

Buchan Offshore Wind

Chapter 15 Military and Civil Aviation

QMS Review

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15.1 INTRODUCTION

- 15-1. This chapter forms part of the Environmental Impact Assessment Report (EIAR) for the Proposed Offshore Development. The purpose of the EIAR is to provide the decision-maker, stakeholders and all interested parties with the environmental information required to develop an informed view of any likely impacts resulting from the Proposed Offshore Development, as required by the EIA Regulations defined in **Volume 1, Chapter 2: Legislation and Policy**.
- 15-2. This EIAR chapter describes the potential impacts of the Offshore Generation and Offshore Transmission Infrastructure on military and civil aviation during the construction, operation and maintenance (O&M) and decommissioning phases. It also discusses appropriate mitigation and monitoring as required to address any likely significant effects identified.
- 15-3. The potential impacts of Wind Turbine Generators (WTGs) on Military and Civil Aviation are widely publicised, but the primary concern is one of safety. Buchan Offshore Wind Limited (the Applicant) has identified two dominant scenarios that lead to potential impacts:
- Physical obstruction: WTGs can present a physical obstruction to aircraft; and
 - Impacts on aviation radar systems and the provision of radar-based Air Traffic Services (ATS): WTGs can create unwanted radar clutter which appears on radar displays and can affect the provision of ATS to pilots. Radar clutter (or false radar returns) can make it difficult for air traffic controllers to differentiate between aircraft and those radar returns resulting from the detection of WTGs. Furthermore, the appearance of multiple false targets in close proximity can generate false aircraft tracks and seduce those returns from 'real' aircraft away from the true aircraft position.
- 15-4. It should be noted that adverse impacts on radar systems are only possible if the WTG blades are moving at operational speed, therefore this impact is generally applicable to the O&M only, or at the time of blade-tip installation depending on which location that takes place (i.e. within the Array Area or elsewhere).
- 15-5. **Section 15.16** of this Chapter provides a summary of the impact assessment and confirms the likely significance of residual effects on military and civil aviation after mitigation and/or monitoring measures have been considered.
- 15-6. The assessment should be read in conjunction with following linked and supporting chapters:
- **Volume 1, Chapter 5: EIA Methodology** - provides further details of the general EIA framework and approach to the EIA for the Proposed Offshore Development.
 - **Volume 2, Chapter 13: Shipping and Navigation** – pertains to WTG lighting and production of a Lighting and Marking Plan (LMP) which is relevant across aviation and shipping and navigation requirements, and lighting and marking will be required to comply with both aviation and shipping and navigation requirements.

15.2 PURPOSE OF THIS CHAPTER

- 15-7. The primary purpose of this Chapter of the EIAR defined in **Volume 1, Chapter 1: Introduction**. It is intended that the EIAR will provide Scottish Ministers, statutory and non-statutory stakeholders with sufficient information required to determine the Civil and

Military Aviation impacts arising as a result of the Proposed Offshore Development when determining the Application for Consent.

15-8. The objectives of this chapter are to:

- define legislation, guidance, and policy documents relevant to military and civil aviation;
- provide an overview of consultation activities and present the responses relevant to military and civil aviation ;
- provide definitions of the scope of the Study Area;
- present the methodology and significance criteria used in the impact assessment;
- define the military and civil aviation existing baseline environment;
- assess the potential impacts the Proposed Offshore Development may have on military and civil aviation from direct, indirect, and cumulative sources and determine any resulting likely significant effects; and
- describe any potential transboundary impacts and inter-relationships military and civil aviation.

15.3 LEGISLATION, POLICY AND GUIDANCE

15-9. A summary of legislation, policy, and guidance documents relevant to the assessment of effects on military and civil aviation is presented in the following sections and these have been referred to as appropriate in the characterisation of the baseline and the impact assessment. Overarching information in relation to the legal framework for the Proposed Offshore Development is provided in **Volume 1, Chapter 2: Legislation and Policy** of the EIAR.

15.3.1 Legislation

15-10. Relevant legislation directly applicable to the assessment of effects on military and civil aviation is illustrated in **Table 15-1**.

Table 15-1 Legislation Relevant to Military and Civil Aviation

Legislation	Summary	Relevance to this Chapter
Air Navigation Order (ANO) 2016/765' (2016a) (Version 6, 12th February 2021)	Contains the regulations made under the ANO, and defines the rules of the air regarding civil aviation in the United Kingdom (UK).	Stipulates the statutory aviation lighting requirements for offshore wind farms (OWFs) in the UK.

15.3.2 Policy

15-11. All policy directly applicable to the assessment of effects on military and civil aviation is illustrated in **Table 15-2**.

Table 15-2 Policy Relevant to Military and Civil Aviation

Policy	Summary	Relevance to this Chapter
Scottish Government (SG) Sectoral Marine Plan for Offshore Wind Energy (28 th October 2020)	Identifies sustainable plan options (POs) for the future development of commercial-scale offshore wind energy in Scotland, covering both Scottish inshore and offshore waters.	Instructs wind farm developers to take into account potential impacts for on defence and aviation sectors.
SG National Planning Framework 4 (NPF4) (9 th October 2024)	Sets out SG spatial principles, regional priorities, national developments and national planning policy.	NPF4 Policy 11 outlines how impacts on aviation and defence interests (including seismological recording) should be addressed.
CAP 437 – Standards for Offshore Helicopter Landing Areas (Version 9, 10 th February 2023)	Provides the criteria applied by the Civil Aviation Authority (CAA) in assessing the standards of offshore helicopter landing areas for worldwide use by helicopters registered in the UK.	Contains aviation lighting requirements should helihoist operations be required on operational wind turbines.
Civil Aviation Publication (CAP) 670 – ATS Safety Requirements (CAA, 2019)	Sets out the safety regulatory framework and requirements associated with the provision of ATS.	Provides context of the safety requirements associated with the provision of ATS by air traffic controllers such as NATS.
CAP 764 – CAA Policy and Guidelines on Wind Turbines (CAA, 2016b)	Provides CAA policy and guidance on a range of issues associated with WTGs and their effect on aviation that need to be considered by aviation stakeholders, wind energy developers and Local Planning Authorities when assessing the viability of WTG developments.	Ensures that developers consider all potential aviation issues and receptors associated with the development of wind farm projects.
CAP 774 – The UK Flight Information Services (Version 4, 15 th December 2021; CAA, 2017)	Details the suite of ATS which (excluding aerodrome services) are the only services provided in Class G (uncontrolled) airspace within the UK Flight Information Region (FIR). This document is equally applicable	Details the services provided by air traffic controllers including the separation criteria needed to ensure requisite distances are maintained between aircraft and unwanted radar returns

Policy	Summary	Relevance to this Chapter
	to civilian and military pilots and air traffic controllers.	(such as radar clutter created by wind turbines).
Military Aviation Authority (MAA) (2021) Regulatory Publication 3000 Series	Air Traffic Management Regulations (last updated 20th April 2021): Provides the regulatory framework and instructions to military personnel for provision of military Air Traffic Control (ATC).	Details military ATC instructions relevant to provision of ATS using military radar systems.
MAA Manual of Military Air Traffic Management (MAA, 2019)	Provides regulations for military ATC and emergency procedures and utilisation of military designated airspace.	Details use of military designated airspace such as Danger Areas and Practice Exercise Areas (PEXAs) potentially affected by development of wind turbines.

15.3.3 Guidance

15-12. All guidance directly applicable to the assessment of effects on military and civil aviation is illustrated in the list below;

- MoD Obstruction Lighting Guidance (1st January 2020; MoD, 2020): Sets out the MoD's minimum requirements and standards for installation of aviation lighting of onshore and offshore WTG developments;
- CAA 1:500,000 Visual Flight Rules (VFR) Aviation Chart (CAA, 2024a): Designed to assist in the navigation of aircraft. Enables pilots to determine their position, safe altitude and route to a destination, highlighting navigation aids along the way, alternative landing areas in case of an in-flight emergency, and other useful information such as radio frequencies and airspace boundaries;
- CAP 168 – Licensing of Aerodromes (Version 12, 14th January 2022b): Sets out the standards required at UK licenced aerodromes in terms of operational procedures, physical characteristics, assessment and treatment of obstacles, visual aids, rescue and fire-fighting services and medical services (CAA, 2022b);
- UK Integrated Aeronautical Information Package (UK IAIP) (CAA, 2024b): Provides comprehensive information on UK civilian aerodromes and aviation procedures within UK airspace;

- UK Military Aeronautical Information Publication (Mil AIP) (MoD, 2024): Provides comprehensive information on UK military aerodromes and guidance to military aircrew on in-flight navigation procedures;
- Marine Guidance Note (MGN) 654 – Safety of Navigation: Offshore Renewable Energy Installations (OREIs), Guidance on UK Navigational Practice, Safety and Emergency Response (28th April 2021): Highlights issues with assessing the impact on navigational safety and emergency response caused by OREIs in UK internal waters (HM Government, 2021).

15.4 CONSULTATION

- 15-13. The Applicant has sought opinion and advice from key stakeholders through scoping and consultation regarding the EIA Scoping Report for the Proposed Offshore Development (REF SCOP-0031) (which was submitted to the Marine Directorate – Licensing Operations Team (MD-LOT) in October 2023) (the Scoping Report). **Table 15-3** provides a summary of the key issues raised during the consultation process both at the Scoping Report phase and subsequently relevant to military and civil aviation and details how these issues have been considered in the production of this EIAR chapter.
- 15-14. Further detail on the Proposed Offshore Development’s overall EIA stakeholder consultation process is presented in **Volume 1, Chapter 5: EIA Methodology** of the EIAR.

Table 15-3 Consultation Relevant to Military and Civil Aviation

Consultee	Date / Document	Summary	Relevance to this Chapter
Scoping Opinion (REF SCOP-0031)			
MD-LOT	20 December 2023 Scoping Opinion	The Scottish Ministers are unable to provide advice regarding Military Aviation as final representation from the MoD has not been received. However, in the interim response received from the MoD (dated 6 November 2023), they note that they have concerns the development will affect radar line of sight (RLOS) from Remote Radar Head (RRH) Buchan. The Scottish Ministers therefore advise the Developer to engage with the MoD directly prior to submission of the EIA Report to determine the acceptability of the approach proposed in the Scoping Report.	The Applicant notes the comments of the Scottish Ministers. MoD's scoping response was received on 2 January 2024 and confirmed that the Proposed Offshore Development's wind turbines will be detectable to the AD radar at RRH Buchan. Potential impact on MoD operations is presented further within this table and in Sections 15.7 and 15.12 of this chapter.
Aberdeen International Airport	27 October 2023 Scoping Opinion	The proposed site is located outwith the wind farm consultation zone and Instrument Flight Procedures (IFPs) safeguarding zone for Aberdeen Airport and as such aviation impacts with regards to the airport are not expected.	The Applicant acknowledges Aberdeen International Airport's comments. As a result, potential impact on Aberdeen International Airport is not addressed further in the EIAR.
Edinburgh Airport	13 October 2023 Scoping Opinion	The location of this development falls out with the Aerodrome Safeguarding zone for Edinburgh Airport therefore we have no objection/comment.	The Applicant acknowledges Edinburgh Airport's comments. As a result, potential impact on Edinburgh Airport is not addressed further in the EIAR.
MoD	2 January 2024 Scoping Opinion	The Proposed Offshore Development's wind turbines will be detectable to the AD Radar at RRH Buchan. The impact of the turbines on the AD radar at RRH Buchan will therefore need to be addressed through a suitable technical mitigation solution. It is the Applicant's responsibility to provide a suitable technical mitigation solution to the MoD.	The Applicant accepts that the Proposed Offshore Development's wind turbines will be detectable to the AD radar at RRH Buchan and responsibility for providing a suitable technical mitigation solution. Potential impact on MoD operations is presented further within this table and in Sections 15.7 and 15.12 of this chapter.

Consultee	Date / Document	Summary	Relevance to this Chapter
		The Scoping Report identifies that the development would fall outside the operational range of the Royal Air Force (RAF) Lossiemouth ATC radar and therefore scopes this out of the EIA. MoD agrees with this conclusion.	Potential impact on the RAF Lossiemouth ATC radar is not addressed further in the EIAR. Potential impact on wider MoD operations is presented further within this table and in Sections 15.7 and 15.12 of this chapter.
		MoD acknowledges that a LMP will be developed in conjunction with relevant stakeholders prior to the construction of the Proposed Offshore Development in line with CAP 393 - Air Navigation. To mitigate any potential impact, it is common practice that the MoD will request that a Requirement is added to any planning consent that might be issued requiring the submission of information such as commencement dates, maximum turbine heights and the longitude and latitude of each wind turbine. This information is required to allow accurate charting of the development. MoD will request that the aviation warning lighting requirements is added as a Requirement to any consent that might be issued.	The Applicant acknowledges and accepts MoD's comments regarding aviation lighting and marking and provision of information to allow accurate charting of the Proposed Offshore Development. Further detail on these aspects are covered in Sections 15.7, 15.11 and 15.12 of this chapter.
		The Scoping Report states that the scoping array is situated outside the boundaries of any active prohibited, restricted, Danger Areas or PEXAS, therefore this impact is scoped out of the EIA. MoD agrees with this statement.	The Applicant acknowledges MoD's comments. As a result, potential impact on military PEXAs is not addressed further in the EIAR.
		The potential for unexploded ordnance (UXO) to be present within the development area and the necessity for clearance should be considered. The potential presence of UXO and disposal sites should be a consideration during the installation and decommissioning of turbines, cables, and any other infrastructure, or where other intrusive works are necessary.	UXO presence and subsequent avoidance or clearance is considered in Volume 1, Chapter: 4 Project Description . Pre-construction surveys will be undertaken to determine in detail the potential risk of UXO in the Proposed Offshore Development Site.

Consultee	Date / Document	Summary	Relevance to this Chapter
		MoD has highly surveyed routes which may be relevant to the installation of wind turbines, export cables (ECs) and associated infrastructure. At this time, we are unable to advise if the development will impede any highly surveyed routes in the area. An assessment to determine any impact has been requested and we will share the results as soon as we are able.	The Applicant wrote to MoD on 8 May 2024 requesting whether an assessment has yet been carried out to determine any impact on highly surveyed routes. MoD responded on 30 October 2024 confirming that there were no highly surveyed routes concerns for the Proposed Offshore Development. As a result, potential impact on highly surveyed routes is not addressed further in the EIAR.
NATS	5 October 2023 Scoping Opinion	NATS has been working with the Applicant at the pre-planning stage and is pleased to note that our concerns are to be included in the scope of the EIA for the Proposed Offshore Development. We will continue to work with the Applicant to explore these issues and develop mitigation options if appropriate.	The Applicant has continued to engage with NATS in preparation for this EIAR and a mitigation solution has been identified. Potential impact on NATS operations is presented in Sections 15.7 and 15.12 of this chapter.
Other Relevant Consultation to Date			
North Sea Helicopter Operators/Aberdeen ATC	15 December 2023 Online Meeting	The Applicant held an online meeting with the four main helicopter operators (Bristows, CHC, NHV and OHS) that routinely operate on the Helicopter Main Route Indicators (HMRIs) that route through the Array Area. Aberdeen ATC were also represented at the meeting. The aim of the meeting was to discuss any potential impact and agree a consolidated way forward in terms of mitigation (if required).	All four helicopter operators (Bristows, CHC, NHV and OHS) were agreed that the Proposed Offshore Development will not adversely impact helicopter operations on the HMRIs. The Applicant produced a record of the meeting and these were forwarded to the participants (Bristows, CHC, NHV and OHS) on 22 December 2023. Further detail on this aspect is covered in Sections 15.7 and 15.8 of this chapter.

15.5 STUDY AREA

15-15. The spatial scale of the Study Area for military and civil aviation includes the following:

- Array Area;
- Export Cable Corridor (ECC);
- Indicative Intermediate Reactive Compensation (IRC) area;
- intertidal area seaward of MHWS; and
- areas that may be impacted by changes in military and civil aviation.

15-16. A primary military and civil aviation study area is defined as a 9 nautical mile (nm) (17 kilometre (km)) buffer around the Array Area which will enable the impact of the WTGs as obstacles to aviation in the immediate vicinity of the Array Area to be determined; in particular in respect of low-visibility helicopter operations into offshore installations (oil and gas platforms) as recommended in CAP 764 - Policy and Guidelines on Wind Turbines (CAA, 2016a).

15-17. A secondary military and civil aviation study area is defined by the range of the affected aviation receptors; in particular, ATC and Air Defence (AD) Primary Surveillance Radars (PSRs). The secondary aviation study area covers radars in the north of Scotland that could potentially detect WTGs within the Array Area; with the extent of the study area defined by the furthest potential aviation receptor. The operating range of aviation radars can be up to 200 nm (370 km); however, it is only the likely radar coverage over the Array Area that needs to be taken into account, as the question of whether the WTGs themselves are visible to radar is the determining factor relating to aircraft safety (refer to **Section 15.1**). This has assisted in identifying whether any relevant PSRs, and stakeholders, may be affected. The primary military and civil aviation study area can be seen in **Figure 15-1** together with the locations of the relevant aviation receptors applicable to the secondary military and civil aviation study area.

15-18. It should be noted that the military and civil aviation study areas for this chapter only covers the potential impact on aviation of the Array Area and the proposed IRC platform infrastructure. It does not cover any export cable routes as it is not considered likely that aviation receptors would be affected by these elements of the Proposed Offshore Development.

15-19. Additionally, in the Scoping Report it was recognised that the Proposed Offshore Development will require facilities to fabricate, construct, and store the floating WTG units prior to transport out to the Array Area. The detailed requirement and location of WTG and floating foundation assembly and storage has not been identified and will be confirmed at detailed design stage. As and when these are confirmed the Applicant has determined that any consenting requirements regarding port activities will be consented as part of that separate consenting process, which may be undertaken by the Applicant or by supply chain providers. Consequently, potential impacts of WTG assembly and storage are not discussed further in this chapter

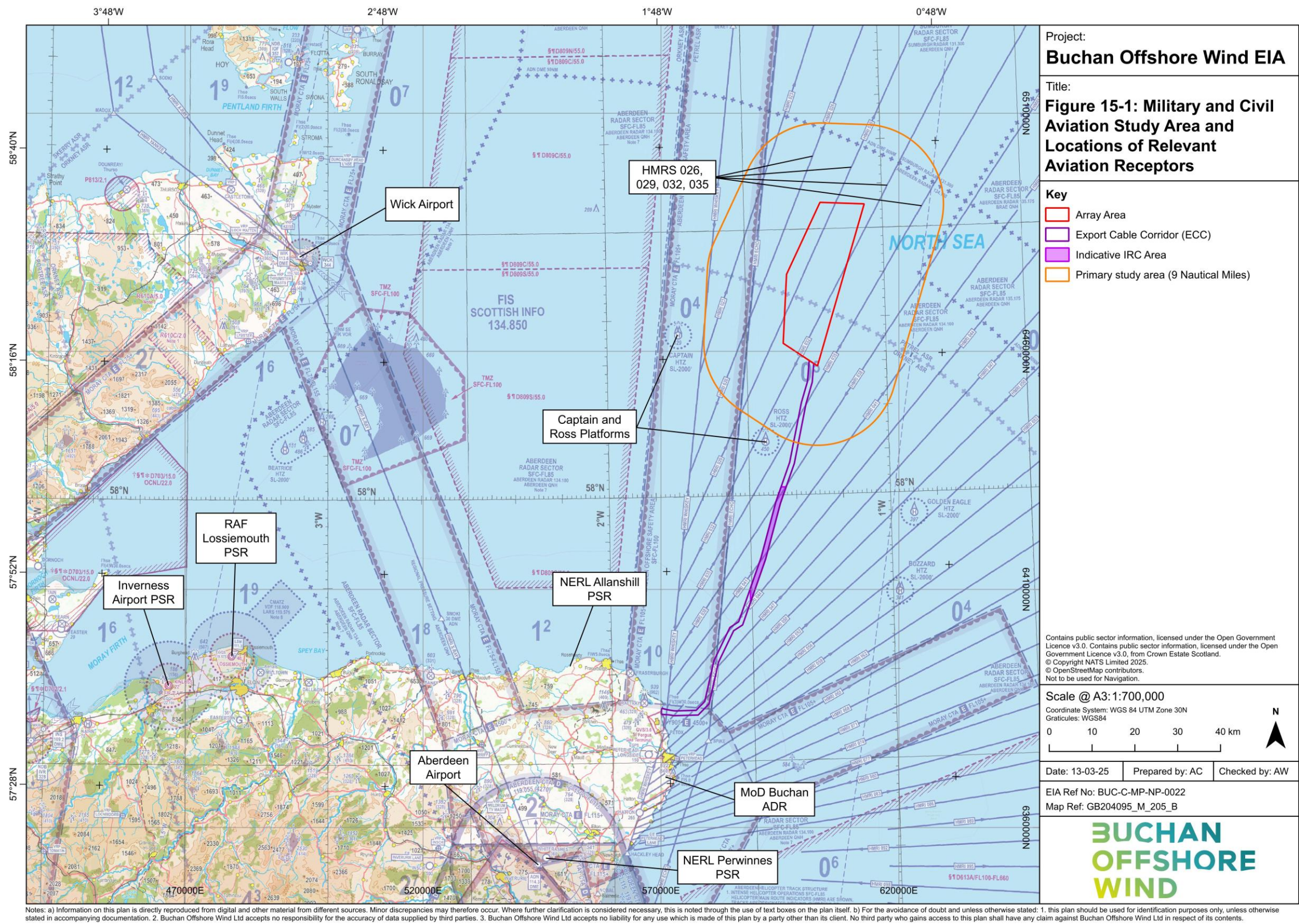


Figure 15-1 Military and Civil Aviation Study Area and Locations of Relevant Aviation Receptors

15.6 METHODOLOGY TO INFORM BASELINE ENVIRONMENT

15.6.1 Desktop Study

15-20. Information on military and civil aviation was collated through a detailed desk-based review of existing studies and datasets which are summarised in **Table 15-4**.

Table 15-4 Key Sources of Military and Civil Aviation Literature and Data

Literature/Data	Source	Year	Author
CAA 1:500,000 VFR Aviation Chart	NATS UK 1500K Chart Amendments (ead-it.com)	2024	CAA
UK IAIP	eAIS Package United Kingdom (nats.co.uk)	2024	CAA
UK Mil AIP	UK Mil AIP AIP (mod.uk)	2024	MoD
NATS Self-Assessment Maps	Wind farm self-assessment maps - Catalogue - NATS	2024	NATS
NPF4	National Planning Framework 4	2024	SG
Sectoral Marine Plan for Offshore Wind Energy	https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2020/10/sectoral-marine-plan-offshore-wind-energy/documents/sectoral-marine-plan-offshore-wind-energy/govscot%3Adocument/sectoral-marine-plan-offshore-wind-energy.pdf	2020	SG
European Offshore Wind Deployment Centre (EOWDC) Environmental Statement (ES)	Environmental Statement - Construction & Operation of Generating Station and Transmission Works - European Offshore Wind Deployment Centre, Aberdeen Bay marine.gov.scot	2011	EOWDC
Hywind Scotland Pilot Park	Report (marine.gov.scot)	2015	Statoil
Kincardine Offshore Windfarm Project ES	00528219.pdf (marine.gov.scot)	2017	Kincardine Offshore Windfarm Limited
Moray West OWF (Moray West) EIAR	https://marine.gov.scot/data/moray-west-offshore-windfarm-environmental-impact-assessment-report	2018	Moray West
Pentland Floating Offshore Windfarm (PFOWF)	Environmental Impact Assessment Report - Pentland Floating Offshore Wind Farm - Dounreay, Caithness marine.gov.scot	2022	PFOWF
Culzean Floating Wind Pilot Scoping Report	Scoping Report - TotalEnergies - Culzean Floating Offshore Wind Turbine Pilot Project marine.gov.scot	2023	TotalEnergies E&P UK
Green Volt OWF	Offshore Environmental Impact Assessment Report - Volume 1 - Technical Chapters - Green Volt Offshore Wind Farm - East of Aberdeenshire Coast marine.gov.scot	2023	Green Volt

15.6.2 Baseline Surveys

- 15-21. As set out at scoping, no site-specific surveys have been undertaken to inform the EIA for military and civil aviation. This is because receptor information and data related to this topic can be readily collected through desktop study, consultation with relevant stakeholders, and is currently available due to suitable data throughout the east Scotland region.

15.7 BASELINE ENVIRONMENT

- 15-22. A summary of the military and civil aviation baseline environment is provided in the following sections and should be read in conjunction with **Figure 15-1**.
- 15-23. A desk-based review of literature and available data sources (see **Table 15-4**), augmented by consultation has been undertaken to describe the current baseline environment for military and civil aviation. The key aviation receptors potentially impacted by OWF developments are:
- civil airport IFPs;
 - military aerodrome IFPs;
 - civil ATC radar;
 - military ATC radar;
 - military AD radar;
 - low flying areas (including Search and Rescue (SAR));
 - HMRI's;
 - offshore helicopter installations (oil and gas platforms);
 - local airspace restrictions (Prohibited/Restricted/Danger Areas and Military PEXAs); and
 - meteorological (Met) office radar.
- 15-24. The aviation environment within the vicinity of the Proposed Offshore Development is described as follows:

15.7.1 Airspace

- 15-25. The Array Area is located 40 nm (75 km) north-east of Fraserburgh in the outer Moray Firth, Scotland. In aviation terms, the Proposed Offshore Development is situated in a relatively uncomplicated piece of airspace but with two active HMRI's routeing south-west to north-east through the Array Area.

15.7.2 Civil Airports and Military Aerodrome IFPs

The nearest major civil airport, or military aerodrome, to the Array Area is Wick Airport, located approximately 55 nm (102 km) to the west. The obstacle safeguarding area for airports/aerodromes of this nature is 30 nm (56 km), therefore the Proposed Offshore Development's WTGs will not impact on any civil airport or military aerodrome IFPs.

15.7.3 Civil ATC Radars

- 15-26. The nearest civil ATC radars to the array area are the NATS Allanshill and Perwinnes radars which are located 49 nm (91 km) and 65 nm (120 km) respectively from the Array Area. NATS confirmed in their pre-planning response (**Table 15-3**) that only the Allanshill radar could be adversely impacted by the presence of the Proposed Offshore Development's WTGs.

15.7.4 Military ATC and AD Radars

- 15-27. The nearest military ATC radar to the WTGs within the primary study area is located at RAF Lossiemouth approximately 70 nm (130 km) to the south-west. This is outside the operational range of a radar of this nature, and it will not be affected by the Proposed Offshore Development. The nearest military AD radar to the Array Area is located at Remote Radar Head (RRH) Buchan which is 51 nm (94 km) to the south-west. MoD confirmed in their scoping response (**Table 15-3**) that the Buchan AD radar could be adversely impacted by the presence of the Proposed Offshore Development's WTGs.

15.7.5 Low flying Areas (including SAR)

- 15-28. The Array Area is located more than 12 nm (22 km) from the UK coastline and, therefore, is technically outside the UK Military Low Flying System; however, it is recognised that military aircraft may still be required to operate at low level in the vicinity of the Proposed Offshore Development. Installation and presence of WTGs, and the IRC, can pose a physical obstruction to aviation operations and can be difficult to see from the air, particularly in poor meteorological conditions, leading to a potential increase in obstacle collision risk. Furthermore, during the construction and O&M phases, the presence and movement of installation and maintenance vessels (with onboard cranes) may also present a potential obstacle collision risk to aircraft operations. Military aircraft can operate down to 100 ft above surface level over the sea.
- 15-29. UK SAR helicopters conducting operational missions are not constrained by the normal rules of the air and operate in accordance with their Aircraft Operator Certificate, which allows them flexibility to manoeuvre, as required, for the particular operation being carried out. An Emergency Response Co-operation Plan (ERCoP) will be compiled in accordance with Maritime and Coastguard Agency (MCA)'s MGN 654 in conjunction with the MCA. **Volume 2, Chapter 13: Shipping and Navigation** provides further information in respect of this. Additionally, a LMP (**Proposed Management Plan (PMP) 5: Proposed LMP**) will be developed in conjunction with relevant stakeholders prior to the construction of the Proposed Offshore Development in line with CAP 393 - Air Navigation: The Order and the Regulations and MGN 654 Safety of Navigation: OREIs (Guidance on UK Navigational Practice, Safety and Emergency Response).

15.7.6 HMRI

- 15-30. HMRI are established to support the transport of personnel and logistics to offshore oil and gas installations. HMRI provide a network of offshore routes used by civilian helicopters to facilitate an obstacle free zone for safe flight when in-flight Visual Meteorological Conditions (VMC) cannot be met. The HMRI structure therefore provides both an identification of common flight paths and a safe means of traffic flow. As in **Figure 15-1**, HMRI 029 and 032 route south-west to north-east through the Array Area itself, whereas HMRI 026 and 035 are situated just outside the western and eastern boundaries respectively. These HMRI are

primarily used for helicopter flights from Aberdeen Airport to the offshore oil and gas installations in the East Shetland Basin.

- 15-31. Construction of turbines within 2 nm (3.7 km) either side of an HMRI would have the potential to restrict operations below the routine operational altitudes when icing conditions exist. The ability of a helicopter to operate at the expected altitudes would be dependent upon the icing level (the 0° isotherm). In this situation, helicopters operating on HMRI's need an 'escape-route' if icing conditions are encountered unexpectedly; this would require a descent. However, as outlined in CAP 764, CAA guidance is that, provided there are no WTGs within 2 nm of one side of an HMRI, then helicopter operations on HMRI's should not be affected. In practice, many operational helicopters in this area are likely to utilise anti-icing technology that may have the effect of reducing the need to descend via an 'escape-route' in icing conditions. Furthermore, NATS note in their TOPA report that the shape of the site boundary limits the number of individual helicopter tracks that would overfly the Array Area.
- 15-32. The Applicant held an online meeting, on 15 December 2023, with the four main helicopter operators (Bristows, CHC, NHV and OHS) that routinely operate on the HMRI's that route through the Array Area. The details of this meeting are covered in Table 15-3.

15.7.7 Offshore helicopter installations (oil and gas platforms)

- 15-33. CAA recommend that wind farm developers consult with the owners/operators of offshore helicopter installations when a wind farm development is within 9 nm (17 km) of an oil and gas helicopter platform. The nearest offshore helicopter installations to the proposed WTGs are the Captain and Ross platforms, both of which are located outside the recommended 9 nm (17 km) consultation distance. As no offshore helicopter installations are within 9 nm (17 km) of the proposed WTGs, helicopter operations into offshore installations are not expected to be affected by the Proposed Offshore Development.

15.7.8 Local Airspace Restrictions (Prohibited/Restricted/Danger Areas and Military PEXAs)

- 15-34. The Proposed Offshore Development is situated outside the boundaries of any active Prohibited/Restricted/Danger Areas or Military PEXAs.

15.7.9 Met Office Radar

- 15-35. The closest Met Office radar system is located at Hill of Dudwick near Ellon, Aberdeenshire. It is located more than 45 nm (84 km) from the Array Area which is outside the 20 km safeguarding area for radars of this nature.

15.7.10 Future Changes

- 15-36. The EIA Regulations require that 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*" is included within the EIAR. This reflects how the baseline relevant to military and civil aviation is expected to evolve without the Proposed Offshore Development.

15-37. There are no anticipated future changes to the airspace and aviation environment in the vicinity of the Proposed Offshore Development that are expected to affect the assessment of likely significant effects on aviation receptors.

15.7.11 Data Limitations and Assumptions

15-38. The data used in this chapter are detailed in **Section 15.6.1**. The data used are the most up to date publicly available information, at time of writing, which can be obtained from the applicable data sources as cited. Data has also been provided through consultation, as detailed in **Table 15-4**.

15-39. It is considered that the data employed in the assessment are robust and sufficient for the purposes of the impact assessment presented.

15.8 IMPACTS SCOPED OUT OF THE ASSESSMENT

15-40. The Proposed Offshore Development received a Scoping Opinion from Marine Directorate (MD) (REF - SCOP 0031) which, alongside the understanding of maximum design scenarios and environmental baseline conditions has informed the impacts that are to be scoped out from further assessment in the EIAR. **Table 15-5** describes the impacts that have been scoped out of this military and civil aviation assessment.

Table 15-5 Impacts Scoped Out of the Assessment for Military and Civil Aviation (Ticked Items are Scoped Out)¹

Impact Scoped out	C	O	D	Justification
Civil Airport IFPs	✓	✓	✓	The Proposed Offshore Development's WTGs are outside the safeguarding area of any civil airports. The Proposed Offshore Development will therefore not create any physical obstacles within the safeguarding area for any civil airports. As such, this impact has been scoped out of the EIA.
Military Aerodrome IFPs	✓	✓	✓	The Proposed Offshore Development's WTGs are outside the safeguarding area of any military aerodromes. The Proposed Offshore Development will therefore not create any physical obstacles within the safeguarding area for any military aerodromes. As such, this impact has been scoped out of the EIA.
HMRIs	✓	✓	✓	The Applicant held an online meeting on 15 December 2023 with the four main helicopter operators (Bristows, CHC, NHV and OHS) that routinely operate on the HMRIs which route through the Proposed Offshore Development's Array Area. All four companies (Bristows, CHC, NHV and OHS) acknowledged that the Proposed Offshore Development will not adversely impact helicopter operations on the HMRIs.
Offshore helicopter installations	✓	✓	✓	In line with CAA guidance, the Proposed Offshore Development's WTGs are more than 9 nm (17 km) from any offshore helicopter installation. Consequently, helicopter operations into offshore installations are not expected to be affected by the Proposed

¹ C = Construction, O = Operation and Maintenance, D = Decommissioning

Impact Scoped out	C	O	D	Justification
				Offshore Development. As such, this impact has been scoped out of the EIA.
Local Airspace Restrictions	✓	✓	✓	There is no potential for the Proposed Offshore Development to impact on local airspace restrictions. As such, this impact has been scoped out of the EIA.
Military ATC radar	✓	✓	✓	The Proposed Offshore Development's WTGs are not within radar coverage of any military ATC radar systems. As such, this impact has been scoped out of the EIA.
Met Office radar	✓	✓	✓	The Proposed Offshore Development's WTGs are not within radar coverage of any Met Office radar systems. As such, this impact has been scoped out of the EIA.

15.9 METHOD FOR ASSESSMENT

15.9.1 Overview

15-41. In assessing the significance of the effects from the Proposed Offshore Development, the criteria for the assessment for aviation differ from those set out in **Volume 1, Chapter 5: EIA Methodology**. Defining set categories of receptor sensitivity and magnitude of impact is not appropriate for aviation as baseline aviation activities and equipment are typically highly sensitive to impacts and any magnitude of restriction on, or compromise to, activities or equipment (without applied mitigation) is considered to be high; however, mitigation measures can reduce the magnitude of impact. Therefore, the sensitivity of receptor and magnitude of impact have been explained within the assessment via professional reasoning and judgement on an impact-by-impact basis to enable the characterisation of significance, rather than via definitions of different categories. These judgements have fed into the determination of significance as shown in **Table 15-6** and represent a deviation from the standard methodology presented within **Volume 1, Chapter 5: EIA Methodology**.

15.9.1.1 Significance of Effect

15-42. A Likely Effect Significance Matrix will be used to determine the significance of an effect. In basic terms, the significance of an effect is a function of the sensitivity of the receptor and the magnitude of the impact, and overall effect significance upon military and civil aviation receptors can be determined (**Table 15-6**).

Table 15-6 Effect Significance Matrix

		Magnitude			
		High	Medium	Low	Negligible
Sensitivity	High	Major	Moderate	Minor	Negligible
	Medium	Moderate	Moderate	Minor	Negligible
	Low	Minor	Minor	Negligible	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

- 15-43. In cases where a range is suggested for the significance of effect, there remains the possibility that this may span the significance threshold (i.e. the range is given as minor to moderate). In such cases the final significance conclusion is based upon the author's professional judgement as to which outcome delineates the most likely effect. Where professional judgement is applied to quantify final significance from a range, the assessment will set out the factors that result in the final assessment of significance. These factors may include the likelihood that an effect will occur, data certainty and relevant information about the wider environmental context.
- 15-44. For the purposes of this assessment:
- a level of effect of moderate or more will be considered a 'significant' effect; and
 - a level of effect of minor or less will be considered 'not significant'.
- 15-45. Significant effects are therefore considered important in the decision-making process, whilst effects deemed as not significant have less weighting in the planning balance, and in the discretionary exercise of judgment by the decision maker. Effects significance is defined in **Table 15-7**.

Table 15-7 Effect Significance Definitions

Effect Significance	Definition
Major	Regular, frequent or permanent effects which require changes to existing operational and/or technical practice in order to mitigate adequately, or which are not capable of being mitigated adequately.
Moderate	Periodic effects experienced which may require alterations to existing operational practice.
Minor	Occasional effects experienced which do not require any alteration of existing operational and technical practice.
Negligible	Normally no measurable change from baseline conditions which therefore do not require any alteration of existing operational and technical practice.

15.10 MAXIMUM DESIGN SCENARIO

- 15-46. Detail of the Proposed Offshore Development activities and key components is provided in **Volume 1, Chapter 4: Project Description**. As this assessment is using the Project Design Envelope approach (please refer to Section 4.1.2 **Volume 1, Chapter 4: Project Description**), a maximum 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.
- 15-47. **Table 15-8** presents the maximum design scenario for each impact associated with the assessment on military and civil aviation, along with an accompanying justification.

Table 15-8 Maximum Design Scenarios Considered for Impacts for Assessment of Likely Significant Effects on Military and Civil Aviation

Likely Significant Effect	Phase ²			Maximum Design Scenario	Justification
	C	O	D		
Civil ATC radar	✗	✓	✗	<ul style="list-style-type: none"> •operation of up to 70 Floating WTGs with maximum tip height up to 340m from Still Water Line (SWL); and •310 m maximum rotor diameter. 	The Proposed Offshore Development's WTGs will be within radar coverage of the NATS Allanshill PSR systems. As such, this impact has been scoped in to the EIA.
Military AD radar	✗	✓	✗	<ul style="list-style-type: none"> •operation of up to 70 Floating WTGs with maximum tip height up to 340 m from SWL; and •310 m maximum rotor diameter. 	The Proposed Offshore Development's WTGs will be within radar coverage of MoD's Buchan AD radar. As such, this impact has been scoped in to the EIA.
Low flying (including SAR)	✓	✗	✗	<ul style="list-style-type: none"> •installation of up to 70 Floating WTGs with maximum tip height up to 340 m from SWL; •310 m maximum rotor diameter; •installation of the IRC with a maximum height of 60 m from SWL. 	There is potential for the Proposed Offshore Development's WTGs to impact on low-flying aircraft and, as such, the impact has been scoped in to the EIA.

^{2 2} C = Construction, O = Operation and Maintenance, D = Decommissioning

15.11 EMBEDDED MITIGATION AS PART OF THE PROPOSED OFFSHORE DEVELOPMENT

15-48. As part of the Proposed Offshore Development design process, several designed-in (embedded) mitigation measures have been proposed to reduce the potential for impacts on environmental receptors. As there is a commitment to implementing these measures, they are considered inherently part of the design of the Proposed Offshore Development and have therefore been considered in the assessment (i.e., the determination of magnitude and therefore the assessment of likely significance assumes implementation of these measures). These measures are considered standard industry practice for this type of development. The embedded commitments relevant to military and civil aviation are presented in **Table 15-9** and **Volume 3, Appendix 1.1: Commitments, Mitigation and Monitoring Register**.

Table 15-9 Embedded Mitigation Measures of Relevance to Military and Civil Aviation

Reference	Embedded Mitigation Measure	Justification
EM16	Development of and adherence to a Lighting and Marking Plan (LMP). The LMP will detail how the final design complies with legal requirements with regards to shipping, navigation and aviation marking and lighting.	To comply with CAA (2016). <i>CAP 393, Air Navigation: The Order and the Regulations (2016)</i> which sets out the mandatory requirements for the lighting of offshore wind turbines, and to ensure appropriate lighting is in place to facilitate aeronautical safety.
EM30	Development of, and adherence to, an Emergency Response Cooperation Plan (ERCoP) with agreement from the MCA.	To comply with MGN 654 – Safety of Navigation: OREIs, Guidance on UK Navigational Practice, Safety and Emergency Response (28th April 2021) which highlights issues with assessing the impact on navigational safety and emergency response caused by OREIs in UK internal waters.
EM35	All structures of more than 91.4 m in height will be provided to the Defence Geographic Centre to allow these to be charted on aeronautical charts prior to construction.	To comply with CAA (2016). <i>CAP 393, Air Navigation: The Order and the Regulations (2016)</i> which sets out the mandatory requirements for the lighting of offshore wind turbines, and to ensure appropriate lighting is in place to facilitate aeronautical safety.
EM36	Any temporary obstacles associated with wind farms which are of more than 91.4 m in height (e.g. construction infrastructure such as cranes and/or meteorological masts) are to be alerted to aircrews by means of the Notice to Airmen (NOTAM) system.	To comply with CAA (2016). <i>CAP 393, Air Navigation: The Order and the Regulations (2016)</i> which sets out the mandatory requirements for the lighting of offshore wind turbines, and to ensure appropriate lighting is in place to facilitate aeronautical safety.
EM37	CAA will be informed of the locations, heights and lighting status of the wind turbines, including estimated and actual dates of construction and the maximum heights of any construction	To comply with CAA (2016): CAP 764 - CAA Policy and Guidelines on Wind Turbines (Version 6, February 2016) which requires the CAA to be notified of the construction and location of wind turbines.

Reference	Embedded Mitigation Measure	Justification
	equipment to be used, prior to the start of construction.	

15.12 ASSESSMENT OF EFFECT SIGNIFICANCE

15-49. The potential effects arising from the construction, O&M and decommissioning phases of the Proposed Offshore Development are listed in **Table 15-8** along with the maximum design scenario against which each impact has been assessed. An assessment of the likely significance of the effects of the Proposed Offshore Development on the military and civil aviation receptors caused by each identified impact is detailed below.

15.12.1 Construction Phase

15.12.1.1 Impact 1 Potential impact on military low flying and SAR helicopter operations due to presence of obstacles (WTGs in construction)

15-50. The installation and presence of wind turbines pose physical obstructions to aviation operations carried out in the vicinity of wind farms. Wind turbines can be difficult to see from the air, particularly in poor Met conditions, leading to a potential increase in obstacle collision risk. Furthermore, during the construction phase, the presence and movement of installation infrastructure (e.g. cranes) may also present a potential obstacle collision risk to aircraft operations. As explained in **Section 15.9.1**, the sensitivity of aviation receptors is considered to be high, and the magnitude of baseline aviation activities and equipment (without mitigation) is considered to be high.

Magnitude of Impact

- 15-51. The presence of construction infrastructure, more than 91.4 m in height, will be alerted to pilots under the NOTAM system (**Table 15-9**). The NOTAM will provide details of potential hazards along a flight route, or at a location, that could affect the safety of flight. The cranes will also have appropriate aviation lighting installed.
- 15-52. In terms of WTGs and the IRC creating physical obstacles, aircraft operating at low levels are required to set a Minimum Safe Altitude (MSA); this is the lowest altitude set in areas to ensure safe separation between aircraft and known obstacles. The MSA for aircraft operating in Instrument Meteorological Conditions (IMC) (i.e. poor weather conditions), enables aircraft to maintain a minimum of 1,000 ft (305 m) clearance between aircraft and known obstacles.
- 15-53. As detailed in **Table 15-9**, potential impacts to low flying aircraft operating in the vicinity of the Proposed Offshore Development will be managed through the agreement of a LMP with key aviation stakeholders, and notification of the locations, heights and lighting status of the wind turbines to aviation stakeholders for inclusion in appropriate aviation documentation and charts. This will enable aviation operators to set an appropriate MSA over the Proposed Offshore Development. Implementation of the embedded mitigation measures (**Table 15-9**) enables the magnitude of impact to be assessed as Negligible.

Sensitivity of Receptor

- 15-54. Pilots are obliged to plan their flying activities in advance and to be familiar with any en-route obstacles they may encounter; however, during flight, weather conditions or operational requirements may necessitate route adjustments. In VMC (i.e. good weather conditions), pilots are ultimately responsible for seeing and avoiding obstructions such as WTGs and will be aware of their presence through the notification procedures set out in **Table 15-9**.
- 15-55. Aircraft completing low flying training in the vicinity of the Proposed Offshore Development would be considered to be operating in VMC. This means that aircraft will be operating in weather conditions in which pilots would have sufficient visibility to maintain visual separation from terrain, obstacles and other aircraft. The Proposed Offshore Development's WTGs and IRC would be additional obstacles that low flying aircraft would have to avoid.
- 15-56. The Applicant is committed to lighting and charting the turbines and IRC that, in the interests of air safety, the Proposed Offshore Development will be fitted with civilian, and military, accredited aviation safety lighting in accordance with the UK ANO, 2016 and further embedded mitigation measures, as outlined in **Table 15-9**, will be implemented to enable any potential impacts of the Proposed Offshore Development.. Irrespective of any embedded mitigation measures (**Table 15-9**) the sensitivity of the receptor remains high.

Significance of Effect

- 15-57. The sensitivity of low flying activities to change is considered to be high and, following implementation of embedded mitigation measures (**Table 15-9**) the magnitude of the impact is assessed as negligible. Therefore, as determined in the Effect Significance Matrix (**Table 15-6**) likely effects resulting from the Proposed Offshore Development are determined as Negligible, which is not significant in EIA terms.

15.12.2 Operation and Maintenance Phase

- 15-58. It should be noted that adverse impacts on PSRs are only possible if the wind turbine blades are moving, therefore this impact is applicable to the operational and maintenance phase only.
- 15-59. WTGs have been shown to have detrimental impacts on the performance of PSR systems and have the potential to impact the provision of radar-based ATS. These effects are explained in more detail in **Section 15.1**.

15.12.2.1 Impact 2 Potential impact on the NATS Allanshill ATC PSR (WTGs in operation)

- 15-60. NATS uses PSRs to support their provision of navigational services to aircraft operating between the UK and mainland Europe and to those overflying UK airspace. Surveillance data from the NATS Allanshill PSR is used by other air traffic service providers such as Aberdeen Airport who are responsible for the provision of navigational services to aircraft operating on civilian air routes.

Magnitude of Impact

- 15-61. Air traffic controllers are responsible for maintaining a minimum of 5 nm lateral separation between aircraft. Where line of sight to a PSR exists, wind turbines may appear incorrectly as genuine aircraft targets and could mask true aircraft responses. The radar may also be desensitised by its clutter processing within the sector containing wind turbines meaning that true aircraft targets may disappear from radar. The magnitude of impact is therefore, considered to be High.

Sensitivity of Receptor

- 15-62. Desensitisation of PSRs could result in aircraft not being detected by the radar and therefore aircraft returns not presented to air traffic controllers. Controllers use the radar to separate and sequence aircraft; therefore, maintaining situational awareness of all aircraft movements within the airspace is crucial to achieving a safe and efficient ATS, and the integrity of radar data is central to this process. The creation of unwanted returns displayed on the radar leads to increased workload for both controllers and aircrews. Furthermore, real aircraft returns can be obscured by a wind turbine's radar return, making the tracking of both conflicting unknown aircraft and the controllers' own traffic much more difficult.
- 15-63. In its scoping response (**Table 15-3**), NATS confirmed that false primary plots are likely to be generated on the Allanshill PSR which would create a reduction in the radar's probability of detection for real aircraft. Consequently, NATS considered that the impact on the Allanshill PSR would be unacceptable. The sensitivity of the receptor is therefore, considered to be High.

Significance of Effect

- 15-64. The sensitivity of the NATS Allanshill PSR to change is considered to be high and, without secondary mitigation measures, the magnitude of the impact is assessed as high. Therefore, as determined in the Effect Significance Matrix (**Table 15-6**) any likely significant effects resulting from the Proposed Offshore Development are determined as Major, which is significant in EIA terms.

Secondary Mitigation and Residual Effect

- 15-65. NATS has proven processes and techniques to mitigate the adverse impact of wind turbines on their PSRs. The Applicant has engaged with NATS about potential mitigation solutions and NATS has identified that Multi-Radar Tracker (MRT) blanking, a technical mitigation solution routinely offered by NATS that removes WTG returns from the ATC radar display, will provide suitable mitigation. In combination, NATS has requested that the MRT blanking is accompanied by a Transponder Mandatory Zone (TMZ). This provides an added layer of mitigation by ensuring that all aircraft transiting overhead the 'blanked' area carry a serviceable transponder which enables them to be tracked by means of Secondary Surveillance Radar (SSR) without reliance on PSR. Implementation of a TMZ requires developers to submit an Airspace Change Proposal (ACP) to the CAA for which a formal airspace change process has to be followed.
- 15-66. The Applicant intends to continue negotiations with NATS with the aim of delivering the agreed PSR mitigation solution prior to the operational and maintenance phase of the Proposed Offshore Development.

15-67. Once the agreed mitigation solution is implemented, the magnitude of the impact is deemed to be negligible and the sensitivity of the receptor is considered to be high. The effect will, therefore, be of Negligible significance, which is not significant in EIA terms.

15.12.2.2 Impact 3 Potential impact on the MoD Buchan AD PSR (WTGs in operation)

15-68. The MoD AD organisation is responsible for compiling a Recognized Air Picture (RAP) to monitor the airspace in and around the UK to launch a response to potential airborne threats. This is achieved through the utilisation of a network of long-range radars positioned in various locations around the UK. AD radar resources are used in support of training exercises on an almost daily basis. AD units, using radar data supplied from the network of AD radars, are also responsible for navigation services and support to aircraft activity within restricted airspace within which promulgated activities include air combat training and supersonic flight.

Magnitude of Impact

15-69. Wind turbines within coverage of an AD PSR could shield the radar from genuine aircraft targets and/or hide them from AD controllers. The result would impact the controller's ability to provide a safe service to aircraft in support of training exercises and in using the radar data to monitor the UK RAP. The magnitude is therefore, considered to be high.

Sensitivity of Receptor

15-70. WTGs within the Array Area will be visible to the Buchan AD PSR and will adversely impact on MoD AD operations. In their scoping response (**Table 15-3**), MoD confirmed that the Proposed Offshore Development is likely to impact, and be detectable to, the Buchan AD PSR and that this impact would need to be taken into account and mitigated. The sensitivity of the receptor is therefore, considered to be high.

Significance of Effect

15-71. The sensitivity of the MoD Buchan AD PSR to change is considered to be high and, without secondary mitigation measures, the magnitude of the impact is assessed as high. Therefore, as determined in the Likely Effect Significance Matrix (**Table 15-6**) any likely significant effects resulting from the Proposed Offshore Development are determined as Major which is significant in EIA terms.

Secondary Mitigation and Residual Effect

15-72. MoD has a recognised process for entering into agreement for AD PSR mitigation. The Applicant has engaged with MoD regarding the suitability of 3-Dimensional Non-Automatic Initiation Zones (3-D NAIzs) as mitigation. This involves in-built software technology which enables wind turbine clutter to be removed from AD radar displays while allowing aircraft initiated outside 3D-NAIzs to continue to be tracked through the wind farm. Typically, OWF 3D-NAIzs are established 2 km radius from the centre of each turbine up to a ceiling height 2,500 ft. In order to progress this mitigation, MoD advised the Applicant that it would be willing to consider 3D-NAIZ mitigation. Acceptance of 3D-NAIZ as mitigation will allow MoD to remove their planning objection subject to agreement of a suitably worded Section 36 planning condition. The Applicant will continue to engage with MoD in this regard.

- 15-73. The Applicant is also aware that the Offshore Wind Industry Council (OWIC) is working jointly with MoD and other developers to develop and procure replacement/additional AD surveillance technology in order to mitigate the impact of offshore WTGs on UK-based AD radars. The ultimate aim will be to have mitigations in place to support offshore wind developments from 2026.
- 15-74. The Applicant intends to continue negotiations with MoD with the aim of delivering the most suitable AD PSR mitigation solution prior to the operational and maintenance phase of the Proposed Offshore Development.
- 15-75. Once a mitigation solution is implemented, the magnitude of the impact is deemed to be negligible and the sensitivity of the receptor is considered to be high. The resulting effect will, therefore, be of Negligible significance, which is not significant in EIA terms.

15.12.3 Decommissioning Phase

- 15-76. No effects on military and civil aviation are expected during the decommissioning phase further to those effects identified, and subsequently mitigated, in relation to the construction and O&M phases.

15.12.4 Proposed Monitoring

- 15-77. No military and civil aviation monitoring to test the predictions made within the assessment of effects is considered necessary due to sufficient secondary mitigation solutions being identified.

15.13 CUMULATIVE EFFECTS ASSESSMENT

- 15-78. In terms of cumulative assessment, any potential impact on an aviation receptor is generally treated as a standalone impact. Whilst other wind farm developments may be located in close proximity, the impact and likely significant effect on each receptor is considered on a case-by-case basis. Although mitigation may have been agreed for other developments, discussion and agreement with aviation stakeholders will be carried out under separate arrangement, specific to the Proposed Offshore Development. It is considered that mitigation will be agreed and implemented following engagement with key stakeholders which will mitigate possible impacts resulting from Proposed Offshore Development.
- 15-79. Following the implementation of mitigation measures for the Proposed Offshore Development there is no potential for the predicted impacts to interact with impacts from other developments and activities in the military and civil aviation study area that can lead to a cumulative effect on receptors. Consequently, no further assessment with respect to cumulative effects is required.

15.14 TRANSBOUNDARY EFFECTS

- 15-80. A transboundary effect assessment is used to identify the potential military and civil aviation effects from the Proposed Offshore Development on the interests of European Economic Areas (EEA States).

A screening of transboundary impacts has been carried out and has identified sufficient distance from international boundaries exists so that no transboundary effects will occur upon aviation receptors due to construction, O&M and decommissioning of the Proposed

Offshore Development. The potential impacts are localised and therefore do not need to be considered further in this chapter.

15.15 INTER-RELATED EFFECTS

- 15-81. The scale of likely significant effects to military and civil aviation receptors progressively increases during construction as the WTGs and ancillary structures are installed. Once installed, the infrastructure causing physical obstacles to air traffic will remain constant until the decommissioning phase. The effects of military and civil aviation 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. Therefore, across the Proposed Offshore Development lifetime, the effects on military and civil aviation receptors 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.

15.16 SUMMARY

- 15-82. The construction, O&M and decommissioning phases of the Proposed Offshore Development would impact military and civil aviation receptors. The magnitude of these impacts and sensitivity of receptors have been assessed using expert assessment, drawing from a wide base that includes specific surveys and radar modelling activities. A summary of the residual effects of the Proposed Offshore Development on military and civil aviation is listed in **Table 15-10**.
- 15-83. Overall, it is concluded that, once embedded and secondary mitigation measures are implemented, the Proposed Offshore Development will not have any residual likely significant effects on military and civil aviation receptors.

Table 15-10 Summary of the Likely Significant Environmental Effects, Mitigation, Monitoring and Residual Effects for Military and Civil Aviation

Description of Impact	Phase			Magnitude of Impact	Sensitivity of Receptor	Embedded Mitigation Measures	Significance of Effect	Secondary Mitigation Measures	Residual Effect	Proposed Monitoring
	C	O	D							
Potential impact on military low flying and SAR helicopter operations due to presence of obstacles (WTGs in construction)	✓	✓	✓	Negligible	High	EM16, EM30, EM35, EM36, EM37	Negligible	Not required (embedded mitigation only)	Negligible	Not required
Potential impact on the NATS Allanshill ATC PSR (WTGs in operation)	✗	✓	✗	High	High	-	Major	MRT Blanking and TMZ agreed with NATS	Negligible	Not required
Potential impact on the MoD Buchan AD PSR (WTGs in operation)	✗	✓	✗	High	High	-	Major	3-D NAIZ mitigation; or strategic AD PSR mitigation solution implemented by MoD/OWIC TF.	Negligible	Not required

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