead (CR070) is of high regional value due to the likely importance of navigational dredging to the maintenance and operation of Peterhead Port. The disposal site is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

19.7.139. North Buchan Ness (CR080) has been used for the deposition of dredged spoil material, including dredged harbour material from Peterhead and / or Boddam Harbour. The disposal site is of high regional value due to the importance of navigational dredging to the maintenance and operation of Peterhead and Boddam Harbour. The disposal site is somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high.

SIGNIFICANCE OF EFFECT

19.7.140. The magnitude of the impact is deemed to be low and the sensitivity of the receptor is high. The effect will therefore be of minor significance, which is not significant in EIA terms (Table 19-25).

Table 19-25 Significance of temporary obstruction to marine disposal sites and associated activities (decommissioning)

Receptor/Location	Magnitude	Sensitivity	Significance
Peterhead (CR070) open disposal site	Low	High	Minor
North Buchan Ness (CR080) open disposal site	Low	High	Minor

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.7.141. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

IMPACT 14: TEMPORARY OBSTRUCTION TO OIL AND GAS DEVELOPMENTS AND ASSOCIATED ACTIVITIES

19.7.142. Decommissioning activities associated with the Proposed Development and increased vessel traffic have the potential to lead to the temporary reduction of access to the pipelines (if still operational at the time of the decommissioning of the Proposed Development) which will be crossed by, or in the immediate vicinity of, the offshore export cable for the Proposed Development.

MAGNITUDE OF IMPACT

19.7.143. The effects of decommissioning activities associated with the Proposed Development are expected to be the same or similar to the effects from construction.

19.7.144. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to the pipelines, and for a short to medium term duration. The frequency of repetition is continuous although temporary during the decommissioning phase. The magnitude is therefore considered to be low.

SENSTIVITY OF THE RECEPTOR

19.7.145. The pipelines are of high commercial value to the national economy, and as the pipelines may be operational (as a worst case), they are somewhat vulnerable to impacts that may arise from the Proposed Development and recoverability is limited. The sensitivity of the receptor is therefore considered to be high, particularly given the difficulty and costs associated with pipeline repair.

SIGNIFICANCE OF EFFECT

19.7.146. The magnitude of the impact is deemed to be low and the sensitivity of the receptor is high. The effect will therefore be of minor significance, which is not significant in EIA terms (Table 19-26).

Table 19-26 Significance for temporary obstruction to oil and gas developments and associated activities (decommissioning)

Receptor/Location	Magnitude	Sensitivity	Significance
Forties C to Cruden Bay (PL8)	Low	High	Minor
Forties C to Cruden Bay (PL721)	Low	High	Minor
20” Gas Fulmar A – St Fergus (PL208)	Low	High	Minor
Miller To St. Fergus (PL720)	Low	High	Minor

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.7.147. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

IMPACT 15: DISPLACEMENT OF RECREATIONAL SAILING AND MOTOR CRUISING, RECREATIONAL FISHING AND OTHER RECREATIONAL ACTIVITIES DUE TO INFRASTRUCTURE, SAFETY ZONES, AND CONSTRUCTION VESSELS IN RELATION TO THE PROPOSED DEVELOPMENT MAY RESULT IN A LOSS OF RECREATIONAL RESOURCE

19.7.148. Decommissioning activities may lead to displacement of recreational sailing and motor cruising, recreational fishing and other recreational activities due to the presence of partially decommissioned infrastructure and vessels associated with the decommissioning works in relation to the Proposed Development and may result in a loss of recreational resource.

MAGNITUDE OF IMPACT

19.7.149. The effects of decommissioning activities associated with the Proposed Development are expected to be the same or similar to the effects from construction.

19.7.150. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction in the level of recreational activity that may be undertaken for a short to medium term duration. The frequency of repetition is continuous although temporary during the decommissioning phase. The magnitude is therefore considered to be low.

SENSITIVITY OF THE RECEPTOR

19.7.151. Recreational boating and sea angling vessels are able to alter their route or transit (dependent on their target destination) past decommissioning activities and associated safety zones and advisory passing distances, given the adequate sea room around the offshore ECC and Array Area. There are other locations available for recreational sailing and motor cruising, recreational fishing and other recreational activities such that alternatives are available if required during decommissioning works.

19.7.152. The receptor is deemed to be of medium value to the local economy and recreational activities are not generally vulnerable to impacts that may arise from the Proposed Development and recoverability is high. The sensitivity of the receptor is therefore considered to be medium.

SIGNIFICANCE OF EFFECT

19.7.153. The magnitude of the impact is deemed to be low and the sensitivity of the receptor is medium. The effect will therefore be of minor significance, which is not significant in EIA terms (Table 19-27).

Table 19-27 Significance for loss of recreational resource (decommissioning)

Receptor/Location	Magnitude	Sensitivity	Significance
Recreational receptors	Low	Medium	Minor

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.7.154. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

PROPOSED MONITORING

19.7.155. No IOU monitoring is proposed to test the predictions made within the assessment of Likely Significant Effects on IOU receptors as no LSE were predicted during construction, O&M and decommissioning phases of the Proposed Development.

19.8. WHOLE PROJECT ASSESSMENT

19.8.1. The Proposed Development's infrastructure and activities are the focus of this EIAR. However, where the potential exists for onshore elements of the Project (the onshore infrastructure landward of MLWS) to impact the offshore receptors, these have been identified and assessed below in the Whole Project Assessment (WPA).

19.8.2. A separate onshore EIAR is being prepared which will provide a description of the onshore elements of the Project landward of MLWS, and an assessment of the associated LSE.

19.8.3. The works for the onshore aspects of the Project could disturb the onshore activities associated with the IOU receptors described within this Chapter, such as marine recreation and tourism activities at the coast and cables and pipelines in the vicinity of the landfall. However, it is expected that any disturbance from the onshore aspects of Project will be mitigated in a similar manner to any disruption from the offshore aspects of the Project (e.g. through consultation with relevant parties ahead of any onshore works and seeking agreements on procedures to reduce the potential for any disruption). Therefore, considering the localised and temporary nature of any disruption associated with both the onshore and offshore aspects of the Project, there is no potential for the onshore aspects of the Project to exacerbate any of the effects assessed within this Chapter.

19.9. CUMULATIVE EFFECTS ASSESSMENT

19.9.1. This Cumulative Effects Assessment (CEA) for IOU has been undertaken in accordance with the methodology provided in Volume 1, Chapter 6 (Environmental Impact Assessment Methodology) and Volume 3, Appendix 6.2 (Offshore Cumulative Effects).

CEA METHODOLOGY

19.9.2. Effects of the Proposed Development alone are generally spatially restricted to being near the Array Area and offshore ECC. However, certain potential impacts have the potential to be observed over a wider area. Cumulative effects are the effects of the Proposed Development, combined with the effects from other projects, on the same receptor or group of receptors.

19.9.3. Volume 1, Chapter 6 (Environmental Impact Assessment Methodology) and Volume 3, Appendix 6.2 (Offshore Cumulative Effects).detail how potential cumulative effects will be assessed for the Proposed Development through a Cumulative Effects Assessment (CEA). A CEA screening process has identified the relevant other plans, projects, and activities which are to be included in the assessment. Those plans/projects relevant to the CEA for IOU are indicated in Table 19-28 and shown in Figure 19-7.

19.9.4. For each of these relevant plans/projects, the most up-to-date publicly available project parameters have been used to inform the CEA.

19.9.5. These other plans or projects may present different levels of potential cumulative effect when combined with the Proposed Development, informed by other plan/project's readiness and likelihood for actual operation. A tiered approach to the CEA is therefore applied here, allowing

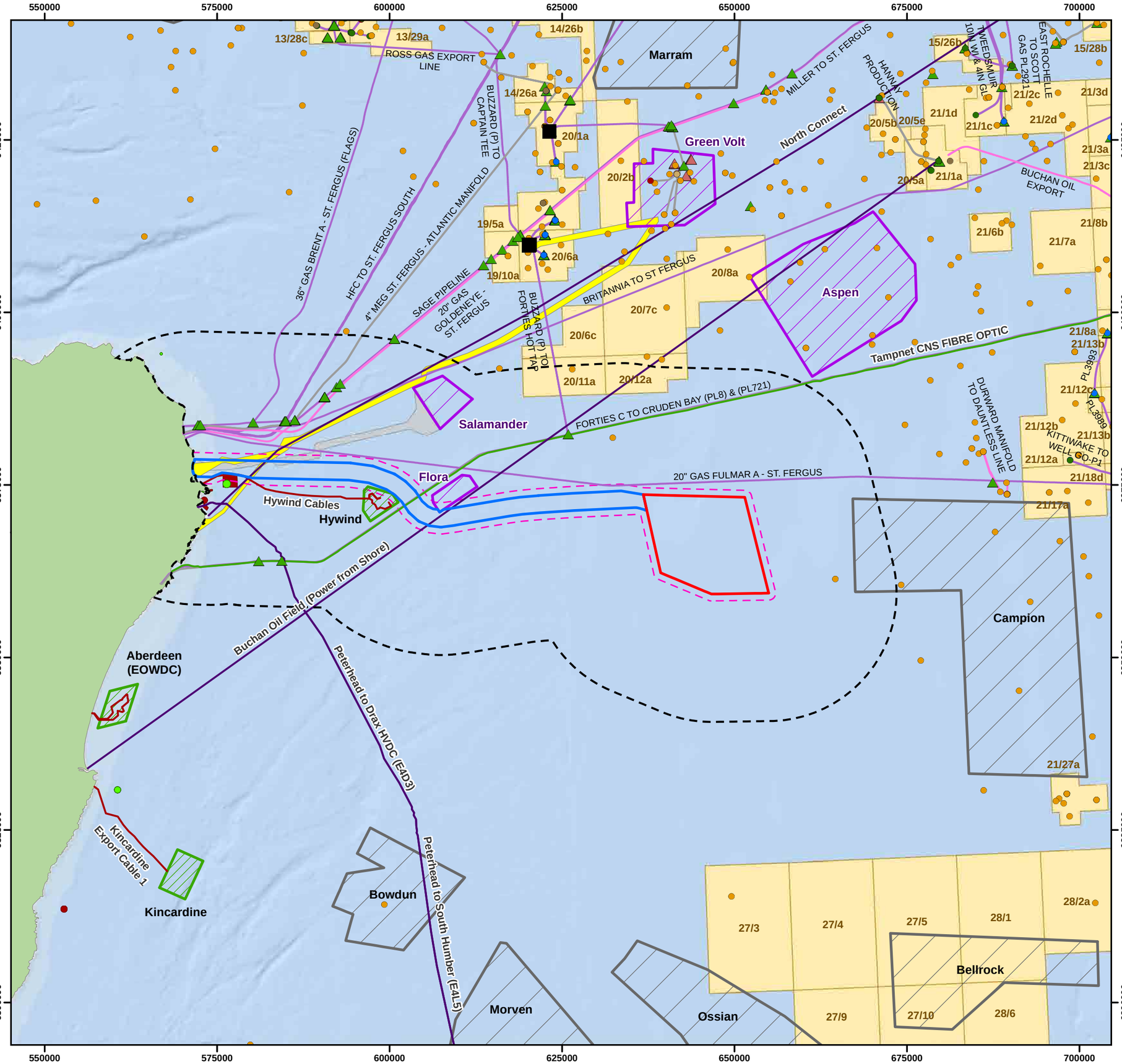
weighted assessment of cumulative effects. The cumulative effects are categorised as follows:

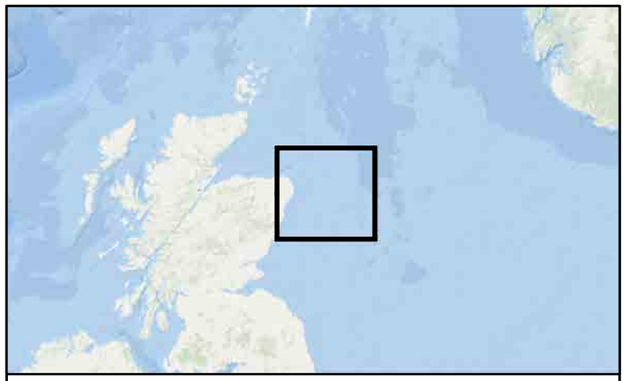
- **Tier 1** – The whole project (both onshore and offshore elements), combined with plans/projects which have become operational since the baseline characterisation of the Project, operational projects that have an ongoing impact, plus those that are consented and are yet to be constructed or under construction;
- **Tier 2** – All plans/projects assessed under Tier 1, plus those projects that have submitted a Scoping Report or those pending determination following a submitted application; and
- **Tier 3** – All plans/projects assessed under Tier 2, plus those projects that are not currently in the planning system but are likely to enter the planning system in the near future (e.g., Option for Lease (OLA) or Agreement for Lease (AfL) or projects at feasibility / early design stages) where information is available to inform the cumulative assessment and there is sufficient data confidence**.**

19.9.6. This CEA for IOU has considered the worst-case design scenario for each of the projects, plans and activities in line with the methodology outlined in Volume 1, Chapter 6 (Environmental Impact Assessment Methodology) and Volume 3, Appendix 6.2 (Offshore Cumulative Effects).

19.9.7. The Zone of Influence (ZoI) for the IOU has been defined by the 10 nm IOU study area (18.52 km).

19.9.8. In relation to oil and gas activities and infrastructure (e.g. subsea structures), the boundary of the Proposed Development plus a 1 km buffer has been used to screen these projects. This buffer is based upon the 500 m safety zones which will be applied for in relation to the construction, maintenance and decommissioning of the Proposed Development together with 500 m safety zones that are implemented around subsea pipelines and active oil and gas infrastructure. This 1 km buffer has also been used to screen subsea cables and active disposal sites on the same basis.





Legend:

- Array Area
- Offshore Export Cable Corridor
- Infrastructure and Other Users Study Area
- 1km Cable, Pipeline and Subsea Structure CEA Screening Range
- Operational Wind Farm
- Concept/Early Planning Wind Farm
- INTOG Application Areas
- Green Volt Consented Offshore ECC
- Salamander Application Offshore ECC
- Open Disposal Site
- Closed Disposal Site
- Active Oil and Gas Platform
- Oil and Gas Licensed Blocks

Subsea Cable (Type - Status)

- Power - Active
- Power - Proposed
- Telecom - Active

Oil and Gas Pipelines (Status)

- Pipeline, Active
- Pipeline, Not In Use
- Pipeline Abandoned

Well (Status)

- Abandoned Phase 1
- Abandoned Phase 2
- Abandoned Phase 3
- Completed (Operating)
- Completed (Shut In)
- Drilling
- Plugged

Subsea Structure (Status)

- Active
- Abandoned

Project: Muir Mhòr	Report: Environmental Impact Assessment Report

Other Plans / Projects Related to Infrastructure and Other Users CEA

Figure:	Drawing No:		
19.7	GoBe-0171		
Revision:	**Date:**	**Drawn:**	**Checked:**
01	13/11/24	BPHB	EV

Map scale 1:550,000 @ A3

0 2 4 6 8 10 12 km

Co-ordinate system: ETRS 1989 UTM Zone 30N **EPSG:** 25830

MUIR MHÒR OFFSHORE WIND FARM

A joint venture between Fred. Olsen Seawind & Vattenfall

Service Layer Credits: Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Table 19-28 Other Plans/Projects included in the IOU CEA

Plan/Project	Summary	Status	Distance from Array Area(km)	Distance from ECC (km)	Construction dates (if relevant)	Operational by (if relevant)	Summary of interaction with Proposed Development
Tier 1							
Hywind Scotland Pilot Park	Offshore Wind Farm	Operational	35.56	0.06	N/A	2024 onward	Within 20 km of the Proposed Development. Temporal overlap of operation of OWF with all phases of the Proposed Development. Screened in to assessment as will have an ongoing impact.
Peterhead (CR070)	Active disposal site	Active	59.58	0.57	N/A	2024 onward	Within 1km of the Proposed Development. Temporal overlap of operation of disposal site with all phases of the Proposed Development. Screened in to assessment as will have an ongoing impact.
North Buchan Ness (CR080)	Active disposal site	Active	59.85	0.98	N/A	2024 onward	Within 1km of the Proposed Development. Temporal overlap of operation of disposal site with all phases of the Proposed Development. Screened in to assessment as will have an ongoing impact.
Forties C to Cruden Bay (PL721)	Oil Pipeline	Active	10.82	0.00	N/A	2024 onward	Spatial overlap with the Proposed Development. Temporal overlap of operation of pipeline with all phases of the Proposed Development. Screened in to assessment as will have an ongoing impact.
20” Gas Fulmar A – St Fergus (PL208)	Gas Pipeline	Active	1.46	0.45	N/A	2024 onward	Within 1 km of the Proposed Development. Temporal overlap of operation of pipeline with all phases of the Proposed Development. Screened in to assessment as will have an ongoing impact.
Tampnet CNSFTC fibre-optic telecommunications cable	Telecommunications Cable	Active	10.75	0.00	N/A	2024 onward	Spatial overlap with the Proposed Development. Temporal overlap of operation of cable with all phases of the Proposed Development. Screened in to assessment.
NorthConnect	Power Cable	Consented – Not Constructed	31.08	0.00	Unknown	Unknown	Spatial overlap with the Proposed Development. It cannot be discounted that the project phases for the cable will overlap with the Proposed Development. Screened in to assessment.
Green Volt OWF Export Cables	Power Cable	Consented – Not Constructed	29.40	0.00	2025-2027	2028	Spatial overlap with the Proposed Development. Temporal overlap of operation of OWF cables with all phases of the Proposed Development. Screened in to assessment.
Hywind Scotland Pilot Park Export Cables	Power Cable	Active	36.61	0.00	N/A	2024 onward	Spatial overlap with the Proposed Development. Temporal overlap of operation of OWF cables with all phases of the Proposed Development. Screened in to assessment.
Eastern Green Link 2 (EGL2) - Peterhead to Drax HVDC	Power Cable	Consented – Not Constructed	47.69	0.00	2024	2029	Spatial overlap with the Proposed Development. Temporal overlap of operation of cable with all phases of the Proposed Development. Screened in to assessment.
Tier 2							
Salamander OWF	INTOG site	Awaiting Determination	28.37	9.10	2026-2030	2031	Within 20 km of the Proposed Development. Temporal overlap of construction and O&M of OWF with the construction of the Proposed Development as well as overlap of O&M phases. Screened in to assessment.
Salamander OWF Export Cables	Power Cables	Awaiting Determination	30.88	0.00	2026-2030	2031	Spatial overlap with the Proposed Development. Temporal overlap of construction and O&M of OWF with the construction of the Proposed Development as well as overlap of O&M phases. Screened in to assessment.
Tier 3							
CampionWind OWF	Offshore Wind Farm	In Planning	12.56	29.91	Unknown	Unknown	Within 20 km of the Proposed Development. It cannot be discounted that the operation and maintenance phase of the project will overlap with the Proposed Development. Screened in to assessment.
Flora OWF	INTOG Site	In Planning	24.12	0.00	Unknown	Unknown	Spatial overlap with the Proposed Development. It cannot be discounted that the operation and maintenance phase of the project will overlap with the Proposed Development. Screened in to assessment.
Buchan Oil Field (Power from Shore)	Power Cable	In Planning	14.56	0.00	Unknown	Unknown	Spatial overlap with the Proposed Development. It cannot be discounted that the project phases for the cable will overlap with the Proposed Development. Screened in to assessment.

WORST CASE DESIGN SCENARIO CEA

19.9.9. The IOU CEA has been undertaken with respect to the details provided in Volume 3, Appendix 6.2 (Offshore Cumulative Effects). A 'worst case' design scenario has been selected for each cumulative impact which would lead to the greatest impact for all receptors or receptor groups, when selected from a range of values. Effects of greater adverse significance of effect are not predicted to arise should any other development scenario, based on details within Volume 1, Chapter 3 (Project Description) (e.g., different infrastructure layout), to that assessed here, be taken forward in the final design scheme).

19.9.10. Although several cables and pipelines that will be crossed by the Proposed Development have been screened into the CEA, due to their proximity to the Proposed Development, it is expected that commercial crossing agreements will be agreed upon between developers and asset owners. As such it is considered unlikely that any significant cumulative impacts would occur, so the issue is not considered further in the CEA. Due to such crossing agreements and lack of interaction with Proposed Development, the following cables and pipelines have been excluded from the CEA:

- Forties C to Cruden Bay (PL721) pipeline;
- 20" Gas Fulmar A – St Fergus (PL208) pipeline;
- Tampnet CNSFTC fibre-optic telecommunications cable;
- NorthConnect interconnector cable;
- Hywind Scotland Pilot Park Export Cables;
- Green Volt OWF Export Cables;
- Salamander OWF Export Cables;
- Eastern Green Link 2 (EGL2) - Peterhead to Drax HVDC cable; and
- Buchan Oil Field cable (Power from Shore).

19.9.11. Table 19-29 presents the worst-case design scenario for each cumulative impact associated with the IOU CEA**,** along with justification.

Table 19-29 Worst Case Design Scenarios with respect to the IOU CEA

Cumulative Impact	Tier	Worst Case Design Scenario
Construction & Decommissioning		
Temporary obstruction to other OWFs Receptor: Hywind Scotland Pilot Park	Worst Case Design Scenario for the Proposed Development plus projects within 20 km: **Tier 1:** • Peterhead (CR070) disposal site • North Buchan Ness (CR080) disposal site **Tier 2:** • Salamander OWF **Tier 3:** • CampionWind OWF • Flora OWF	If construction or O&M activities associated with other plans/projects overlap temporarily with either the construction or the decommissioning of the Proposed Development, there is potential for the cumulative temporary obstruction to other OWFs within the IOU CEA study area.

Cumulative Impact	Tier	Worst Case Design Scenario
Temporary obstruction to subsea cables and utilities developments and associated activities Receptors: Tampnet CNSFTC cable, Hywind Scotland Pilot Park and Green Volt OWF export cables	Worst Case Design Scenario for the Proposed Development plus projects within 1 km: **Tier 1:** • Hywind Scotland Pilot Park • Peterhead (CR070) disposal site • North Buchan Ness (CR080) disposal site **Tier 2:** • No Tier 2 projects **Tier 3:** • Flora OWF	If construction or O&M activities associated with other plans/projects overlap temporarily with either the construction or the decommissioning of the Proposed Development, there is potential for the cumulative obstruction to subsea cables and utilities developments and associated activities within the IOU study area.
Temporary obstruction to licensed marine disposal sites and associated activities. Receptor: Peterhead (CR070) disposal site and North Buchan Ness (CR080) disposal site	Worst Case Design Scenario for the Proposed Development plus projects within 20 km: **Tier 1:** • Hywind Scotland Pilot Park **Tier 2:** • Salamander OWF **Tier 3:** • CampionWind OWF • Flora OWF	If construction or O&M activities associated with other plans/projects overlap temporarily with either the construction or decommissioning of the Proposed Development, there is potential for the cumulative obstruction to licensed marine disposal sites and associated activities within the IOU study area.
Temporary obstruction to oil and gas developments and associated activities Receptors (pipelines): Forties C to Cruden Bay (PL8), Forties C to Cruden Bay (PL721), 20” Gas Fulmar A – St Fergus (PL208), and Miller To St. Fergus (PL720)	Worst Case Design Scenario for the Proposed Development plus projects within 1 km: **Tier 1:** • Hywind Scotland Pilot Park • Peterhead (CR070) disposal site • North Buchan Ness (CR080) disposal site **Tier 2**: • No Tier 2 projects **Tier 3:** • Flora OWF	If construction or O&M activities associated with other plans/projects overlap temporarily with either the construction or decommissioning of the Proposed Development, there is potential for the cumulative obstruction to oil and gas developments and associated activities within the IOU study area.
Displacement of recreational sailing and motor cruising, recreational fishing and other recreational activities due to infrastructure, safety zones, and construction vessels in relation to the Proposed Development may result in a loss of recreational resource	Worst Case Design Scenario for the Proposed Development plus projects within 20 km: **Tier 1:** • Hywind Scotland Pilot Park • Peterhead (CR070) disposal site • North Buchan Ness (CR080) disposal site **Tier 2:** • Salamander OWF	Outcome of the CEA will be greatest when the activities of other projects/plans occur within the same recreational area creating the greatest area that will be restricted at any one time for any single receptor.

Cumulative Impact	Tier	Worst Case Design Scenario
	Tier 3: • CampionWind OWF • Flora OWF	
Operation and Maintenance		
Temporary obstruction to other OWFs Receptor: Hywind Scotland Pilot Park	Worst Case Design Scenario for the Proposed Development plus projects within 20 km: **Tier 1:** • Peterhead (CR070) disposal site • •North Buchan Ness (CR080) disposal site **Tier 2:** • Salamander OWF **Tier 3:** • CampionWind OWF • Flora OWF	If construction or O&M activities associated with other plans/projects overlap temporarily with the O&M of the Proposed Development, there is potential for the cumulative temporary obstruction to other OWFs within the IOU study area.
Temporary obstruction to subsea cables and utilities developments and associated activities Receptors: Tampnet CNSFTC cable, Hywind Scotland Pilot Park and Green Volt OWF export cables	Worst Case Design Scenario for the Proposed Development plus projects within 1 km: **Tier 1:** • Hywind Scotland Pilot Park • Peterhead (CR070) disposal site • •North Buchan Ness (CR080) disposal site **Tier 2:** • No Tier 2 projects **Tier 3:** • Flora OWF	If construction or O&M activities associated with other plans/projects overlap temporarily with the O&M of the Proposed Development, there is potential for the cumulative temporary obstruction to subsea cables and utilities developments and associated activities within the IOU study area.
Temporary obstruction to licensed marine disposal sites and associated activities. Receptor: Peterhead (CR070) disposal site and North Buchan Ness (CR080) disposal site)	Worst Case Design Scenario for the Proposed Development plus projects within 20 km: **Tier 1:** • Hywind Scotland Pilot Park **Tier 2:** • Salamander OWF **Tier 3:** • CampionWind OWF • Flora OWF	If construction or O&M activities associated with other plans/projects overlap temporarily with the O&M of the Proposed Development, there is potential for the cumulative temporary obstruction to licensed marine disposal sites and associated activities within the IOU study area.
Temporary obstruction to oil and gas developments and associated activities Receptors (pipelines): Forties C to Cruden Bay (PL8), Forties C to	Worst Case Design Scenario for the Proposed Development plus projects within 1 km: **Tier 1:** • Hywind Scotland Pilot Park • Peterhead (CR070) disposal site • North Buchan Ness (CR080)	If construction or O&M activities associated with other plans/projects overlap temporarily with the O&M of the Proposed Development, there is potential for the cumulative obstruction to oil and gas developments and associated activities within the

Cumulative Impact	Tier	Worst Case Design Scenario
Cruden Bay (PL721), 20" Gas Fulmar A – St Fergus (PL208), and Miller To St. Fergus (PL720)	disposal site **Tier 2**: • No Tier 2 projects **Tier 3:** • Flora OWF	IOU study area.
Displacement of recreational sailing and motor cruising, recreational fishing and other recreational activities due to infrastructure, safety zones, and construction vessels in relation to the Proposed Development may result in a loss of recreational resource	Worst Case Design Scenario for the Proposed Development plus projects within 20 km: **Tier 1:** • Hywind Scotland Pilot Park • Peterhead (CR070) disposal site • North Buchan Ness (CR080) disposal site **Tier 2:** • Salamander OWF **Tier 3:** • CampionWind OWF • Flora OWF	Outcome of the CEA will be greatest when the activities of other projects/plans occur within the same recreational area creating the greatest area that will be restricted at any one time for any single receptor.

CONSTRUCTION CEA

TEMPORARY OBSTRUCTION TO OTHER OWFS

19.9.12. This impact is described in detail in paragraph 19.7.2 *et seq.*, where the significance of the effect of temporary obstruction to the Hywind Scotland Pilot Park has been identified as minor. Due to uncertainty associated with the exact timing of some of the other projects and activities, there is insufficient data on which to undertake a quantitative or semi-quantitative assessment. As such, the discussion presented here is qualitative.

TIER 1

MAGNITUDE OF CUMULATIVE IMPACT

19.9.13. During the construction of the Proposed Development, there are no other Tier 1 projects under construction over the same period. The open disposal sites of Peterhead (CR070) and North Buchan Ness (CR080) are the only operational Tier 1 projects for this impact. The disposal sites are part of the baseline but have an ongoing impact. There are no details available in relation to the frequency of operations at these sites but given the likely low level of ongoing impact associated with operation of these sites, it is considered the magnitude of the impact, cumulatively with the Proposed Development (for which the impact of the Proposed Development alone was deemed to be of low magnitude), will be low.

SENSITIVITY OF RECEPTOR

19.9.14. As described in paragraph 19.7.7, the sensitivity of the Hywind Scotland Pilot Park is considered to be high.

SIGNIFICANCE OF CUMULATIVE EFFECT

19.9.15. The magnitude of the cumulative impact is deemed to be low and the sensitivity of the receptor is high. The cumulative effect will therefore be of minor significance, which is not significant in EIA terms (Table 19-30).

Table 19-30 Construction CEA - Tier 1 – Significance of temporary obstruction to other OWFs

Receptor	Magnitude	Sensitivity	Significance
Hywind Scotland Pilot Park	Low	High	Minor

TIER 2

MAGNITUDE OF CUMULATIVE IMPACT

19.9.16. The Salamander OWF is awaiting consent decision, and the construction phase for this project is likely to overlap with the construction phase for the Proposed Development. This project is 9.1 km from the offshore ECC of the Proposed Development.

19.9.17. The increased vessel numbers, alongside presence of partially constructed infrastructure and safety zones during the construction of both projects may result in the temporary obstruction to the Hywind Scotland Pilot Park. That said, the distance between these projects, and their location further offshore than Hywind Scotland Pilot Park, would indicate that the obstruction to Hywind Scotland Pilot Park would be minimal, cumulatively with the Tier 1 projects (Peterhead (CR070) and North Buchan Ness (CR080) disposal sites).

19.9.18. As described in Table 19-10, Notices to Mariners will be issued regularly during the construction phase, advising of the location, nature and timing of activities associated with the Proposed Development, ensuring that activities at Hywind Scotland Pilot Park can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development. It is assumed that similar commitments will be made in relation to Salamander OWF.

19.9.19. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to the Hywind Scotland Pilot Park for a short to medium term duration. The frequency of repetition is continuous although temporary during the construction phase. The magnitude is therefore considered to be low.

SENSITIVITY OF RECEPTOR

19.9.20. As described in paragraph 19.7.7, the sensitivity of the Hywind Scotland Pilot Park is considered to be high.

SIGNIFICANCE OF CUMULATIVE EFFECT

19.9.21. The magnitude of the cumulative impact is deemed to be low and the sensitivity of the receptor is high. The cumulative effect will therefore be of minor significance, which is not significant in EIA terms (Table 19-31).

Table 19-31 Construction CEA - Tier 2 – Significance of temporary obstruction to other OWFs

Receptor/Location	Magnitude	Sensitivity	Significance
Hywind Scotland Pilot Park	Low	High	Minor

TIER 3

MAGNITUDE OF CUMULATIVE IMPACT

19.9.22. There is uncertainty associated with the potential timescales for the construction of both the CampionWind OWF and the Flora INTOG site as neither project have submitted scoping reports or have programme or project information in the public domain. The construction of the projects could have the potential to create a cumulative temporary obstruction to the Hywind Scotland Pilot Park alongside the Tier 1 and 2 projects (open disposal sites and Salamander OWF). However, it is likely that the embedded commitments set out in Table 19-10 such as Notices to Mariners and Kingfisher notifications will be made in relation to these two projects, allowing activities at Hywind Scotland Pilot Park to be planned accordingly.

19.9.23. As such, the impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to the Hywind Scotland Pilot Park for a short to medium term duration. The frequency of repetition is continuous although temporary during the construction phase. The magnitude is therefore considered to be low.

SENSITVITY OF RECEPTOR

19.9.24. As described in paragraph 19.7.7, the sensitivity of the Hywind Scotland Pilot Park is considered to be high.

SIGNIFICANCE OF CUMULATIVE EFFECT

19.9.25. The magnitude of the cumulative impact is deemed to be low and the sensitivity of the receptor is low. The cumulative effect will therefore be of negligible significance, which is not significant in EIA terms (Table 19-32).

Table 19-32 Construction CEA - Tier 3 – Significance of temporary obstruction to other OWFs

Receptor/Location	Magnitude	Sensitivity	Significance
Hywind Scotland Pilot Park	Low	High	Minor

SECONDARY MITIGATION AND RESIDUAL CUMULATIVE EFFECTS

19.9.26. No additional IOU mitigation is considered necessary because the likely cumulative effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

TEMPORARY OBSTRUCTION TO SUBSEA CABLES AND UTILITIES DEVELOPMENTS AND ASSOCIATED ACTIVITIES

19.9.27. This impact is described in detail in paragraph 19.7.10 *et seq.*, where the significance of the effect of temporary obstruction to the Tampnet CNSFTC fibre-optic telecommunications cable and the offshore export cables for Hywind Scotland Pilot Park and Green Volt OWF. has been identified as minor. Due to uncertainty associated with the exact timing of some of the other projects and activities, there is insufficient data on which to undertake a quantitative or semi-quantitative assessment. As such, the discussion presented here is qualitative.

TIER 1

MAGNITUDE OF CUMULATIVE IMPACT

19.9.28. During the construction of the Proposed Development, there are no other Tier 1 projects under construction over the same period. Both the open disposal sites and the Hywind Scotland Pilot Park are operational projects forming part of the baseline but having an ongoing impact.

19.9.29. In relation to O&M activities at Hywind Scotland Pilot Park, there is the potential for cumulative impacts from repair and replacement works in the operational phase of the development. The Hywind Scotland Pilot Park EIAR (Statoil, 2015) stated that WTGs would be serviced annually using crew transfer vessels, with inspections of inter-array and export cables, mooring and substructure occurring at intervals of one to four years using vessels with ROVs. In addition to these planned maintenance inspections, unplanned maintenance would also be required (10 visits per year for WTGs). It is important to note that in 2024, the WTGs from Hywind Scotland Pilot Park were towed to Norway to undergo maintenance which could potentially be repeated during its O&M phase. Overall, these O&M works are predicted to be short-term, intermittent, small scale and localised to the site.

19.9.30. There are no details available in relation to the frequency of operations at the Peterhead (CR070) and North Buchan Ness (CR080) disposal sites but given the likely low level of ongoing impact associated with operation of these sites, it is considered the magnitude of the Tier 1 impact, cumulatively with the open disposal sites, Hywind Scotland Pilot Park and the Proposed Development (for which the impact of the Proposed Development alone was deemed to be of low magnitude), will be low.

SENSITIVITY OF RECEPTOR

19.9.31. As described in paragraph 19.7.18 *et seq.*, the sensitivity of the Tampnet CNSFTC fibre-optic telecommunications cable and the offshore export cables for Hywind Scotland Pilot Park and Green Volt OWF are considered to be high.

SIGNIFICANCE OF CUMULATIVE EFFECT

19.9.32. The magnitude of the cumulative impact is deemed to be low and the sensitivity of the receptor is high. The cumulative effect will therefore be of minor significance, which is not significant in EIA terms (Table 19-33).

Table 19-33 Construction CEA - Tier 1 – Significance of temporary obstruction to subsea cables and utilities developments and associated activities

Receptor/Location	Magnitude	Sensitivity	Significance
Tampnet CNSFTC fibre-optic telecommunications cable	Low	High	Minor
Offshore export cables for Hywind Scotland Pilot Park	Low	High	Minor
Offshore export cables for Green Volt OWF	Low	High	Minor

TIER 2

19.9.33. There are no Tier 2 projects relevant to this impact.

TIER 3

MAGNITUDE OF CUMULATIVE IMPACT

19.9.34. There is uncertainty associated with the potential timescales for the construction of the Flora INTOG site as the project has not submitted a scoping report or has programme or project information in the public domain. The construction of the project could have the potential to create a cumulative temporary obstruction to the Tampnet CNSFTC fibre-optic telecommunications cable and the offshore export cables for Hywind Scotland Pilot Park and Green Volt OWF alongside the Tier 1 projects. However, it is likely that the embedded commitments set out in Table 19-10such as Notices to Mariners and Kingfisher notifications will be made in relation to the Flora INTOG site, allowing activities in relation to the subsea cables to be planned accordingly.

19.9.35. As such, the impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to the subsea cables for a short to medium term duration. The frequency of repetition is continuous although temporary during the construction phase. The magnitude is therefore considered to be low.

SENSITIVITY OF RECEPTOR

19.9.36. As described in paragraph 19.7.18 *et seq.*, the sensitivity of the Tampnet CNSFTC fibre-optic telecommunications cable and the offshore export cables for Hywind Scotland Pilot Park and Green Volt OWF are considered to be high.

SIGNIFICANCE OF EFFECT

19.9.37. The magnitude of the impact is deemed to be low and the sensitivity of the receptor is high. The effect will therefore be of minor significance, which is not significant in EIA terms(Table 19-34).

Table 19-34 Construction CEA - Tier 3 – Significance of temporary obstruction to subsea cables and utilities developments and associated activities

Receptor/Location	Magnitude	Sensitivity	Significance
Tampnet CNSFTC fibre-optic telecommunications cable	Low	High	Minor
Offshore export cables for Hywind Scotland Pilot Park	Low	High	Minor
Offshore export cables for Green Volt OWF	Low	High	Minor

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.9.38. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

TEMPORARY OBSTRUCTION TO LICENCED MARINE DISPOSAL AND ASSOCIATED ACTIVITIES

19.9.39. This impact is described in detail in paragraph 19.7.23 *et seq.*, where the significance of the effect of temporary obstruction to the Peterhead (CR070) and North Buchan Ness (CR080) open disposal sites has been identified as minor. Due to uncertainty associated with the exact timing of some of the other projects and activities, there is insufficient data on which to undertake a quantitative or semi-quantitative assessment. As such, the discussion presented here is qualitative.

TIER 1

MAGNITUDE OF CUMULATIVE IMPACT

19.9.40. During the construction of the Proposed Development, there are no other Tier 1 projects under construction over the same period. The Hywind Scotland Pilot Park is an operational project forming part of the baseline but having an ongoing impact.

19.9.41. In relation to O&M activities at Hywind Scotland Pilot Park, there is the potential for cumulative impacts from repair and replacement works in the operational phase of the development. The Hywind Scotland Pilot Park EIAR (Statoil, 2015) stated that WTGs would be serviced annually using crew transfer vessels, with inspections of inter-array and export cables, mooring and substructure occurring at intervals of one to four years using vessels with ROVs. In addition to these planned maintenance inspections, unplanned maintenance would also be required (10 visits per year for WTGs). It is important to note that in 2024, the WTGs from Hywind Scotland Pilot Park were towed to Norway to undergo maintenance which could potentially be repeated during its O&M phase however noting that this would not interact with the Peterhead (CR070) site as that is located closer to shore. Overall, these O&M works are predicted to be short-term, intermittent, small scale and localised to the site.

19.9.42. Given the likely low level of ongoing impact associated with the O&M of Hywind Scotland Pilot Park, it is considered the magnitude of the Tier 1 impact, cumulatively with Hywind Scotland Pilot Park and the Proposed Development (for which the impact of the Proposed Development alone was deemed to be of low magnitude), will be low.

SENSITIVITY OF RECEPTOR

19.9.43. As described in paragraph 19.7.30 *et seq.*, the sensitivity of the Peterhead (CR070) and North Buchan Ness (CR080) disposal sites are considered to be high.

SIGNIFICANCE OF EFFECT

19.9.44. The magnitude of the impact is deemed to be low and the sensitivity of the receptor is high. The effect will therefore be of minor significance, which is not significant in EIA terms. This is shown in Table 19-35.

Table 19-35 Construction CEA - Tier 1 – Significance of temporary obstruction to licensed marine disposal sites and associated activities

Receptor/Location	Magnitude	Sensitivity	Significance
Peterhead (CR070) open disposal site	Low	High	Minor
North Buchan Ness (CR080) open disposal site	Low	High	Minor

TIER 2

MAGNITUDE OF CUMULATIVE IMPACT

19.9.45. The Salamander OWF is awaiting consent decision, and the construction phase for this project is likely to overlap with the construction phase for the Proposed Development. This project is 9.1 km from the offshore ECC of the Proposed Development.

19.9.46. The increased vessel numbers, alongside presence of partially constructed infrastructure and safety zones during the construction of Salamander OWF may result in the temporary obstruction to the open disposal sites. That said, the distance between Salamander OWF, and its location further offshore than the open disposal sites, would indicate that the obstruction to the Peterhead (CR070) and North Buchan Ness (CR080) disposal sites would be minimal, cumulatively with the Tier 1 projects (Hywind Scotland Pilot Park).

19.9.47. As described in Table 19-10, Notices to Mariners will be issued regularly during the construction phase, advising of the location, nature and timing of activities associated with the Proposed Development, ensuring that activities at the disposal site can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development. It is assumed that similar commitments will be made in relation to Salamander OWF.

19.9.48. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to the Peterhead disposal site for a short to medium term duration. The frequency of repetition is continuous although temporary during the construction phase. The magnitude is therefore considered to be low.

SENSITIVITY OF RECEPTOR

19.9.49. As described in paragraph 19.7.30 *et seq.*, the sensitivity of the Peterhead (CR070) and North Buchan Ness (CR080) disposal sites is considered to be high.

SIGNIFICANCE OF EFFECT

19.9.50. The magnitude of the impact is deemed to be low and the sensitivity of the receptor is high. The effect will therefore be of minor significance, which is not significant in EIA terms (Table 19-36).

Table 19-36 Construction CEA - Tier 2 – Significance of temporary obstruction to licensed marine disposal sites and associated activities

Receptor/Location	Magnitude	Sensitivity	Significance
Peterhead (CR070) open disposal site	Low	High	Minor
North Buchan Ness (CR080) open disposal site	Low	High	Minor

TIER 3

MAGNITUDE OF CUMULATIVE IMPACT

19.9.51. There is uncertainty associated with the potential timescales for the construction of both the CampionWind OWF and the Flora INTOG site as neither project have submitted scoping reports or have programme or project information in the public domain. The construction of the projects could have the potential to create a cumulative temporary obstruction to the open disposal sites alongside the Tier 1 and Tier 2 projects. However, it is likely that the embedded commitments set out in Table 19-10 such as Notices to Mariners and Kingfisher notifications will be made in relation to these two projects, allowing activities at the disposal site to be planned accordingly.

19.9.52. As such, the impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to the Peterhead (CR070) and North Buchan Ness (CR080) disposal site for a short to medium term duration. The frequency of repetition is continuous although temporary during the construction phase. The magnitude is therefore considered to be low.

SENSITIVITY OF RECEPTOR

19.9.53. As described in paragraph 19.7.30 *et seq.*, the sensitivity of the Peterhead (CR070) and North Buchan Ness (CR080) disposal sites are considered to be high.

SIGNIFICANCE OF EFFECT

19.9.54. The magnitude of the impact is deemed to be low and the sensitivity of the receptor is high. The effect will therefore be of minor significance, which is not significant in EIA terms (Table 19-37).

Table 19-37 Construction CEA - Tier 3 – Significance of temporary obstruction to licensed marine disposal sites and associated activities

Receptor/Location	Magnitude	Sensitivity	Significance
Peterhead (CR070) open disposal site	Low	High	Minor
North Buchan Ness (CR080) open disposal site	Low	High	Minor

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.9.55. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

TEMPORARY OBSTRUCTION TO OIL AND GAS DEVELOPMENTS AND ASSOCIATED ACTIVITIES

19.9.56. This impact is described in detail in paragraph 19.7.36 *et seq.*, where the significance of the effect of temporary obstruction to the oil and gas pipelines has been identified as minor. Due to uncertainty associated with the exact timing of some of the other projects and activities, there is insufficient data on which to undertake a quantitative or semi-quantitative assessment. As such, the discussion presented here is qualitative.

TIER 1

MAGNITUDE OF CUMULATIVE IMPACT

19.9.57. During the construction of the Proposed Development, there are no other Tier 1 projects under construction over the same period. Both the open disposal sites and the Hywind Scotland Pilot Park are operational projects forming part of the baseline but having an ongoing impact.

19.9.58. In relation to O&M activities at Hywind Scotland Pilot Park, there is the potential for cumulative impacts from repair and replacement works in the operational phase of the development. The Hywind Scotland Pilot Park EIAR (Statoil, 2015) stated that WTGs would be serviced annually using crew transfer vessels, with inspections of inter-array and export cables, mooring and substructure occurring at intervals of one to four years using vessels with ROVs. In addition to these planned maintenance inspections, unplanned maintenance would also be required (10 visits per year for WTGs). It is important to note that in 2024, the WTGs from Hywind Scotland Pilot Park were towed to Norway to undergo maintenance which could potentially be repeated during its O&M phase. Overall, these O&M works are predicted to be short-term, intermittent, small scale and localised to the site.

19.9.59. There are no details available in relation to the frequency of operations at the Peterhead (CR070) and North Buchan Ness (CR080) disposal sites but given the likely low level of ongoing impact associated with operation of these sites, it is considered the magnitude of the Tier 1 impact, cumulatively with Hywind Scotland Pilot Park and the Proposed Development (for which the impact of the Proposed Development alone was deemed to be of low magnitude), will be low.

SENSITIVITY OF RECEPTOR

19.9.60. As described in paragraph 19.7.46 *et seq.*, the sensitivity of the four pipelines (Forties C to Cruden Bay (PL8), Forties C to Cruden Bay (PL721), 20" Gas Fulmar A – St Fergus (PL208), and Miller To St. Fergus (PL720)) is considered to be high.

SIGNIFICANCE OF THE EFFECT

19.9.61. The magnitude of the impact is deemed to be low and the sensitivity of the receptor is high. The effect will therefore be of minor significance, which is not significant in EIA terms (Table 19-38).

Table 19-38 Construction CEA - Tier 1 – Significance of temporary obstruction to oil and gas developments and associated activities

Receptor/Location	Magnitude	Sensitivity	Significance
Forties C to Cruden Bay (PL8)	Low	High	Minor
Forties C to Cruden Bay (PL721)	Low	High	Minor
20" Gas Fulmar A – St Fergus (PL208)	Low	High	Minor
Miller To St. Fergus (PL720)	Low	High	Minor

TIER 2

19.9.62. There are no Tier 2 projects relevant to this impact.

TIER 3

MAGNITUDE OF CUMULATIVE IMPACT

19.9.63. There is uncertainty associated with the potential timescales for the construction of the Flora INTOG site as the project has not submitted a scoping report or has programme or project information in the public domain. The construction of the project could have the potential to create a cumulative temporary obstruction to the four pipelines, alongside the Tier 1 projects. However, it is likely that the embedded commitments set out in Table 19-10such as Notices to Mariners and Kingfisher notifications will be made in relation to the Flora INTOG site, allowing activities in relation to the pipelines to be planned accordingly.

19.9.64. As such, the impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to the pipelines for a short to medium term duration. The frequency of repetition is continuous although temporary during the construction phase. The magnitude is therefore considered to be low.

SENSITIVITY OF RECEPTOR

19.9.65. As described in paragraph 19.7.46 *et seq.*, the sensitivity of the four pipelines (Forties C to Cruden Bay (PL8), Forties C to Cruden Bay (PL721), 20" Gas Fulmar A – St Fergus (PL208), and Miller To St. Fergus (PL720)) is considered to be high.

SIGNIFICANCE OF EFFECT

19.9.66. The magnitude of the impact is deemed to be low and the sensitivity of the receptor is high. The effect will therefore be of minor significance, which is not significant in EIA terms (Table 19-39).

Table 19-39 Construction CEA - Tier 3 – Significance of temporary obstruction to oil and gas developments and associated activities

Receptor/Location	Magnitude	Sensitivity	Significance
Forties C to Cruden Bay (PL8)	Low	High	Minor
Forties C to Cruden Bay (PL721)	Low	High	Minor
20" Gas Fulmar A – St Fergus (PL208)	Low	High	Minor
Miller To St. Fergus (PL720)	Low	High	Minor

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.9.67. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

DISPLACEMENT OF RECREATIONAL SAILING AND MOTOR CRUISING, RECREATIONAL FISHING AND OTHER RECREATIONAL ACTIVITIES DUE TO INFRASTRUCTURE, SAFETY ZONES, AND CONSTRUCTION VESSELS IN RELATION TO THE PROPOSED DEVELOPMENT MAY RESULT IN A LOSS OF RECREATIONAL RESOURCE

19.9.68. This impact is described in detail in paragraph 19.7.50 *et seq.*, where the significance of the effect of displacement of recreational resource has been identified as minor. Due to uncertainty associated with the exact timing of some of the other projects and activities, there is insufficient data on which to undertake a quantitative or semi-quantitative assessment. As such, the discussion presented here is qualitative.

TIER 1

MAGNITUDE OF CUMULATIVE IMPACT

19.9.69. The installation of Proposed Development, together with the operation of the Peterhead (CR070) and North Buchan Ness (CR080) disposal sites and the Hywind Scotland Pilot Park, may displace recreational vessels and activities, resulting in a loss of recreational resource.

19.9.70. There are a number of recreational activities occurring in the vicinity of the Proposed Development, although with most activities occurring closer to shore and overlapping with the nearshore sections of the offshore ECC rather than within the Array Area. Recreational vessel density, including recreational sailing and motor cruising, is generally highest around the port of Peterhead and within 10 km of the coastline. Sea angling from the shore and angling trips occur at high densities year round at Peterhead, St Fergus and Cruden Bay (Marine Scotland, 2015). Other activities occurring in proximity to the Proposed Development include SCUBA diving, canoeing, kayaking, surfing, windsurfing and kite surfing, wildlife watching, and beach users.

19.9.71. In relation to O&M activities at Hywind Scotland Pilot Park, there is the potential for cumulative impacts from repair and replacement works in the operational phase of the development. The Hywind Scotland Pilot Park EIAR (Statoil, 2015) stated that WTGs would be serviced annually using crew transfer vessels, with inspections of inter-array and export cables, mooring and substructure occurring at intervals of one to four years using vessels with ROVs. In addition to these planned maintenance inspections, unplanned maintenance would also be required (10 visits per year for WTGs). It is important to note that in 2024, the WTGs from Hywind Scotland Pilot Park were towed to Norway to undergo maintenance which could potentially be

repeated during its O&M phase. Overall, these O&M works are predicted to be short-term, intermittent, small scale and localised to the site.

19.9.72. There are no details available in relation to the frequency of operations at the Peterhead (CR070) and North Buchan Ness (CR080) disposal sites but given the likely low level of ongoing impact associated with operation of these sites, it is considered the magnitude of the Tier 1 impact, cumulatively with Hywind Scotland Pilot Park and the Proposed Development (for which the impact of the Proposed Development alone was deemed to be of low magnitude), will be low.

19.9.73. In relation to both Hywind Scotland Pilot Park and the open disposal sites, it is unlikely that the activities of these projects would temporally coincide to displace the same recreational vessel on multiple occasions.

19.9.74. As described in Table 19-10, Notice to Mariners will be issued regularly during the construction phase of the Proposed Development, advising of the location, nature and timing of activities, ensuring that recreational activities can be planned accordingly. Similar measures are likely to apply at the other projects as standard practice.

19.9.75. The cumulative impact is predicted to cause a minor shift away from the baseline at a regional spatial extent, leading to a reduction in the level of recreational activity that may be undertaken for a short to medium term duration. The frequency of repetition is continuous although temporary during the construction phase. The magnitude is therefore considered to be low.

SENSITIVITY OF RECEPTOR

19.9.76. As described in paragraph 19.7.57 *et seq.*, the sensitivity of the recreational receptors is considered to be medium.

SIGNIFICANCE OF EFFECT

19.9.77. The overall magnitude of the impact is low and the sensitivity of the receptor is high. Therefore, the overall significance of the effect is classed as minor, which is not significant in EIA terms (Table 19-40).

Table 19-40 Construction CEA - Tier 1 – Significance of loss of recreational resource

Receptor/Location	Magnitude	Sensitivity	Significance
Recreational receptors	Low	Medium	Minor

TIER 2

MAGNITUDE OF CUMULATIVE IMPACT

19.9.78. The Salamander OWF is awaiting consent decision, and the construction phase for this project is likely to overlap with the construction phase for the Proposed Development. This project is 9.1 km from the offshore ECC of the Proposed Development. The increased vessel numbers, alongside presence of partially constructed infrastructure and safety zones during the construction of both projects may result in the temporary displacement of recreational resource.

19.9.79. The spatial extent of the impact on boating activities will be relatively small in the context of the available sailing and sea angling areas in the vicinity of the Proposed Development. There will be potential for localised displacement of recreational marine craft from the individual 500 m safety zones around the structures being actively installed for both projects. Additionally, there will be advisory clearance distances around installation vessels operating within the projects. The impact of advisory safety zones is mostly reversible, as once each

structure has been installed and commissioned, these will be removed. Advisory clearance distances around cable installation vessels operating along the export cable corridors will be transient as the vessel progressively installs the cable along the route from the array areas to the landfall. The spatial extent of potential displacement will be greater along the export cable routes compared with the array areas, due to most recreational activity taking place along the coastline, although a small number of vessels and sailing events may be displaced from the array areas and the immediate vicinity temporarily during the construction phase.

19.9.80. As described in Table 19-10, Notices to Mariners will be issued regularly during the construction phase, advising of the location, nature and timing of recreational activities can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development. It is assumed that similar commitments will be made in relation to Salamander OWF.

19.9.81. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction in the level of recreational activity that may be undertaken for a short to medium term duration. The frequency of repetition is continuous although temporary during the construction phase. The magnitude is therefore considered to be low, when considered cumulatively with the Tier 1 projects.

SENSITIVITY OF RECEPTOR

19.9.82. As described in paragraph 19.7.57 *et seq.*, the sensitivity of the recreational receptors is considered to be medium.

SIGNIFICANCE OF EFFECT

19.9.83. The overall magnitude of the impact is low and the sensitivity of the receptor is medium. Therefore, the overall significance of the effect is classed as minor, which is not significant in EIA terms (Table 19-41).

Table 19-41 Construction CEA - Tier 2 – Significance of loss of recreational resource

Receptor/Location	Magnitude	Sensitivity	Significance
Recreational receptors	Low	Medium	Minor

TIER 3

MAGNITUDE OF CUMULATIVE IMPACT

19.9.84. There is uncertainty associated with the potential timescales for the construction of both the CampionWind OWF and the Flora INTOG site as neither project have submitted scoping reports or have programme or project information in the public domain. The construction of the projects could have the potential to create a cumulative temporary obstruction to the Hywind Scotland Pilot Park alongside the Tier 1 and Tier 2 projects. However, it is likely that the embedded commitments set out in Table 19-10 such as Notices to Mariners and Kingfisher notifications will be made in relation to these two projects, allowing recreational activities to be planned accordingly.

19.9.85. As such, the impact is predicted to cause a minor shift away from the baseline, leading to a displacement of recreational resource for a short to medium term duration. The frequency of repetition is continuous although temporary during the construction phase. The magnitude is therefore considered to be low when considered cumulatively with Tier 1 and Tier 2 projects.

SENSITIVITY OF RECEPTOR

19.9.86. As described in paragraph 19.7.57 *et seq.*, the sensitivity of the recreational receptors is considered to be medium.

SIGNIFICANCE OF EFFECT

19.9.87. The magnitude of the impact is classed as low and the overall sensitivity of the receptor is medium, therefore, the overall significance of the effect is classed as minor, which is not significant in EIA terms (Table 19-42).

Table 19-42 Construction CEA - Tier 3 – Significance of loss of recreational resource

Receptor/Location	Magnitude	Sensitivity	Significance
Recreational receptors	Low	Medium	Minor

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.9.88. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

OPERATION AND MAINTENANCE CEA

TEMPORARY OBSTRUCTION TO OTHER OWFS

19.9.89. This impact is described in detail in paragraph 19.7.61 *et seq.*, where the significance of the effect of temporary obstruction to the Hywind Scotland Pilot Park has been identified as negligible for the O&M phase of the Proposed Development. Due to uncertainty associated with the exact timing of some of the other projects and activities, there is insufficient data on which to undertake a quantitative or semi-quantitative assessment. As such, the discussion presented here is qualitative.

TIER 1

MAGNITUDE OF CUMULATIVE IMPACT

19.9.90. During the O&M phase of the Proposed Development, there are no Tier 1 projects under construction over the same period. The open disposal sites of Peterhead (CR070) and North Buchan Ness (CR080) are the only operational Tier 1 projects for this impact. The disposal sites are part of the baseline but have an ongoing impact. There are no details available in relation to the frequency of operations at these sites but given the likely low level of ongoing impact associated with operation of these sites, it is considered the magnitude of the impact, cumulatively with the O&M of Proposed Development (for which the impact of the Proposed Development alone was deemed to be of negligible magnitude), will be negligible.

SENSITIVITY OF THE RECEPTOR

19.9.91. As described in paragraph 19.7.67, the sensitivity of the Hywind Scotland Pilot Park is considered to be high.

SIGNIFICANCE OF EFFECT

19.9.92. The overall magnitude of the impact is negligible and the sensitivity of the receptor is high. Therefore, the overall significance of the effect is classed as negligible, which is not significant in EIA terms (Table 19-43).

Table 19-43 O&M CEA - Tier 1 – Significance of temporary obstruction to other OWFs

Receptor/Location	Magnitude	Sensitivity	Significance
Hywind Scotland Pilot Park	Negligible	High	Negligible

TIER 2

MAGNITUDE OF CUMULATIVE IMPACT

19.9.93. The Salamander OWF is awaiting consent decision, and the O&M phase for this project is likely to overlap with the O&M phase for the Proposed Development. This project is 9.1 km from the offshore ECC of the Proposed Development.

19.9.94. The increased vessel numbers and any major maintenance safety zones during the O&M of both projects may result in the temporary obstruction to the Hywind Scotland Pilot Park. That said, the distance between these projects, and the location of Salamander OWF further offshore than Hywind Scotland Pilot Park, would indicate that the obstruction to Hywind Scotland Pilot Park would be minimal, cumulatively with the Tier 1 projects.

19.9.95. As described in Table 19-10, Notices to Mariners will be issued regularly during the construction phase, advising of the location, nature and timing of activities associated with the Proposed Development, ensuring that activities at Hywind Scotland Pilot Park can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development. It is assumed that similar commitments will be made in relation to Salamander OWF.

19.9.96. With the embedded commitments in place, the impact is predicted to cause a very slight change from the baseline. The frequency of repetition is intermittent with high reversibility. The magnitude is therefore considered to be negligible.

SENSITIVITY OF RECEPTOR

19.9.97. As described in paragraph 19.7.67, the sensitivity of the Hywind Scotland Pilot Park is considered to be high.

SIGNIFICANCE OF EFFECT

19.9.98. The overall magnitude of the impact is negligible and the sensitivity of the receptor is high. Therefore, the overall significance of the effect is classed as negligible, which is not significant in EIA terms (Table 19-44).

Table 19-44 O&M CEA - Tier 2 – Significance of temporary obstruction to other OWFs

Receptor/Location	Magnitude	Sensitivity	Significance
Hywind Scotland Pilot Park	Negligible	High	Negligible

TIER 3

MAGNITUDE OF CUMULATIVE IMPACT

19.9.99. There is uncertainty associated with the potential timescales for the construction and O&M of both the CampionWind OWF and the Flora INTOG site as neither project have submitted scoping reports or have programme or project information in the public domain. The construction and/or O&M of the projects could have the potential to create a cumulative temporary obstruction to the Hywind Scotland Pilot Park alongside the Tier 1 and Tier 2 projects. However, it is likely that the embedded commitments set out in Table 19-10such as

Notices to Mariners and Kingfisher notifications will be made in relation to CampionWind OWF and the Flora INTOG site, allowing activities at Hywind Scotland Pilot Park to be planned accordingly.

19.9.100. With these embedded commitments in place, the impact is predicted to cause a very slight change from the baseline. The frequency of repetition is intermittent with high reversibility. The magnitude is therefore considered to be negligible.

SENSITIVITY OF RECEPTOR

19.9.101. As described in paragraph 19.7.67, the sensitivity of the Hywind Scotland Pilot Park is considered to be high.

SIGNIFICANCE OF EFFECT

19.9.102. The magnitude of the impact is deemed to be negligible and the sensitivity of the receptor is high. The effect will, therefore, be of negligible significance, which is not significant in EIA terms (Table 19-45).

Table 19-45 O&M CEA - Tier 3 – Significance of temporary obstruction to other OWFs

Receptor/Location	Magnitude	Sensitivity	Significance
Hywind Scotland Pilot Park	Negligible	High	Negligible

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.9.103. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

TEMPORARY OBSTRUCTION TO SUBSEA CABLES AND UTILITIES DEVELOPMENTS AND ASSOCIATED ACTIVITIES

19.9.104. This impact is described in detail in paragraph 19.7.70 *et seq.*, where the significance of the effect of temporary obstruction to the Tampnet CNSFTC fibre-optic telecommunications cable and the offshore export cables for Hywind Scotland Pilot Park and Green Volt OWF. has been identified as negligible. Due to uncertainty associated with the exact timing of some of the other projects and activities, there is insufficient data on which to undertake a quantitative or semi-quantitative assessment. As such, the discussion presented here is qualitative.

TIER 1

MAGNITUDE OF CUMULATIVE IMPACT

19.9.105. During the O&M of the Proposed Development, there are no other Tier 1 projects under construction over the same period. Both the open disposal sites and the Hywind Scotland Pilot Park are operational projects forming part of the baseline but having an ongoing impact.

19.9.106. During the O&M phase, there may be up to one offshore export cable repair every five years for the Proposed Development. In the event that these offshore export cable repairs are required, associated impacts would be similar in nature to the construction impacts but limited to specific locations and often shorter in duration. Major maintenance activities may be required and may necessitate the use of large vessels and the use of a temporary 500 m safety zone.

19.9.107. In relation to O&M activities at Hywind Scotland Pilot Park, there is the potential for cumulative impacts from repair and replacement works in the operational phase of the development. The

Hywind Scotland Pilot Park EIAR (Statoil, 2015) stated that WTGs would be serviced annually using crew transfer vessels, with inspections of inter-array and export cables, mooring and substructure occurring at intervals of one to four years using vessels with ROVs. In addition to these planned maintenance inspections, unplanned maintenance would also be required (10 visits per year for WTGs). It is important to note that in 2024, the WTGs from Hywind Scotland Pilot Park were towed to Norway to undergo maintenance which could potentially be repeated during its O&M phase. Overall, these O&M works are predicted to be short-term, intermittent, small scale and localised to the site.

19.9.108. There are no details available in relation to the frequency of operations at the Peterhead (CR070) and North Buchan Ness (CR080) disposal sites but given the likely low level of ongoing impact associated with operation of these sites, it is considered the magnitude of the Tier 1 impact, cumulatively with Hywind Scotland Pilot Park and the O&M of the Proposed Development (for which the impact of the Proposed Development alone was deemed to be of low magnitude), will be low.

19.9.109. As described in Table 19-10, cables to be crossed by the export cables associated with the Proposed Development would be covered by a crossing agreement with the relevant operator so that there would not be an impediment to asset maintenance operations.

19.9.110. Additionally, Notices to Mariners will be issued regularly during the O&M phase, advising of the location, nature and timing of activities associated with the Proposed Development, ensuring that maintenance activities at Hywind Scotland Pilot Park, Green Volt OWF, and associated with the Tampnet CSNFTC cable can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development.

19.9.111. The impact is predicted to cause a very slight change from the baseline. The frequency of repetition is intermittent with high reversibility. The magnitude is therefore considered to be negligible.

SENSITIVITY OF RECEPTOR

19.9.112. As described in paragraph 19.7.77 *et seq.*, the sensitivity of the Tampnet CNSFTC fibre-optic telecommunications cable and the offshore export cables for Hywind Scotland Pilot Park and Green Volt OWF is considered to be high.

SIGNIFICANCE OF EFFECT

19.9.113. The overall magnitude of the impact is negligible and the sensitivity of the receptor is high. Therefore, the overall significance of the effect is classed as negligible, which is not significant in EIA terms (Table 19-46).

Table 19-46 O&M CEA - Tier 1 – Significance of temporary obstruction to subsea cables and utilities developments and associated activities

Receptor/Location	Magnitude	Sensitivity	Significance
Tampnet CNSFTC fibre-optic telecommunications cable	Negligible	High	Negligible
Offshore export cables for Hywind Scotland Pilot Park	Negligible	High	Negligible
Offshore export cables for Green Volt OWF	Negligible	High	Negligible

TIER 2

19.9.114. There are no Tier 2 projects relevant to this impact.

TIER 3

MAGNITUDE OF CUMULATIVE IMPACT

19.9.115. There is uncertainty associated with the potential timescales for the construction or O&M of the Flora INTOG site as the project has not submitted a scoping report or has programme or project information in the public domain. The construction and/or O&M of the project could have the potential to create a cumulative temporary obstruction to the Tampnet CNSFTC fibre-optic telecommunications cable and the offshore export cables for Hywind Scotland Pilot Park and Green Volt OWF alongside the Tier 1 projects. However, it is likely that the embedded commitments set out in Table 19-10 such as Notices to Mariners and Kingfisher notifications will be made in relation to the Flora INTOG site, allowing activities in relation to the subsea cables to be planned accordingly.

19.9.116. The impact is predicted to cause a very slight change from the baseline. The frequency of repetition is intermittent with high reversibility. The magnitude is therefore considered to be negligible.

SENSITIVITY OF RECEPTOR

19.9.117. As described in paragraph 19.7.77 *et seq.*, the sensitivity of the Tampnet CNSFTC fibre-optic telecommunications cable and the offshore export cables for Hywind Scotland Pilot Park and Green Volt OWF is considered to be high.

SIGNIFICANCE OF EFFECT

19.9.118. The magnitude of the impact is deemed to be negligible and the sensitivity of the receptor is high. The effect will, therefore, be of negligible significance, which is not significant in EIA terms (Table 19-47).

Table 19-47 O&M CEA - Tier 3 – Significance of temporary obstruction to subsea cables and utilities developments and associated activities

Receptor/Location	Magnitude	Sensitivity	Significance
Tampnet CNSFTC fibre-optic telecommunications cable	Negligible	High	Negligible
Offshore export cables for Hywind Scotland Pilot Park	Negligible	High	Negligible
Offshore export cables for Green Volt OWF	Negligible	High	Negligible

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.9.119. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

TEMPORARY OBSTRUCTION TO LICENCED MARINE DISPOSAL SITES AND ASSOCIATED ACTIVITIES

19.9.120. This impact is described in detail in paragraph 19.7.82 *et seq.*, where the significance of the effect of temporary obstruction to the open disposal sites has been identified as negligible. Due to uncertainty associated with the exact timing of some of the other projects and activities, there is insufficient data on which to undertake a quantitative or semi-quantitative assessment. As such, the discussion presented here is qualitative.

TIER 1

MAGNITUDE OF CUMULATIVE IMPACT

19.9.121. During the O&M of the Proposed Development, there are no other Tier 1 projects under construction over the same period. The Hywind Scotland Pilot Park is an operational project forming part of the baseline but having an ongoing impact.

19.9.122. During the O&M phase, there may be up to one offshore export cable repair every five years for the Proposed Development. In the event that these offshore export cable repairs are required, associated impacts would be similar in nature to the construction impacts but limited to specific locations and often shorter in duration. Major maintenance activities may be required and may necessitate the use of large vessels and the use of a temporary 500 m safety zone.

19.9.123. There will be a maximum of 12 vessels for O&M works on site at any one time for the proposed Development, with a total of up to 509 round trips to port per year, although the majority of these vessels will be transiting to, or working within the Array Area and will pose less of an disruption to any works at the Peterhead (CR070) and North Buchan Ness (CR080) sites located closer inshore.

19.9.124. In relation to O&M activities at Hywind Scotland Pilot Park, there is the potential for cumulative impacts from repair and replacement works in the operational phase of the development. The Hywind Scotland Pilot Park EIAR (Statoil, 2015) stated that WTGs would be serviced annually using crew transfer vessels, with inspections of inter-array and export cables, mooring and substructure occurring at intervals of one to four years using vessels with ROVs. In addition to these planned maintenance inspections, unplanned maintenance would also be required (10 visits per year for WTGs). It is important to note that in 2024, the WTGs from Hywind Scotland Pilot Park were towed to Norway to undergo maintenance which could potentially be repeated during its O&M phase however noting that this would not interact with the Peterhead site as that is located closer to shore. Overall, these O&M works are predicted to be short-term, intermittent, small scale and localised to the site.

19.9.125. As described in Table 19-10, Notices to Mariners will be issued regularly during the O&M phase, advising of the location, nature and timing of activities associated with the Proposed Development, ensuring that maintenance activities at the disposal site can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development. It is assumed that similar commitments will be made in relation to the Hywind Scotland Pilot Park.

19.9.126. The impact is predicted to cause a very slight change from the baseline. The frequency of repetition is intermittent with high reversibility. The magnitude of the Tier 1 impact, cumulatively with Hywind Scotland Pilot Park and the Proposed Development (for which the impact of the Proposed Development alone was deemed to be of negligible magnitude), will be negligible.

SENSITIVITY OF RECEPTOR

19.9.127. The sensitivity of the open disposal sites is considered to be high.

SIGNIFICANCE OF EFFECT

19.9.128. The magnitude of the impact is expected to be low and the sensitivity of the receptor is high, therefore the overall significance of the effect is classed as minor, which is not significant in EIA terms (Table 19-48).

Table 19-48 O&M CEA - Tier 1 – Significance of temporary obstruction to licensed marine disposal sites and associated activities

Receptor/Location	Magnitude	Sensitivity	Significance
Peterhead (CR070) open disposal site	Negligible	High	Negligible
North Buchan Ness (CR080) open disposal site	Negligible	High	Negligible

TIER 2

MAGNITUDE OF CUMULATIVE IMPACT

19.9.129. The Salamander OWF is awaiting consent decision, and the O&M phase for this project is likely to overlap with the O&M phase for the Proposed Development. This project is 9.1 km from the offshore ECC of the Proposed Development.

19.9.130. The increased vessel numbers and any major maintenance safety zones during the O&M of both projects may result in the temporary obstruction to the Peterhead (CR070) and North Buchan ness (CR080) disposal sites. That said, the distance between these projects, and their location further offshore than the open disposal sites, would indicate that the obstruction would be minimal, cumulatively with the Tier 1 projects.

19.9.131. As described in Table 19-10, Notices to Mariners will be issued regularly during the O&M phase, advising of the location, nature and timing of activities associated with the Proposed Development, ensuring that activities at Peterhead (CR070) and North Buchan Ness (CR0870) disposal sites can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development. It is assumed that similar commitments will be made in relation to Salamander OWF.

19.9.132. With the embedded commitments in place, the impact is predicted to cause a very slight change from the baseline. The frequency of repetition is intermittent with high reversibility. The magnitude is therefore considered to be negligible.

SENSITIVITY OF RECEPTOR

19.9.133. The sensitivity of the open disposal sites is considered to be high.

SIGNIFICANCE OF EFFECT

19.9.134. The magnitude of the impact is expected to be negligible and the sensitivity of the receptor is high, therefore the overall significance of the effect is classed as negligible, which is not significant in EIA terms (Table 19-49).

Table 19-49 O&M CEA - Tier 2 – Significance of temporary obstruction to licensed marine disposal sites and associated activities

Receptor/Location	Magnitude	Sensitivity	Significance
Peterhead (CR070) open disposal site	Negligible	High	Negligible
North Buchan Ness (CR080) open disposal site	Negligible	High	Negligible

TIER 3

MAGNITUDE OF CUMULATIVE IMPACT

19.9.135. There is uncertainty associated with the potential timescales for the construction and O&M of both the CampionWind OWF and the Flora INTOG site as neither project have submitted

scoping reports or have programme or project information in the public domain. The construction and/or O&M of the projects could have the potential to create a cumulative temporary obstruction to the open disposal sites alongside the Tier 1 and Tier 2 projects. However, it is likely that the embedded commitments set out in Table 19-10 such as Notices to Mariners and Kingfisher notifications will be made in relation to these two projects, allowing activities at the disposal sites to be planned accordingly.

19.9.136. With these embedded commitments in place, the impact is predicted to cause a very slight change from the baseline. The frequency of repetition is intermittent with high reversibility. The magnitude is therefore considered to be negligible.

SENSITIVITY OF RECEPTOR

19.9.137. The sensitivity of the open disposal sites is considered to be high.

SIGNIFICANCE OF EFFECT

19.9.138. The magnitude of the cumulative impact is expected to be negligible and the sensitivity of the receptor is high, therefore the overall significance of the effect is classed as negligible, which is not significant in EIA terms (Table 19-50).

Table 19-50 O&M CEA - Tier 3 – Significance of temporary obstruction to licensed marine disposal sites and associated activities

Receptor/Location	Magnitude	Sensitivity	Significance
Peterhead (CR070) open disposal site	Negligible	High	Negligible
North Buchan Ness (CR080) open disposal site	Negligible	High	Negligible

SECONDARY OF MITIGATION AND RESIDUAL EFFECT

19.9.139. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

TEMPORARY OBSTRUCTION TO OIL AND GAS DEVELOPMENTS AND ASSOCIATED ACTIVITIES

19.9.140. This impact is described in detail in paragraph 19.7.93 *et seq.*, where the significance of the effect of temporary obstruction to the oil and gas pipelines during the O&M phase has been identified as negligible. Due to uncertainty associated with the exact timing of some of the other projects and activities, there is insufficient data on which to undertake a quantitative or semi-quantitative assessment. As such, the discussion presented here is qualitative.

TIER 1

MAGNITUDE OF CUMULATIVE IMPACT

19.9.141. During the O&M of the Proposed Development, there are no other Tier 1 projects under construction over the same period. The open disposal sites and the Hywind Scotland Pilot Park are operational projects forming part of the baseline but having an ongoing impact.

19.9.142. During the O&M phase of the Proposed Development, there may be up to one offshore export cable repair every five years. In the event that these offshore export cable repairs are required, associated impacts would be similar in nature to the construction impacts but limited to specific locations and often shorter in duration. Major maintenance activities may be required and may necessitate the use of large vessels and the use of a temporary 500 m safety zone.

19.9.143. Any restriction of access to the pipelines due to maintenance activities associated with the Proposed Development is considered to be temporary, limited in spatial extent, and infrequent over the lifetime of the Proposed Development.

19.9.144. As described in Table 19-10, pipelines to be crossed by the export cables associated with the Proposed Development would be covered by a crossing agreement with the relevant operator so that there would not be an impediment to asset maintenance operations.

19.9.145. Additionally, Notices to Mariners will be issued regularly during the O&M phase, advising of the location, nature and timing of activities associated with the Proposed Development, ensuring that maintenance activities at the pipelines can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development. It is assumed that similar commitments will be made in relation to Hywind Scotland Pilot Park.

19.9.146. In relation to O&M activities at Hywind Scotland Pilot Park, there is the potential for cumulative impacts from repair and replacement works in the operational phase of the development. The Hywind Scotland Pilot Park EIAR (Statoil, 2015) stated that WTGs would be serviced annually using crew transfer vessels, with inspections of inter-array and export cables, mooring and substructure occurring at intervals of one to four years using vessels with ROVs. In addition to these planned maintenance inspections, unplanned maintenance would also be required (10 visits per year for WTGs). It is important to note that in 2024, the WTGs from Hywind Scotland Pilot Park were towed to Norway to undergo maintenance which could potentially be repeated during its O&M phase. Overall, these O&M works are predicted to be short-term, intermittent, small scale and localised to the site.

19.9.147. There are no details available in relation to the frequency of operations at the Peterhead (CR070) and North Buchan Ness (CR080) disposal sites but given the likely low level of ongoing impact associated with operation of these sites, it is considered the magnitude of the Tier 1 impact, cumulatively with Hywind Scotland Pilot Park and the Proposed Development (for which the impact of the Proposed Development alone was deemed to be of negligible magnitude), will be negligible.

SENSITIVITY OF RECEPTOR

19.9.148. As described in paragraph 19.7.100 *et seq.*, the sensitivity of the four pipelines (Forties C to Cruden Bay (PL8), Forties C to Cruden Bay (PL721), 20” Gas Fulmar A – St Fergus (PL208), and Miller To St. Fergus (PL720)) is considered to be high.

SIGNIFICANCE OF EFFECT

19.9.149. The magnitude of impact is expected to be negligible and the sensitivity of the receptor is classed as high. The overall significance of the effect is classed as negligible, which is not significant in EIA terms (Table 19-51).

Table 19-51 O&M CEA - Tier 1 – Significance of temporary obstruction to oil and gas developments and associated activities

Receptor/Location	Magnitude	Sensitivity	Significance
Forties C to Cruden Bay (PL8)	Negligible	High	Negligible
Forties C to Cruden Bay (PL721)	Negligible	High	Negligible
20” Gas Fulmar A – St Fergus (PL208)	Negligible	High	Negligible
Miller To St. Fergus (PL720)	Negligible	High	Negligible

TIER 2

19.9.150. There are no Tier 2 projects relevant to this impact.

TIER 3

MAGNITUDE OF CUMULATIVE IMPACT

19.9.151. There is uncertainty associated with the potential timescales for the construction or O&M of the Flora INTOG site as the project has not submitted a scoping report or has programme or project information in the public domain. The construction and/or O&M of the project could have the potential to create a cumulative temporary obstruction to the relevant pipelines alongside the Tier 1 projects. However, it is likely that the embedded commitments set out in Table 19-10 such as Notices to Mariners and Kingfisher notifications will be made in relation to the Flora INTOG site, allowing activities in relation to the pipelines to be planned accordingly.

19.9.152. The impact is predicted to cause a very slight change from the baseline. The frequency of repetition is intermittent with high reversibility. The magnitude is therefore considered to be negligible.

SENSITIVTY OF RECEPTOR

19.9.153. As described in paragraph 19.7.100 *et seq.*, the sensitivity of the four pipelines (Forties C to Cruden Bay (PL8), Forties C to Cruden Bay (PL721), 20" Gas Fulmar A – St Fergus (PL208), and Miller To St. Fergus (PL720)) is considered to be high.

SIGNIFICANCE OF EFFECT

19.9.154. The magnitude of the impact is deemed to be negligible and the sensitivity of the receptor is high. The effect will therefore be of negligible significance, which is not significant in EIA terms (Table 19-52).

Table 19-52 O&M CEA - Tier 3 – Significance of temporary obstruction to oil and gas developments and associated activities

Receptor/Location	Magnitude	Sensitivity	Significance
Forties C to Cruden Bay (PL8)	Negligible	High	Negligible
Forties C to Cruden Bay (PL721)	Negligible	High	Negligible
20" Gas Fulmar A – St Fergus (PL208)	Negligible	High	Negligible
Miller To St. Fergus (PL720)	Negligible	High	Negligible

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.9.155. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

DISPLACEMENT OF RECREATIONAL SAILING AND MOTOR CRUISING, RECREATIONAL FISHING AND OTHER RECREATIONAL ACTIVITIES DUE TO INFRASTRUCTURE, SAFETY ZONES, AND CONSTRUCTION VESSELS IN RELATION TO THE PROPOSED DEVELOPMENT MAY RESULT IN A LOSS OF RECREATIONAL RESOURCE

19.9.156. This impact is described in detail in paragraph 19.7.104 *et seq.*, where the significance of the effect of displacement of recreational resource has been identified as negligible. Due to uncertainty associated with the exact timing of some of the other projects and activities, there is insufficient data on which to undertake a quantitative or semi-quantitative assessment. As such, the discussion presented here is qualitative.

TIER 1

MAGNITUDE OF CUMULATIVE IMPACT

19.9.157. The O&M activities associated with the Proposed Development, together with the operation of the open disposal sites and the Hywind Scotland Pilot Park, may displace recreational vessels and activities, resulting in a loss of recreational resource.

19.9.158. There are a number of recreational activities occurring in the vicinity of the Proposed Development, although with most activities occurring closer to shore and overlapping with the nearshore sections of the offshore ECC rather than within the Array Area. Recreational vessel density, including recreational sailing and motor cruising, is generally highest around the port of Peterhead and within 10 km of the coastline. Sea angling from the shore and angling trips occur at high densities year round at Peterhead, St Fergus and Cruden Bay (Marine Scotland, 2016). Other activities occurring in proximity to the Proposed Development include SCUBA diving, canoeing, kayaking, surfing, windsurfing and kite surfing, wildlife watching, and beach users.

19.9.159. During the O&M phase of the Proposed Development, there may be up to one offshore export cable repair every five years. In the event that these offshore export cable repairs are required, associated impacts would be similar in nature to the construction impacts but limited to specific locations and often shorter in duration. Major maintenance activities may be required and may necessitate the use of large vessels and the use of a temporary 500 m safety zone.

19.9.160. Any restriction of access to the pipelines due to maintenance activities associated with the Proposed Development is considered to be temporary, limited in spatial extent, and infrequent over the lifetime of the Proposed Development.

19.9.161. In relation to O&M activities at Hywind Scotland Pilot Park, there is the potential for cumulative impacts from repair and replacement works in the operational phase of the development. The Hywind Scotland Pilot Park EIAR (Statoil, 2015) stated that WTGs would be serviced annually using crew transfer vessels, with inspections of inter-array and export cables, mooring and substructure occurring at intervals of one to four years using vessels with ROVs. In addition to these planned maintenance inspections, unplanned maintenance would also be required (10 visits per year for WTGs). It is important to note that in 2024, the WTGs from Hywind Scotland Pilot Park were towed to Norway to undergo maintenance which could potentially be repeated during its O&M phase. Overall, these O&M works are predicted to be short-term, intermittent, small scale and localised to the site.

19.9.162. There are no details available in relation to the frequency of operations at the Peterhead (CR070) and North Buchan Ness (CR080) disposal site but given the likely low level of ongoing impact associated with operation of these sites, it is considered the magnitude of the

Tier 1 impact, cumulatively with Hywind Scotland Pilot Park and the Proposed Development (for which the impact of the Proposed Development alone was deemed to be of low magnitude), will be low.

19.9.163. In relation to both Hywind Scotland Pilot Park and the open disposal sites, it is unlikely that the activities of these projects would temporally coincide to displace the same recreational vessel on multiple occasions.

19.9.164. As described in Table 19-10, Notice to Mariners will be issued regularly during the O&M phase of the Proposed Development, advising of the location, nature and timing of activities, ensuring that recreational activities can be planned accordingly. Similar measures are likely to apply at the other projects as standard practice.

19.9.165. The cumulative impact is predicted to cause a very slight change from the baseline. The frequency of repetition is intermittent with high reversibility. The magnitude is therefore considered to be negligible.

SENSITIVITY OF RECEPTOR

19.9.166. As described in paragraph 19.7.57 *et seq.*, the sensitivity of the recreational receptors is considered to be medium.

SIGNIFICANCE OF EFFECT

19.9.167. The overall magnitude of the impact is negligible and the sensitivity of the receptor is high. Therefore, the overall significance of the effect is classed as negligible, which is not significant in EIA terms (Table 19-53).

Table 19-53 O&M CEA - Tier 1 – Significance of loss of recreational resource

Receptor/Location	Magnitude	Sensitivity	Significance
Recreational receptors	Negligible	Medium	Negligible

TIER 2

MAGNITUDE OF CUMULATIVE IMPACT

19.9.168. The Salamander OWF is awaiting consent decision, and the O&M phase for this project is likely to overlap with the O&M phase for the Proposed Development. This project is 9.1 km from the offshore ECC of the Proposed Development. The increased vessel numbers, alongside presence of partially constructed infrastructure and safety zones during the construction of both projects may result in the temporary displacement of recreational resource.

19.9.169. The increased vessel numbers and any major maintenance safety zones during the O&M of both projects may result in the temporary displacement of recreational activities. The spatial extent of potential displacement will be greater along the export cable routes compared with the array areas, due to most recreational activity taking place along the coastline, although a small number of vessels and sailing events may be displaced from the array areas and the immediate vicinity temporarily during the O&M.

19.9.170. As described in Table 19-10, Notices to Mariners will be issued regularly during the O&M phase, advising of the location, nature and timing of activities associated with the Proposed Development, ensuring that recreational activities can be planned accordingly. The Developer will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Proposed Development. It is assumed that similar commitments will be made in relation to Salamander OWF.

19.9.171. With the embedded commitments in place, the impact is predicted to cause a very slight change from the baseline. The frequency of repetition is intermittent with high reversibility. The magnitude is therefore considered to be negligible, when considered cumulatively with Tier 1 projects.

SENSITIVITY OF RECEPTOR

19.9.172. As described in paragraph 19.7.57 *et seq.*, the sensitivity of the recreational receptors is considered to be medium.

SIGNIFICANCE OF EFFECT

19.9.173. The overall magnitude of the impact is low and the sensitivity of the receptor is medium. Therefore, the overall significance of the effect is classed as minor, which is not significant in EIA terms (Table 19-54).

Table 19-54 O&M CEA - Tier 2 – Significance of loss of recreational resource

Receptor/Location	Magnitude	Sensitivity	Significance
Recreational receptors	Negligible	Medium	Negligible

TIER 3

MAGNITUDE OF CUMULATIVE IMPACT

19.9.174. There is uncertainty associated with the potential timescales for the construction and O&M of both the CampionWind OWF and the Flora INTOG site as neither project have submitted scoping reports or have programme or project information in the public domain. The construction and/or O&M of the projects could have the potential to create a cumulative displacement of recreational resource alongside the Tier 1 and Tier 2 projects. However, it is likely that the embedded commitments set out in Table 19-10 such as Notices to Mariners and Kingfisher notifications will be made in relation to these two projects, allowing recreational activities to be planned accordingly.

19.9.175. As such, the cumulative impact is predicted to cause a very slight change from the baseline. The frequency of repetition is intermittent with high reversibility. The magnitude is therefore considered to be negligible.

SENSITIVITY OF RECEPTOR

19.9.176. As described in paragraph 19.7.57 *et seq.*, the sensitivity of the recreational receptors is considered to be medium.

SIGNIFICANCE OF EFFECT

19.9.177. The magnitude of the impact is classed as negligible and the overall sensitivity of the receptor is medium, therefore, the overall significance of the effect is classed as negligible, which is not significant in EIA terms (Table 19-55).

Table 19-55 O&M CEA - Tier 3 – Significance of loss of recreational resource

Receptor/Location	Magnitude	Sensitivity	Significance
Recreational receptors	Negligible	Medium	Negligible

SECONDARY MITIGATION AND RESIDUAL EFFECT

19.9.178. No additional IOU mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in Section 19.6) is not significant in EIA terms.

DECOMMISSIONING CEA

19.9.179. The decommissioning phase is expected to involve similar construction activities and impacts as those discussed in paragraph 19.9.12 *et seq*. for the construction phase. Consequently, any cumulative effects arising from the decommissioning process are anticipated to be comparable or even lesser in significance than those effects assessed for the construction phase. Therefore, it is not anticipated that the decommissioning activities would result in significant adverse effects on IOU receptors when considering the potential for cumulative impacts.

PROPOSED MONITORING FOR CUMULATIVE EFFECTS

19.9.180. No IOU monitoring is proposed to test the predictions made within the assessment of cumulative effects on IOU receptors as no LSE were predicted during construction, O&M and decommissioning phases of the Proposed Development.

19.10. TRANSBOUNDARY EFFECTS

19.10.1. A transboundary effect assessment assesses the IOU effects from the Proposed Development upon the interests of European Economic Area (EEA States).

19.10.2. No IOU receptors have been identified associated with neighbouring EEA states and any impacts arisen from the construction, O&M phase, and decommissioning phase are likely to be of local and spatial extent. As such, it is considered that transboundary IOU effects from the construction, O&M and decommissioning of the Proposed Development would not occur.

19.11. INTER-RELATED EFFECTS

19.11.1. Inter-related effects may occur due to multiple impacts on a receptor or a group of receptors from the Proposed Development. This includes the following:

- **Project Lifecycle Effects** - Interactions between impacts across different phases of the Proposed Development i.e., interaction of impacts across construction, operation and maintenance and decommissioning; and
- **Inter-related Receptor Effects** - Interactions between impacts on a receptor or group of receptors within an offshore Project stage (Inter-related Receptor Effects).

19.11.2. Project Lifecycle and Receptor led inter-related effects from IOU are presented in Table 19-56.

Table 19-56 Inter-related effects of IOU

Impact	Significant Inter-Related Effects
Project lifecycle effects	
Temporary obstruction to other OWFs.	The presence of the Proposed Development construction and operation vessels, and installation of offshore infrastructure has the potential to be a navigational hazard to shipping associated with shipping related to other offshore wind farms. This may result in the diversion of vessels when in transit. This is assessed in Volume 2, Chapter 14 (Shipping and Navigation).
Temporary obstruction to subsea cables and utilities developments and associated activities.	The presence of the Proposed Development construction and operation vessels, and installation of offshore infrastructure has the potential to be a navigational hazard to shipping associated with shipping related to other users. This may result in the diversion of vessels when in transit. This is assessed in Volume 2, Chapter 14 (Shipping and Navigation). Existing cables may be affected where they are crossed by infrastructure associated with the Proposed Development. In addition, the presence of the infrastructure, safety zones and advisory passing distances may restrict access to existing cables during construction, operation and maintenance, and decommissioning activities. Cable crossing proximity agreements will be developed and implemented with each relevant cable and pipeline operator to minimise the potential for any impact. Crossing agreements will include the ability of a cable operator to access their infrastructure as far as practical during the construction and decommissioning phases and the crossing agreements will ensure close communication and planning between the affected parties to ensure disruption of activities is minimised. Therefore, across the project lifetime of the Proposed Development, the effects on IOU are not anticipated to interact in such a way as to result in combined effects of greater significance than the assessments presented for each individual phase.
Temporary obstruction to oil and gas developments and associated activities.	The presence of the Proposed Development construction and operation vessels, and installation of offshore infrastructure has the potential to be a navigational hazard to shipping associated with shipping related to other users. This may result in the diversion of vessels when in transit. This is assessed in Volume 2, Chapter 14 (Shipping and Navigation). Existing and pipelines may be affected where they are crossed by infrastructure associated with the Proposed Development. In addition, the presence of the infrastructure, safety zones and advisory passing distances may restrict access to existing pipelines during construction, operation and maintenance, and decommissioning activities. Pipeline crossing proximity agreements will be developed and implemented with each relevant pipeline operator to minimise the potential for any impact. Crossing agreements will include the ability of a pipeline operator to access their infrastructure as far as practical during the construction and decommissioning phases and the crossing agreements will ensure close communication and planning between the affected parties to ensure disruption of activities is minimised. Therefore, across the project lifetime of the Proposed Development, the effects on IOU are not anticipated to interact in such a way as to result in combined effects of greater significance than the assessments presented for each individual phase.
Temporary obstruction to licensed marine disposal sites and associated activities.	The presence of the Proposed Development construction and operation vessels, and installation of offshore infrastructure has the potential to be a navigational hazard to shipping associated with shipping related to other users. This may result in the diversion of vessels when in transit. This is

Impact	Significant Inter-Related Effects
	assessed in Volume 2, Chapter 14 (Shipping and Navigation).
Displacement of recreational sailing and motor cruising, recreational fishing and other recreational activities due to infrastructure, safety zones, and construction vessels in relation to the Proposed Development may result in a loss of recreational resource.	The presence of infrastructure, safety zones and advisory safe passing distances during the construction phase may result in the displacement of recreational craft and recreational fishing vessels from the Proposed Development. During the operation and maintenance phase, the presence of infrastructure, safety zones and advisory safe passing distances around maintenance activities may result in the displacement of recreational craft and recreational fishing vessels in the Proposed Development. During the decommissioning phase, the presence of infrastructure, safety zones, and advisory safe passing distances may result in the displacement of recreational craft and recreational fishing vessels from the Proposed Development. Across the project lifetime, the effects on recreational craft users and recreational fishing vessels are not anticipated to interact in such a way as to result in combined effects of greater significance than the assessments presented for each individual phase.
Receptor Led Effects	
Potential exists for spatial and temporal interactions between direct and indirect impacts to IOU receptors. Based on current understanding and expert knowledge, there is scope for potential inter-related impacts to arise from the physical restriction on space for recreational craft and recreational fishing vessels interacting with the displacement of recreational sailing and motor cruising, recreational fishing (boat angling) and other recreational activities. Where both impacts overlap spatially and temporally, there is potential for inter-related effects as the restriction/displacement on movements of recreational activity may cover a large area. However, as a vast extent of alternative resource for recreational activities will remain available and the effects initially identified were of minor significance, these impacts are not likely to interact in a way that results in a significant inter-related effect.	

19.12. ASSESSMENT SUMMARY

19.12.1. A summary of the findings of the effects and cumulative effects assessments undertaken in Section 19.7 and Section 19.8 is given in Table 19-57 and Table 19-58, respectively. This includes residual effect significance after any required secondary mitigation and proposed monitoring.

19.12.2. Throughout the construction, O&M and decommissioning phases, all impacts assessed were found to have either negligible or minor effects on IOU receptors within the Proposed Development (i.e., not significant in EIA terms). The assessment of cumulative impacts from the Proposed Development and other developments and activities concluded that the effects of any cumulative impacts would be of negligible to minor significance (also not significant in EIA terms).

Table 19-57 Summary of assessment of effects on IOU

Effect	Receptor	Magnitude of Impact	Receptor Sensitivity	Effect Significance	Secondary Mitigation	Residual Effect	Proposed Monitoring
Construction							
Temporary obstruction to other OWFs	Hywind Scotland Pilot Park	Low	High	Minor	None	No significant residual effect	None
Temporary obstruction to subsea cables and utilities developments and associated activities	Tampnet CNSFTC cable, Hywind Scotland Pilot Park and Green Volt OWF export cables	Low	High	Minor	None	No significant residual effect	None
Temporary obstruction to licensed marine disposal sites and associated activities	Peterhead (CR070) disposal site North Buchan Ness (CR080) disposal site	Low	High	Minor	None	No significant residual effect	None
Temporary obstruction to oil and gas developments and associated activities	Pipelines: Forties C to Cruden Bay (PL8) Forties C to Cruden Bay (PL721) 20” Gas Fulmar A – St Fergus (PL208) Miller To St. Fergus (PL720)	Low	High	Minor	None	No significant residual effect	None
Displacement of recreational sailing and motor cruising, recreational fishing and other recreational activities due to infrastructure, safety zones, and construction vessels in relation to the Proposed Development may result in a loss of recreational resource.	All recreational receptors	Low	Medium	Minor	None	No significant residual effect	None
Operation and Maintenance							
Temporary obstruction to other OWFs	Hywind Scotland Pilot Park	Negligible	High	Negligible	None	No significant residual effect	None
Temporary obstruction to subsea cables and utilities developments and associated activities	Tampnet CNSFTC cable, Hywind Scotland Pilot Park and Green Volt OWF export cables	Negligible	High	Negligible	None	No significant residual effect	None
Temporary obstruction to licensed marine disposal sites and associated activities	Peterhead (CR070) disposal site North Buchan Ness (CR080) disposal site	Negligible	High	Negligible	None	No significant residual effect	None
Temporary obstruction to oil and gas developments and associated activities	Pipelines: Forties C to Cruden Bay (PL8) Forties C to Cruden Bay (PL721) 20” Gas Fulmar A – St Fergus (PL208) Miller To St. Fergus (PL720)	Negligible	High	Negligible	None	No significant residual effect	None
Displacement of recreational sailing and motor cruising, recreational fishing and other recreational activities due to infrastructure, safety zones, and construction vessels in relation to the Proposed Development may result in a loss of recreational resource.	All recreational receptors	Negligible	Medium	Negligible	None	No significant residual effect	None

Effect	Receptor	Magnitude of Impact	Receptor Sensitivity	Effect Significance	Secondary Mitigation	Residual Effect	Proposed Monitoring
Decommissioning							
Temporary obstruction to other OWFs	Hywind Scotland Pilot Park	Low	High	Minor	None	No significant residual effect	None
Temporary obstruction to subsea cables and utilities developments and associated activities	Tampnet CNSFTC cable, Hywind Scotland Pilot Park and Green Volt OWF export cables	Low	High	Minor	None	No significant residual effect	None
Temporary obstruction to licensed marine disposal sites and associated activities	Peterhead (CR070) disposal site North Buchan Ness (CR080) disposal site	Low	High	Minor	None	No significant residual effect	None
Temporary obstruction to oil and gas developments and associated activities	Pipelines: Forties C to Cruden Bay (PL8) Forties C to Cruden Bay (PL721) 20” Gas Fulmar A – St Fergus (PL208) Miller To St. Fergus (PL720)	Low	High	Minor	None	No significant residual effect	None
Displacement of recreational sailing and motor cruising, recreational fishing and other recreational activities due to infrastructure, safety zones, and construction vessels in relation to the Proposed Development may result in a loss of recreational resource.	All recreational receptors	Low	Medium	Minor	None	No significant residual effect	None

Table 19-58 Summary of assessment of cumulative effects on IOU

Effect	Receptor	Magnitude of Impact	Receptor Sensitivity	Effect Significance	Secondary Mitigation	Residual Effect	Proposed Monitoring
Construction							
Temporary obstruction to other OWFs – all Tiers	Hywind Scotland Pilot Park	Low	High	Minor	None	No significant residual effect	None
Temporary obstruction to subsea cables and utilities developments and associated activities – all Tiers	Tampnet CNSFTC cable, Hywind Scotland Pilot Park and Green Volt OWF export cables	Low	High	Minor	None	No significant residual effect	None
Temporary obstruction to licensed marine disposal sites and associated activities – all Tiers	Peterhead (CR070) disposal site North Buchan Ness (CR080) disposal site	Low	High	Minor	None	No significant residual effect	None
Temporary obstruction to oil and gas developments and associated activities – all Tiers	Pipelines: Forties C to Cruden Bay (PL8) Forties C to Cruden Bay (PL721) 20” Gas Fulmar A – St Fergus (PL208) Miller To St. Fergus (PL720)	Low	High	Minor	None	No significant residual effect	None
Displacement of recreational sailing and motor cruising, recreational fishing and other recreational activities due to infrastructure, safety zones, and construction vessels in relation to the Proposed Development may result in a loss of recreational resource – all Tiers	All recreational receptors	Low	Medium	Minor	None	No significant residual effect	None
Operation and Maintenance							
Temporary obstruction to other OWFs – all Tiers	Hywind Scotland Pilot Park	Negligible	High	Negligible	None	No significant residual effect	None
Temporary obstruction to subsea cables and utilities developments and associated activities – all Tiers	Tampnet CNSFTC cable, Hywind Scotland Pilot Park and Green Volt OWF export cables	Negligible	High	Negligible	None	No significant residual effect	None
Temporary obstruction to licensed marine disposal sites and associated activities – all Tiers	Peterhead (CR070) disposal site North Buchan Ness (CR080) disposal site	Negligible	High	Negligible	None	No significant residual effect	None
Temporary obstruction to oil and gas developments and associated activities – all Tiers	Pipelines: Forties C to Cruden Bay (PL8) Forties C to Cruden Bay (PL721) 20” Gas Fulmar A – St Fergus (PL208) Miller To St. Fergus (PL720)	Negligible	High	Negligible	None	No significant residual effect	None
Displacement of recreational sailing and motor cruising, recreational fishing and other recreational activities due to infrastructure, safety zones, and construction vessels in relation to the Proposed Development may result in a loss of recreational resource – all Tiers	All recreational receptors	Negligible	Medium	Negligible	None	No significant residual effect	None
Decommissioning							
All cumulative effects	All relevant receptors	Low	Medium - High	Minor	None	No significant residual effect	None

19.13. REFERENCES

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