

Morven Offshore Wind Farm

Morven Hawthorn Pit Grid Connection Project

Preliminary Environmental Information Report

Volume 2, Chapter 10: Infrastructure and Other Sea Users

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Glossary

Term	Meaning
the Applicant	The legal entity making the applications for consent; Morven Offshore Wind Limited (MvOWL).
Automatic Identification System (AIS)	A system by which vessels automatically broadcast their identity, key statistics including location, destination, length, speed and current status. Most commercial vessels and EU fishing vessels over 15m length overall are required to carry AIS.
Bathing Waters	Waters designated under the Bathing Water Regulations 2013 (SI 2013/1675) for the purpose of protecting public health, where water quality is routinely monitored for bacteria levels and the results are published.
Cable protection	Measures used to protect subsea cables where burial is not possible, due to seabed conditions or at cable crossings, to ensure cable stability and reduce risks from anchors, fishing gear and environmental forces.
Commitments	Measures (embedded mitigation and secondary) to be adopted during the construction, operation and maintenance, and decommissioning phases of the MHPGC Project.
Cumulative effect	The combined effect of the MHPGC Project in combined with the effects from other proposed developments, on the same receptor or resource.
Cumulative effects assessment	Assessment of the likely effects arising from the MHPGC Project alongside the likely effects arising from other proposed developments on the same receptor or resource.
Development Consent Order (DCO)	An order made under the Planning Act 2008, as amended, granting development consent.
Effect	Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of the impact with the importance, or sensitivity, of the receptor or resource in accordance with defined significance criteria.
Embedded mitigation	Measures included as part of the project design. Includes both primary and tertiary mitigation.
Environmental Impact Assessment (EIA)	The process of identifying and assessing the significant effects likely to arise from a project. This requires consideration of the likely changes to the environment, where these arise as a consequence of a project, through comparison with the existing and projected future baseline conditions.
Future baseline	Refers to the predicted situation in future years without the MHPGC Project.
High Voltage Direct Current (HVDC)	A HVDC electric power transmission system uses direct current for electric power transmission, in contrast to the more common alternating current systems. Most HVDC links use voltages between 100kV and 800kV.
Impact	A change caused by an action that occurs during a project's lifetime.
Inter-related effects	Effects that may arise from the interactions between different topic effects considered within the alone assessment, potentially leading

Term	Meaning
	to more significant effects than if they were to be considered in isolation.
Landfall	The area in which the offshore export cables make landfall (come onshore) and the transitional area between the offshore cabling and the onshore cabling. This term applies to the entire landfall area between the trenchless technique exit pits and the transition joint bay inclusive of all construction works.
Magnitude	A combination of the spatial extent, duration, frequency and reversibility of an impact
Marine Directorate Licensing Operations Team (MD-LOT)	The part of the Scottish Government's Marine Directorate responsible for assessing and administering applications for marine licences for Scottish waters and Section 36 consent (offshore) in Scotland.
Marine Management Organisation (MMO)	The MMO, as a UK government body, is responsible for licensing, regulating and overseeing activities in the marine environment for English waters. For a DCO and deemed marine licence, the MMO acts as a statutory consultee, advising on marine planning, environmental impacts, habitats and compliance with marine licensing regulations.
Maximum Design Scenario (MDS)	The realistic worst case scenario, selected on a topic-specific and impact specific basis, from a range of potential parameters for the MHPGC Project.
Mean High Water Springs (MHWS)	The most inshore level location reached by the sea at high tide during mean high water spring tide. This is defined as the average throughout the year, of two successive high waters, during a 24-hour period in each month when the range of the tide is at its greatest.
MHPGC Project Environmental Statement (ES)	The document presenting the results of the Environmental Impact Assessment process.
MHPGC Project PEIR Red Line Boundary	The area within which all components of the MHPGC Project will be located, including areas required on a temporary basis during construction and/or decommissioning (such as construction compounds).
MHPGC Project Preliminary Environmental Information Report (PEIR)	A report that provides preliminary environmental information in accordance with the Infrastructure Planning (Environmental Impact A report that provides preliminary environmental information in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. This is information that enables consultees to understand the likely significant environmental effects of a project and which helps to inform consultation responses.
MHPGC Project Scoping Report	A Scoping Report for the MHPGC Project, scoping the likely significant effects of the project on the environment, was submitted and accepted by Planning Inspectorate (PINS) and submitted to the Scottish Ministers, via the Marine Directorate – Licencing Operations Team (MD-LOT) in February 2025.
MHPGC Project Scoping Opinions	Separate scoping opinions received from PINS (on behalf of the Secretary of State) and MD-LOT (on behalf of the Scottish Ministers) in response to the MHPGC Project Scoping Report. The MHPGC Project Scoping Opinions contain the range of issues that PINS, and MD-LOT in consultation with statutory stakeholders, have identified should be considered within the EIA process.

Term	Meaning
Morven Hawthorn Pit Grid Connection Project	The MHPGC Project is comprised of the offshore export cables in Scottish and English waters from the Morven North or the Morven South OSP, landfall, onshore export cables, the onshore land substation (LSS) and AC connection cables. Also referred to in this report as the MHPGC Project, for ease of reading.
Morven North Offshore Wind Array Project (hereafter 'Morven North')	The Morven North Offshore Wind Array Project which includes the wind turbines and foundations, Offshore Substation Platforms and foundations, inter-array and interconnector cables and associated infrastructure located within the Morven North Boundary.
Morven North Offshore Wind Array Project and Morven South Offshore Wind Array Project	Morven North and Morven South comprises the Morven North Offshore Wind Array Project and the Morven South Offshore Wind Array Projects collectively.
Morven Programme	The Morven Programme comprises the MHPGC Project, Morven North, Morven South and MBAGC Project collectively.
Morven South Offshore Wind Array Project	The Morven South Offshore Wind Array Project, which includes the wind turbines and foundations, OSPs and foundations, inter-array and interconnector cables and associated infrastructure located within the Morven South Boundary.
National Policy Statement (NPS)	Policy statements published by the Department for Energy Security and Net Zero and designated under the Planning Act 2008, setting out national policy for Nationally Significant Infrastructure Projects.
Navigational Risk Assessment (NRA)	A document which assesses the overall impact to shipping and navigation of a proposed Offshore Renewable Energy Installation based on Formal Safety Assessment.
Notice to Mariners	A release of navigational information and advice to assist mariners navigating in a particular region.
Offshore export cables	HVDC cables which bring electricity from either the Morven North or Morven South offshore substation platform to the TJB at landfall.
Offshore substation platforms (OSP(s))	OSP(s) comprise the support structure, topside and electrical components used for collecting the electricity generated by the wind turbine generators, in Scottish waters, for the passage or transmission to landfall. These OSP(s) can be divided into two types: – HVAC collector substations; – HVDC converter substations.
Operations and maintenance phase (O&M)	The operational and maintenance phase of the MHPGC Project..
Planning Inspectorate (PINS)	The PINS is an executive agency of the UK Government responsible for administering and examining DCO applications for Nationally Significant Infrastructure Projects (NSIPs) in England. PINS manages the application process, oversees consultation and examination, and makes a recommendation to the relevant Secretary of State on whether consent should be granted.
Primary mitigation	Modifications to the location or design of the MHPGC Project made during the pre-application phase that are an inherent part of the MHPGC Project and do not require additional action to be taken.

Term	Meaning
	This includes modifications arising through the iterative design process. These measures will be secured through the consent itself through the description of the MHPGC Project, the parameters and associated commitments secured by the DCO and marine licence, or both.
Receptor	A specific environmental feature, resource, population or asset that may be affected by the MHPGC Project, either directly or indirectly, and which falls within the environmental topics considered under the EIA Regulations.
Residual effects	Effects that continue to exist after mitigation has been applied.
Secondary mitigation	Actions that will require further activity to achieve the anticipated outcome and may be imposed as part of the planning consent, or through inclusion in the ES. These include measures required to reduce the significance of environmental effects and may be secured through an environmental management plan. For secondary mitigation measures, both pre-mitigation and residual effects are presented.
Significance	Effect factor that is determined by the magnitude of impact along with the sensitivity of the receptor.
Tertiary mitigation	Actions that would occur with or without input from the EIA process feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects.
the Study Area	For each environmental topic, the baseline environment will be characterised, and the likely significant effect will be described within a topic-specific Study Area. Specific Study Areas are defined for each topic and are based on the maximum spatial extent across which likely significant effects of the MHPGC Project may be experienced by the relevant receptors (i.e. Zone of Influence).
Transboundary impact	Potential impacts resulting from MHPGC Project and affecting another European Economic Area (EEA) state.
Transboundary effects	Assessment of likely significant effects resulting from MHPGC Project on the interests of another EEA state(s).

Acronyms

Acronym	Meaning
AIAA	Area of Intense Aerial Activity
AIS	Automatic Identification System
CAA	Civil Aviation Authority
CBRA	Cable Burial Risk Assessment
CCS	Carbon Capture and Storage
CFLO	Company Fisheries Liaison Officer
CEA	Cumulative Effect Assessment

Acronym	Meaning
CEFAS	Centre for Environmental, Fisheries and Aquaculture Science
CES	Crown Estate Scotland
CNS	Communications, Navigation and Surveillance
CCUS	Carbon Capture, Usage and Storage
COLREG	Convention on the International Regulations for Preventing Collisions at Sea
CSIP	Cable Specification and Installation Plan
CSV	Construction Support Vessel
CTV	Crew Transfer Vessel
DCO	Development Consent Order
DEFRA	Department of Environment, Forestry, and Rural Affairs
DESNZ	Department for Energy Security and Net Zero
dML	Deemed Marine Licence
EAA	European Economic Area
EGL	Eastern Green Link
EIA	Environmental Impact Assessment
EMODnet	European Marine Observation and Data Network
ES	Environmental Statement
ESCA	European Subsea Cables Association
EU	European Union
FLOWW	Fishing Liaison with Offshore Wind and Wet Renewable Group
GIS	Geographic Information System
GV	Guard Vessel
HDD	Horizontal Directional Drilling
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IOSU	Infrastructure and Other Sea Users
ICPC	International Cable Protection Committee
IEMA	Institute of Environmental Management and Assessment
INTOG	Innovation and Targeted Oil and Gas
ISEP	Institute of Sustainability and Environmental Professionals
KP	Kilometre Point
LAT	Lowest Astronomical Tide
LSE	Likely Significant Effect
LSS	Land Substation
MBAGC	Morven Branxton Area Grid Connection

Acronym	Meaning
MCA	Maritime and Coastguard Agency
MD-LOT	Marine Directorate – Licensing Operations Team
MDS	Maximum Design Scenario
MFE	Mass Flow Excavator
MHPGC	Morven Hawthorn Pit Grid Connection
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
MoD	Ministry of Defence
MPS	Marine Policy Statement
MvOWL	Morven Offshore Wind Limited
NATS	National Air Traffic Services
NBN	National Biodiversity Network
NGETO	National Grid Electricity Transmission Organisation
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSP	Navigational Safety Plan
NSTA	North Sea Transition Authority
NtM	Notices to Mariners
O&M	Operations and Maintenance
OEMP	Outline Offshore Environmental Management Plan
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSP	Offshore Substation Platform
OWF	Offshore Wind Farm
PEIR	Preliminary Environmental Information Report
PEXA	Military Practice and Exercise Areas
PINS	Planning Inspectorate
RAF	Royal Air Force
RAM	Rapid Response and Maintenance
RLB	Red Line Boundary
RYA	Royal Yachting Association
SCUBA	Self-Contained Underwater Breathing Apparatus
SOV	Service Operation Vessel
SSC	Suspended Sediment Concentrations
SSEN	Scottish and Southern Electricity Networks
TCE	The Crown Estate

Acronym	Meaning
UK	United Kingdom
UKHO	United Kingdom Hydrographic Office
USV	Uncrewed Surface Vessel
UXO	Unexploded Ordnance
VMS	Vessel Monitoring System

Units

Unit	Meaning
GW	Gigawatt
km	Kilometre
km^2	Kilometre squared
m	metre
m/hr	Metre per hour
MW	Megawatts
m^2	Square metres
m^3	Cubic metres
kg/s	Kilograms per second
%	Percent
nm	Nautical miles
kg/m^3	Kilograms per cubic metre

10 Infrastructure and Other Sea Users

10.1 Introduction

10.1.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents the preliminary findings of the Environmental Impact Assessment (EIA) work undertaken to date for the Morven Hawthorn Pit Grid Connection Project (hereafter 'MHPGC Project'), as described in **Volume 1, Chapter 2: Project Description, of the PEIR**.

10.1.1.2 The chapter considers the potential impacts and effects on Infrastructure and Other Sea Users (IOSU) that could result from the construction, operation and maintenance (O&M) and decommissioning phases of the MHPGC Project. Specifically, it relates to the offshore elements of the MHPGC Project from the point of connection at the offshore substation platform(s) (OSPs) within Morven North Offshore Wind Array Project or Morven South Offshore Wind Array Project (hereafter 'Morven North' and 'Morven South'), located within Scottish offshore waters, transiting through English offshore and inshore waters, to Mean High Water Springs (MHWS) at landfall.

10.1.1.3 This chapter describes the methodology, datasets that have informed the preliminary assessment, baseline conditions, including future baseline, mitigation measures and the preliminary residual significant effects on IOSU that could result from the MHPGC Project.

10.1.1.4 The assessment is informed by the following chapters:

- **Volume 1, Chapter 2: Project Description, of the PEIR**;
- **Volume 1, Chapter 3: Site Selection & Consideration of Alternatives, of the PEIR**;
- **Volume 1, Chapter 4: Approach to Environmental Impact Assessment, of the PEIR**;
- **Volume 1, Chapter 5: Policy and Legislation, of the PEIR**;
- **Volume 2, Chapter 1: Physical Processes, of the PEIR**;
- **Volume 2, Chapter 7: Commercial Fisheries, of the PEIR**;
- **Volume 2, Chapter 8: Shipping and Navigation, of the PEIR**;
- **Volume 4, Chapter 5: Inter-related Effects, of the PEIR**.

10.1.1.5 The chapter also draws on information contained within the following annexes:

- **Volume 1, Annex 4.1: Draft Commitments Register, of the PEIR**.

10.1.1.6 This PEIR will offer a comprehensive overview of the MHPGC Project's potential environmental impacts and mitigation measures, presenting essential data to stakeholders for review and feedback. The PEIR will also be informed by the ongoing pre-application consultation process.

10.1.1.7 Following statutory consultation, comments will be reviewed and considered, where appropriate, in preparation of the Environmental Statement (ES) that will accompany the application to the Planning Inspectorate (PINS) for development consent and a marine licence application to Marine Directorate Licensing Operations Team (MD-LOT).

10.1.1.8 The offshore elements of the MHPGC Project comprise subsea offshore export cables and associated cable protection, installation, operation and maintenance and decommissioning activities. The offshore elements of the MHPGC Project do not include any permanent surface-piercing infrastructure. Following installation, the offshore export cables will be buried beneath the seabed where practicable and no offshore platforms, substations, turbines or other permanent surface-piercing structures form part of the MHPGC Project offshore. Offshore construction, operation and maintenance and decommissioning activities will be undertaken using vessels; however, the MHPGC Project does not require the use of exceptionally large crane vessels or other vessels of a height likely to interact with aviation receptors. Consequently, the potential for impacts on aviation receptors is inherently limited.

10.1.1.9 The Scoping Opinion (PINS, 2025) requested that several impacts in relation to Aviation (Military and Civil) and Radar be scoped-in based on the scoping response from Defence Infrastructure Organisation (DIO). However, due to the low potential for impacts on aviation receptors as described above, the Applicant proposes to scope-out all aviation-related impacts from further assessment. The PEIR details only the subsea export cable, not the array area, which has been

assessed within a different EIA. Further detail and justification is provided in **Section 10.6.2** of this chapter.

10.2 Legislative and policy context

10.2.1 Overview

10.2.1.1 The full relevant legislation and policy context for the MHPGC Project has been detailed in **Volume 1, Chapter 5: Policy and Legislation, of the PEIR**. This section sets out the legislation and planning policy that is relevant to the preliminary IOSU assessment.

10.2.2 Legislation

10.2.2.1 The relevant legislation relating to IOSU chapter is detailed below:

Table 10.1: Summary of the Legislation relevant to IOSU

Legislation	Jurisdiction	Relevance
Marine and Coastal Access Act	England and UK offshore waters, including Scottish offshore waters (12nm to 200nm)	Marine licensing, marine planning, conservation and management of marine activities.
Marine (Scotland) Act 2010	Scotland (0nm to 12nm inshore waters)	Marine Planning, marine licensing, conservation and management of competing marine users.
Electricity Act 2004	England and Scotland	Consent regime for Offshore Wind Farms (OWF)s, and transmission infrastructure.
Energy Act 2004	England and Scotland	Consent regime for OWFs and transmission infrastructure.
Petroleum Act 1998	England and Scotland	Oil and gas infrastructure, pipelines and decomissioning.
Harbours Act 1964	England and Scotland	Harbour development, harbour revision orders and port infrastructure.
Merchant Shipping Act 1995	England and Scotland	Shipping safety, navigation, wrecks and vessel operations.
Coastal Protection Act 1949	England and Scotland	Coastal defence and certain coastal infrastructure works.
Crown Estate Scotland Act 2019	Scotland	Management and leasing of seabed for OWF and associated infrastructure.
Aquaculture and Fisheries (Scotland) Act 2013	Scotland	Management of fisheries and aquaculture, relevant where infrastructure interacts with these sectors.
Submarine Telegraph Act 1885	England and Scotland	Protection of submarine cables and communication infrastructure
Telecommunications Act 1984	England and Scotland	Telecommunications infrastructure, including subsea cables.

10.2.3 National policy context

10.2.3.1 The MHPGC Project is subject to a multi-jurisdictional planning and consent regime, reflecting its location across Scottish and English waters. In England, the project will require a Development

Consent Order (DCO) under the Planning Act 2008, to be determined by the Secretary of State (SoS).

10.2.3.2 In Scottish waters, Marine Licence(s) will be sought from the MD-LOT. The project is also subject to EIA under the relevant EIA regulations.

10.2.3.3 Further detail on the legislation and policy framework is provided in **Volume 1, Chapter 5: Policy and Legislation, of the PEIR**.

National Policy Statements

10.2.3.4 National Policy Statements (NPS) set out the primary policy framework for a DCO under which the MHPGC Project will be considered. This framework includes guidelines, requirements and criteria that the MHPGC Project must meet to obtain consent and proceed with development**. Table 10.2** provides details of the NPS relevant to IOSU and how and where they are covered in the PEIR:

- NPS for energy (EN-1) (DESNZ, 2025);
- NPS for renewable energy infrastructure (EN-3) (DESNZ, 2025a);
- NPS for Electricity Networks Infrastructure (EN-5) (DESNZ, 2025b).

Table 10.2: Summary of the NPS provisions relevant to IOSU

Summary of relevant NPS provisions	How and where considered in the PEIR
NPS EN-1	
Paragraph 5.5.36: *"…It is important that new energy infrastructure does not unacceptably impede or compromise the safe and effective use of any defence assets or operations."*	Potential impacts on defence assets and operations including military practice and exercise areas (PEXA) have been scoped into this chapter of the PEIR following consultation on the MHPGC Project Scoping Report. The safe and effective use of defence assets and operations including military PEXA has therefore been considered in **Section 10.8** and **Section 10.1** with consideration of commitments as set out in **Section 10.7**.
Paragraph 5.5.40: *"…The applicant should consult the Ministry of Defence (MoD), Met Office, Civil Aviation Authority (CAA), National Air Traffic Services (NATS) and any aerodrome – licensed or otherwise – likely to be affected by the proposed development in preparing an assessment of the proposal on aviation, meteorological or other defence interests."*	A summary of consultation and engagement with the MoD, Met Office, CAA and NATS undertaken to date relevant to the MHPGC Project is presented in **Section 10.3**.
Paragraph 5.5.41: *"…Any assessment of effects on aviation, meteorological or other defence interests should include potential impacts of the project upon the operation of communications, navigation and surveillance (CNS) infrastructure, flight patterns (both civil and military), generation of weather warnings and forecasts, other defence assets (including radar) and aerodrome operational procedures. It should also assess the demonstratable cumulative effects of the project with other relevant projects in relation to aviation, meteorological and defence."*	As the MHPGC Project offshore infrastructure will be located on or below the seabed, comprising a buried subsea cable, no impact pathway has been identified to aviation or meteorological receptors. The MHPGC Project does not include any offshore above-surface structures which could interfere with aircraft activity or meteorological radar and forecasting infrastructure. Therefore, impacts on aviation and meteorological receptors are scoped out of the assessment for all phases of the MHPGC Project, as agreed with consultees. Other military defence interests relevant to the MHPGC Project are presented within **Section 10.4.5,** and potential impacts are assessed in **Section 10.8** and **Section 10.1** with consideration of commitments as set out in **Section 10.7.** Any onshore aviation, meteorological or other defence interests have been scoped out of the assessment, as confirmed in Scoping Opinion ID 5.3.2 and 5.3.3 (PINS, 2025) and 5.15.2 (MD-LOT, 2025).

Summary of relevant NPS provisions	How and where considered in the PEIR
Paragraph 5.5.61: *"…Where a proposed energy infrastructure development would significantly impede or compromise the safe and effective use of civil or military aviation, meteorological radars, defence assets and/or significantly limit military training, the Secretary of State may consider the use of 'Grampian conditions', or other forms of requirement which relate to the use of current or future technological solutions, to mitigate impacts on legacy CNS equipment."*	As the MHPGC Project offshore infrastructure will be located on or below the seabed, comprising a buried subsea cable, no impact pathway has been identified to aviation or meteorological receptors. The MHPGC Project does not include any above-surface structures which could interfere with aircraft activity or meteorological radar and forecasting infrastructure. Therefore, impacts on aviation and meteorological receptors are scoped out of the assessment for all phases of the MHPGC Project, as agreed with consultees. An assessment of the potential effects of the MHPGC Project on defence assets (e.g. military PEXA) is presented in **Section 10.8** and **Section 10.1** with consideration of commitments as set out in **Section 10.7.**
NPS EN-3	
Paragraph 2.8.167: *"…There may be constraints imposed on the siting or design of OFWs because of the presence of other offshore infrastructure, such as oil and gas, Carbon Capture, Usage and Storage (CCUS), co-location of electrolysers for hydrogen production, marine aggregate dredging, telecommunications, or activities such as aviation and recreation."*	Details of consultation and engagement relevant to other offshore infrastructure and activities are presented in **Table 10.4** and **Table 10.5**. Other offshore infrastructure considered to be relevant to the MHPGC Project is presented in **Section 10.4.5.** An assessment of the potential effects on relevant offshore infrastructure and activities, such as oil and gas, is presented in in **Section 10.8** and **Section 10.1** with consideration of commitments as set out in **Section 10.7.**
Paragraph 2.8.169: *"…Applicants should consult the government's Marine Plans (further detailed in Section 4.5 of EN-1) which are a useful information source of existing and known or potential activities and infrastructure."*	A review of relevant Marine Plans has been undertaken, and the outcomes are presented in **Section 10.2.4**.
Paragraph 2.8.170: *"…Prior to the submission of an application involving the development of the seabed, applicants should engage with key stakeholders, such as The Crown Estate and statutory bodies to ensure they are aware of any current or emerging interests on or underneath the seabed which might give rise to a conflict with a specific application. This will ensure adequate opportunity to reduce potential conflicts and increase time to find a resolution."*	Details of consultation and engagement from key stakeholders related to this chapter are presented in **Table 10.4** and further consultation in **Table 10.5**.
Paragraph 2.8.171: *"…Applicants should engage with interested parties in the potentially affected offshore sectors early in the pre-application phase of the proposed OWFs, with an aim to resolve as many issues as possible prior to the submission of an application."*	Details of consultation and engagement from stakeholders and potentially affected parties are presented in **Table 10.4** and further consultation in **Table 10.5**. The assessment of cumulative effects in **Section 10.1** considers the potential for cumulative interactions for a range of defined whole project and cumulative scenarios, for example between the MHPGC Project and other offshore wind developments at different stages of development.
Paragraph 2.8.172: *"…Where a potential OWF is proposed close to existing operational offshore infrastructure or has the potential to affect activities for which a licence has been issued by government, the applicant should undertake an assessment of the potential effects of the proposed development on such existing or permitted infrastructure or activities. The assessment should*	The assessment has considered potential effects of the MHPGC Project on existing operational offshore infrastructure such as access restriction to infrastructure through vessel presence. **Section 10.8** has provided an assessment of their likely significance, considering each phase of the development process (i.e. construction, O&M, and decommissioning), with consideration of embedded

Summary of relevant NPS provisions	How and where considered in the PEIR
be undertaken for all stages of the lifespan of the proposed wind farm in accordance with the appropriate policy and guidance for OWF EIAs."	commitments as set out in **Section 10.7.** The assessment of cumulative effects in **Section 10.1** considers the potential for cumulative interactions for a range of defined whole project and cumulative scenarios, for example between the MHPGC Project and other offshore wind developments at different stages of development.
Paragraph 2.8.175: *"…The applicant will also need to consider impacts on civil and military radar and other aviation and defence interests (Section 5.5 of EN-1)."*	An assessment of the potential effects of the MHPGC Project on defence assets (e.g. military PEXA) is presented in in **Section 10.8** and **Section 10.1** with consideration of commitments as set out in **Section 10.7.**
Paragraphs 2.8.309 to 2.8.311: *"…Where a proposed OWF potentially affects other offshore infrastructure or activity, a pragmatic approach should be employed by the Secretary of State (SoS).* *Much of this infrastructure is important to other offshore industries as is its contribution to the United Kingdom (UK) economy.* *In such circumstances, the Secretary of State should expect the applicant to work with the impacted sector to minimise negative impacts and reduce risks to as low as reasonably practicable."*	The assessment has considered potential effects of the MHPGC Project on existing operational offshore infrastructure and in **Section 10.8** has provided an assessment of their likely significance, considering each phase of the development process (i.e. construction, O&M, and decommissioning) with consideration of commitments as set out in **Section 10.7**. The assessment of cumulative effects in **Section 10.1** considers the potential for cumulative interactions for a range of defined whole project and cumulative scenarios, for example between the MHPGC Project and other offshore wind developments at different stages of development.
Paragraph 2.8.228: *"…Detailed discussions between the applicant for the OWF and the relevant consultees should have progressed as far as reasonably possible prior to the submission of an application. As such, appropriate mitigation should be included in any application and ideally agreed between relevant parties."*	Consultation with relevant stakeholders has been undertaken and continues through the pre-application consultation process. Details of consultation and engagement are presented in **Table 10.4** and further consultation in **Table 10.5**. Commitments as part of the MHPGC Project is presented in **Section 10.7**.
Paragraph 2.8.312: *"…As such, the Secretary of State should be satisfied that the site selection and site design of the proposed OWF has been made with a view to avoiding or minimising disruption or economic loss or any adverse effect on safety to other offshore industries. Applicants will be required to demonstrate that risks to safety will be reduced to as low as reasonably practicable."*	As described in **Volume 1, Chapter 3: Site Selection & Consideration of Alternatives, of the PEIR**, the MHPGC Project has been sited to reduce the potential impacts with IOSU receptors where possible. Consultation has been undertaken and continues through the pre-application consultation process. Details are presented in **Section 10.3.** In cases where the potential for adverse impacts has been highlighted through consultation (see **Table 10.4** and further consultation in **Table 10.5**), commitments have been proposed to reduce or negate impacts **Section 10.7** (see **Table 10.18**).
Paragraph 2.8.315: *"…Providing proposed schemes have been carefully designed, and that the necessary consultation with relevant bodies and stakeholders has been undertaken at an early stage, mitigation measures may be possible to negate or reduce effects on other offshore infrastructure or operations to a level sufficient to enable the Secretary of State to grant consent."*	
NPS EN-5	
Paragraph 2.2.9 and 2.2.10, regarding site selection and design: *"...In particular, the applicant should consider such characteristics as the local topography, the possibilities for screening of the infrastructure and/or other options to mitigate any impacts"* *"As well as having duties under section 9 of the Electricity Act 1989, (in relation to developing and maintaining an economical and efficient network), applicants must take into account Schedule 9 to the Electricity Act 1989, which places a duty on*	This chapter considers the potential impacts of the MHPGC Project on other marine users, including features, sites, buildings or objects. **Table 10.10** details the nearby receptors affected.

Summary of relevant NPS provisions	How and where considered in the PEIR
all transmission and distribution licence holders, in formulating proposals for new electricity networks infrastructure, to "…do what (the) reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects."	
Paragraph 2.9.10 *"Cumulative adverse landscape, seascape and visual impacts may arise where new overhead lines are required along with other related developments such as substations, wind farms, and/or other new sources of generation."*	The MHPGC Project does not include any new overhead lines. Potential cumulative impacts relevant to the MHPGC Project are detailed in **Section 10.1**.
Paragraph 2.14.2 *"In the assessments of their designs, applicants should demonstrate:* *How environmental, community and other impacts have been considered and how adverse impacts have followed the mitigation hierarchy i.e. avoidance, reduction and mitigation of adverse impacts through good design;* *How the construction planning for the proposals has been coordinated with that for other similar projects in the area on a similar timeline"*	Environmental and other impacts associated with the MHPGC Project have been considered throughout the design and assessment process. **Section 10.7** sets out the embedded mitigation measures incorporated into the MHPGC Project and demonstrates how the mitigation hierarchy has been applied through the avoidance and reduction of potential adverse effects through project design. **Section 10.1** identifies and considers other projects within the study area, including the wider Morven Programme, and presents the approach to assessing interactions with these developments. Construction planning and coordination measures will continue to be developed through the detailed project design and construction planning process.

National Planning Policy Framework

10.2.3.5 Due to the nature of IOSU, no policies have been considered relevant to this chapter and therefore the National Planning Policy Framework (NPPF) has not been considered here.

10.2.4 Marine planning policy context

10.2.4.1 The following marine plans are relevant to IOSU and have informed the assessment of preliminary effects in this chapter, their relevance to the MHPGC Project is outlined in **Table 10.3**:

- The UK Marine Policy Statement (MPS) (DEFRA, 2020);
- Scotland's National Marine Plan (Marine Directorate, 2015);
- Northeast Inshore and Northeast Offshore Marine Plan (MMO, 2021).

Table 10.3: Marine planning policy relevant to IOSU

Marine plan description	How and where considered in the PEIR
UK Marine Policy Statement	
The UK MPS is the framework for preparing Marine Plans and taking decisions affecting the marine environment. The MPS ensures that marine resources are used in a sustainable way by ensuring biodiversity is protected and conserved by using the precautionary principle and relying on sound evidence.	The potential impact of the MHPGC Project on marine resources and IOSU is assessed in **Section 10.8.** This includes consideration of marine disposal operations, subsea cables, OWFs, military PEXA and recreational activities within the IOSU study area. For assessment of potential impacts on commercial fisheries and the use of certain fishing gear see **Volume 2,**
Paragraph 3.3.29: *"…There are obvious social and economic benefits from such an increase in network capacity, most notably the facilitation of offshore renewable energy. There are also social and economic risks associated with such an increase in underwater cabling, which may affect activities such as dredging and the use of*	

Marine plan description	How and where considered in the PEIR
certain fishing gear, and impact on other sea users, including existing cable and pipeline operators."	**Chapter 7: Commercial Fisheries, of the PEIR**.
Scottish National Marine Plan	
The Scottish National Marine Plan covers the management of both Scottish inshore waters and offshore waters. This National Marine Plan sets out strategic policies for the sustainable development of Scotland's marine resources.	Consultation with relevant stakeholders has been undertaken and continues through the pre-application consultation process. Details of consultation and engagement are presented in **Table 10.4** and further consultation in **Table 10.5.**
Renewables 8: *"…Developers bringing forward proposals for new developments must actively engage at an early stage with the general public and interested stakeholders of the area to which the proposal relates and of adjoining areas which may be affected."*	
Northeast Inshore and Offshore Marine Plan	
NE-CO-1: Proposals that optimise the use of space and incorporate opportunities for co-existence and cooperation with existing activities will be supported. Proposals that may have significant adverse impacts on, or displace, existing activities must demonstrate that they will, in order of preference: a) avoid b) minimise c) mitigate adverse impacts so they are no longer significant. If it is not possible to mitigate significant adverse impacts, proposals must state the case for proceeding.	Potential impacts on IOSU has been assessed in **Section 10.8**, this includes any existing activities within the IOSU Study Area. In cases where potential impacts are highlighted through consultation (see **Table 10.4**), commitments have been proposed to reduce or negate impacts (see **Table 10.18**).
NE-DD-2: Proposals that cause significant adverse impacts on licensed disposal sites should not be supported. Proposals that may have significant adverse impacts on licensed disposal sites must demonstrate that they will, in order of preference: a) avoid b) minimise c) mitigate adverse impacts so they are no longer significant. If it is not possible to mitigate the significant adverse impacts, proposals must state the case for proceeding.	Potential impacts on licensed disposal sites are assessed in **Section 10.8**. In cases where potential impacts have been highlighted through consultation (see **Table 10.4**), commitments have been proposed to reduce or negate impacts (see **Table 10.18**).
NE-ACC-1: Proposals demonstrating appropriate enhanced and inclusive public access to and within the marine area, including the provision of services for tourism and recreation activities, will be supported. Proposals that may have significant adverse impacts on public access should demonstrate that they will, in order of preference: a) avoid b) minimise c) mitigate adverse impacts so they are no longer significant.	Potential impacts on IOSU have been assessed in **Section 10.8**, including potential impacts on recreational activities and tourism-related use of the marine environment within the MHPGC Project IOSU Study Area. In cases where potential impacts have been highlighted through consultation in regard to public access e.g. displacement of recreational vessels or restricted beach access (see **Table 10.4**), commitments have been proposed to reduce or negate impacts (see **Table 10.18**).
NE-TR-1: Proposals that promote or facilitate sustainable tourism and recreation activities, or that create appropriate opportunities to expand or diversify the current use of facilities, should be supported. Proposals that may have significant adverse impacts on tourism and recreation activities must demonstrate that they will, in order of preference: a) avoid b) minimise	

Marine plan description	How and where considered in the PEIR
c) mitigate adverse impacts so they are no longer significant.	
NE-DEF-1: Proposals in or affecting MoD areas should only be authorised with agreement from the MoD.	Potential impacts on the military PEXA are assessed in **Section 10.8**. Consultation with the MoD is ongoing, and correspondence received as part of scoping has been captured in **Section 10.3**.

10.3 Consultation and engagement

10.3.1 Scoping

10.3.1.1 A Scoping Report for the MHPGC Project was issued to the PINS and MD-LOT in February 2025 (RPS, 2025). Following consultation with the appropriate statutory bodies, PINS (on behalf of the SoS) and MD-LOT both provided Scoping Opinions in March 2025 (PINS, 2025; MD-LOT, 2025, respectively).

Table 10.4: Summary of scoping responses relevant to IOSU

Comment	How and where considered in the PEIR
Maritime and Coastguard Agency (MCA)	
The Environmental Impact Report should supply detail on the possible impact on navigational issues for both commercial and recreational craft, specifically: • Collision Risk. • Navigational Safety. • Visual intrusion and noise. • Risk Management and Emergency response. • Marking and lighting of site and information to mariners. • Effect on small craft navigational and communication equipment. • The risk to drifting recreational craft in adverse weather or tidal conditions. • The likely squeeze of small craft into the routes of larger commercial vessels. The development area carries a moderate amount of traffic with several important commercial shipping routes to/from UK ports and the North Sea. Attention needs to be paid to routing, particularly in heavy weather so that vessels can continue to make safe passage without large-scale deviations. The likely cumulative and in combination effects on shipping routes should be considered for this project. It should consider the proximity to other windfarm developments, other infrastructure, and the impact on safe navigable sea room. The likely cumulative and in combination effects on shipping routes should be considered for this project. It should consider the proximity to other windfarm developments, other infrastructure, and the impact on safe navigable sea room.	Displacement impacts on recreational craft are assessed in **Section 10.8**. All navigation-related impacts listed, including those relating to commercial and recreational vessels, collision risk, navigational safety, emergency response, and marking and lighting, are assessed within **Volume 2, Chapter 8: Shipping and Navigation, of the PEIR**. Cumulative effects are assessed in **Section 10.1**.

Comment	How and where considered in the PEIR
Marine Management Organisation	
The MMO defers to the MCA and Trinity House on the suitability of the scope of the assessment with regards to navigation of vessels.	Navigational safety and risk to recreational vessels are considered in **Volume 2, Chapter 8: Shipping and Navigation, of the PEIR**.
The MMO have stated, if dredge and disposal is required, a disposal method should be provided including the maximum volume and area of material to be disposed of. This must be provided in order to make an assessment of the proposed activity and to allow the proposed volumes to be included on any DCO. This is usually part of a Site Characterisation Report (SCR).	Dredging and disposal requirements have been considered in the development of the MHPGC Project. Where dredge and disposal activities are required, details of the disposal method, disposal area, and maximum disposal volumes will be provided within a Dredge and Disposal Site Characterisation Report. Potential impacts on marine disposal sites are assessed in **Section 10.8**, with baseline information on disposal sites presented in **Section 10.4.5.** The designation of disposal areas, including consideration of existing open disposal sites and any site-specific disposal requirements, will be developed in consultation with the MMO.
Royal Yachting Association (RYA) Scotland	
Rather few recreational vessels are likely to pass over the line of the export cable in Scottish waters, although there will be some. The only impact on recreational vessels could be during the cable laying phase. However, cable laying is covered in the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREG), with which all recreational boaters are expected to be familiar. I see no need for any additional data collection beyond that required by the MCA.	The potential impact on recreational vessels during the cable laying phase e.g. the construction phase is assessed for displacement of recreational activities in **Section 10.8**. Commitments have been proposed to reduce or negate impacts (see **Table 10.18**). Navigational safety and risk to recreational vessels are considered in **Volume 2, Chapter 8: Shipping and Navigation, of the PEIR**.
MD-LOT	
The Scottish Ministers emphasise the importance of engaging with other marine users, including developers of ScotWind and Innovation and Targeted Oil and Gas (INTOG) projects, during all phases of the Proposed Works and in particular, refer the Applicant further to the SSEN (Scottish and Southern Electricity Networks) Transmission representation.	Consultation with relevant IOSU stakeholders has been undertaken and continues through the pre-application consultation process. Details of consultation and engagement are presented in **Section 10.3, Table 10.4** and further consultation in **Table 10.5.**
MoD – Defence Infrastructure Organisation	
D513, Druridge Bay falls within the scoping area and is referenced on Figure 7.34 as a firing practice area and also in Section 7.9.5.10 (of the MHPGC Project Scoping Report). This area should be taken account of as the project moves forward to ensure no adverse effects are caused to military training conducted there. The potential need for sub-sea cable installations routed through this Danger Area to be fitted with protection from projectiles or other objects that may be dropped into the sea as a consequence of military training should be taken into account.	Military PEXA D513 has been considered in the design and assessment and considered as part of the route planning and site selection for the MHPGC Project PEIR Red Line Boundary to ensure no significant adverse effects are caused to military training activities. Potential impacts including disruption to military exercises within the PEXA are assessed in **Section 10.8** and consultation with the MoD is ongoing.
The impact listing for 'Potential disruption to military PEXA' should be scoped into the assessment ongoing due to PEXA D513, Druridge Bay and the potential to impact on military training.	
The MoD will be able to provide specific advice, as may be necessary, on the proposed cable	

Comment	How and where considered in the PEIR
installation when more detailed information becomes available.	
PINS	
PINS 3.11.1 Interference with offshore microwave fixed communication links (construction and decommissioning) - The Inspectorate accepts that interference with offshore microwave fixed communication links between offshore oil and gas platforms is likely to be limited to the operational phase. However, the applicant should ensure consultation with relevant operators addresses potential effects prior to full operation as above, and if any effects are identified these should be assessed in the ES.	The primary cause of interference on microwave communications is rotating blades associated with turbines, which do not form any part of the transmission infrastructure proposed for the MHPGC Project. Additionally, the MHPGC Project does not include any surface infrastructure, and vessel presence is not considered as a pathway of effect. Therefore, there is no impact pathway between the MHPGC Project and offshore microwave fixed communication links, and this impact has been scoped out of further assessment within this PEIR chapter.
PINS 3.11.2 Increased suspended sediment concentrations (SSC) and associated deposition affecting aggregate extraction areas - Given the information in the Scoping Report demonstrating the absence of aggregate extraction areas within the study area, the Inspectorate agrees that no impact pathway exists. The Inspectorate agrees to scope this matter out of the ES, subject to any changes to aggregate extraction areas that may occur as the EIA is refined.	Noted, no further consideration of increased SSC and associated deposition affecting aggregate extraction areas is included within this PEIR chapter (see **Table 10.15**). This will be reviewed during the preparation of the ES for any changes to aggregate extraction areas.
PINS 3.11.3 Alterations to sediment transport pathways affecting aggregate extraction areas - Given the information in the Scoping Report demonstrating the absence of aggregate extraction areas within the study area, the Inspectorate agrees that no impact pathway exists. The Inspectorate agrees to scope this matter out of the ES, subject to any changes to aggregate extraction areas that may occur as the EIA is refined.	Noted. No further consideration of alterations to sediment transport pathways affecting aggregate extraction areas is included within this PEIR chapter.
PINS 3.11.4 Impacts on Carbon Capture and Storage (CCS) - The Scoping Report seeks to scope this matter out on the grounds that there would be no spatial overlap with existing or proposed CCS sites so there would be no pathway for Likely Significant Effect (LSE). The Inspectorate agrees that this matter can be scoped out of further assessment. Should proposed CCS sites be identified within the study area in future, the ES would need to address this matter.	Noted. No further consideration of impacts on CCS is included within this PEIR chapter.
AVIATION: PINS 5.3.5 Potential disruption to military practice and exercise areas (PEXA) - The Scoping Report states that no PEXA is located within the scoping boundary, however the response from the Ministry of Defence states that this is not the case. The Inspectorate cannot agree to scope this matter out at this stage and an assessment of LSE should be included in the ES. The applicant's attention is drawn to the response from the Ministry of Defence at appendix 2 of this Opinion.	Military PEXA D513 has been considered in the design and assessment and considered as part of the route planning and site selection for the MHPGC Project PEIR Red Line Boundary to ensure no significant adverse effects are caused to military training activities. Potential impacts including disruption to military exercises within the PEXA are assessed in **Section 10.8** and consultation with the MoD is ongoing.

10.3.2 Further consultation and engagement

10.3.2.1 Additional consultation has been summarised in **Table 10.5.**

Table 10.5: Summary of further consultation and engagement

Date	Consultee and response type	Comment	How and where considered in the PEIR
04 March 2026	Defence Infrastructure Organisation (DIO), email correspondence	An email was issued outlining the MHPGC Project background and programme timeline. It was noted that project vessel activity may interact with military training exercises, particularly within the D513 area. The MoD/DIO was invited to provide feedback on any potential interactions or constraints and to advise whether a follow-up meeting or further project information would assist in discussing specific issues or concerns. A follow up email was subsequently issued on 18/08/2026 to the DIO and response received on 24/08/2026.	The military practice area D513 has been considered as the MHPGC Project has developed to ensure that no adverse effects are caused to military training conducted there. Potential impacts on military PEXA and military training areas are assessed in **Section 10.8**. Email correspondence with the DIO is ongoing.
05 November 2025	DFDS Seaways, email correspondence.	DFDS Seaways were invited to provide feedback on the overlap between their routes and the MHPGC Project PEIR Red Line Boundary and raised no concerns.	Displacement of recreational vessel activity is considered within the assessment presented in **Section 10.8.** Interactions with passenger routes is considered within **Volume 2, Chapter 8: Shipping and Navigation.**
21 November 2025	Port of Seaham; RYA Scotland; Maritime and Coastguard Agency (MCA); Northern Lighthouse Board (NLB); Trinity House; UK Chamber of Shipping, and Seaham Harbour, virtual Meeting.	It was indicated that although recreational vessels are under-represented on AIS, the data appeared as expected and was representative of typical activity.	Displacement of recreational vessel activity is considered within the assessment presented in **Section 10.8.**
		Potential adverse impacts regarding proximity of the spoil ground associated with Seaham (Noses Point) noted.	Confirmation made in the meeting that the spoil ground at Noses Point associated with Seaham is avoided by the MHPGC Project PEIR Red Line Boundary, however Noses Point does lie within the IOSU Study Area and therefore has been assessed further. Potential impacts on disposal sites have been assessed in **Section 10.8.**

Date	Consultee and response type	Comment	How and where considered in the PEIR
		It was indicated that there was a notable fishing fleet operating out of Sunderland which may not be fully represented on AIS.	Displacement of recreational activities, including recreational fishing, is considered within the assessment presented in **Section 10.8.** In addition to AIS data, Vessel Monitoring System (VMS) data has been considered as an additional data source to cover fishing activity. Disruption to fishing activities relating to vessels are assessed in **Volume 2, Chapter 8: Shipping and Navigation.** Assessment of commercial matters relating to fishing is presented in **Volume 2, Chapter 7: Commercial Fisheries.**
		It was recommended that Sail Training International are contacted regarding future editions of the Tall Ships Race to establish any potential overlap between future race routes and MHPGC Project PEIR Red Line Boundary.	Sail Training International have not been contacted at this stage, as information will be of greater value closer to the construction phase commencing. **Section 10.7** presents commitments, including promulgation of information. CoT04 and CoT19 include information being provided to fishing and recreational bodies, such as Sail Training International.
2025-onwards	Eastern Green Link 1 (EGL1) and National Grid Electricity Transmission Organisation (NGETO). Monthly virtual meetings.	Monthly meetings were held between Morven Offshore Windfarm, NGETO and EGL1, focussed on the grid connection interface at Hawthorn Pit.	The potential impacts to early development cables or pipelines or restrictions on access to operational cables or pipelines are considered within **Section 10.8**
19 February 2026	Northumbrian Water Ltd. Virtual meetings.	A meeting meeting was held by the Applicant to discuss how the MHPGC Project PEIR Red Line Boundary could interact with Northumbrian Water's network.	Impacts on cables and pipelines are considered within **Section 10.8.**

10.4 Baseline characterisation

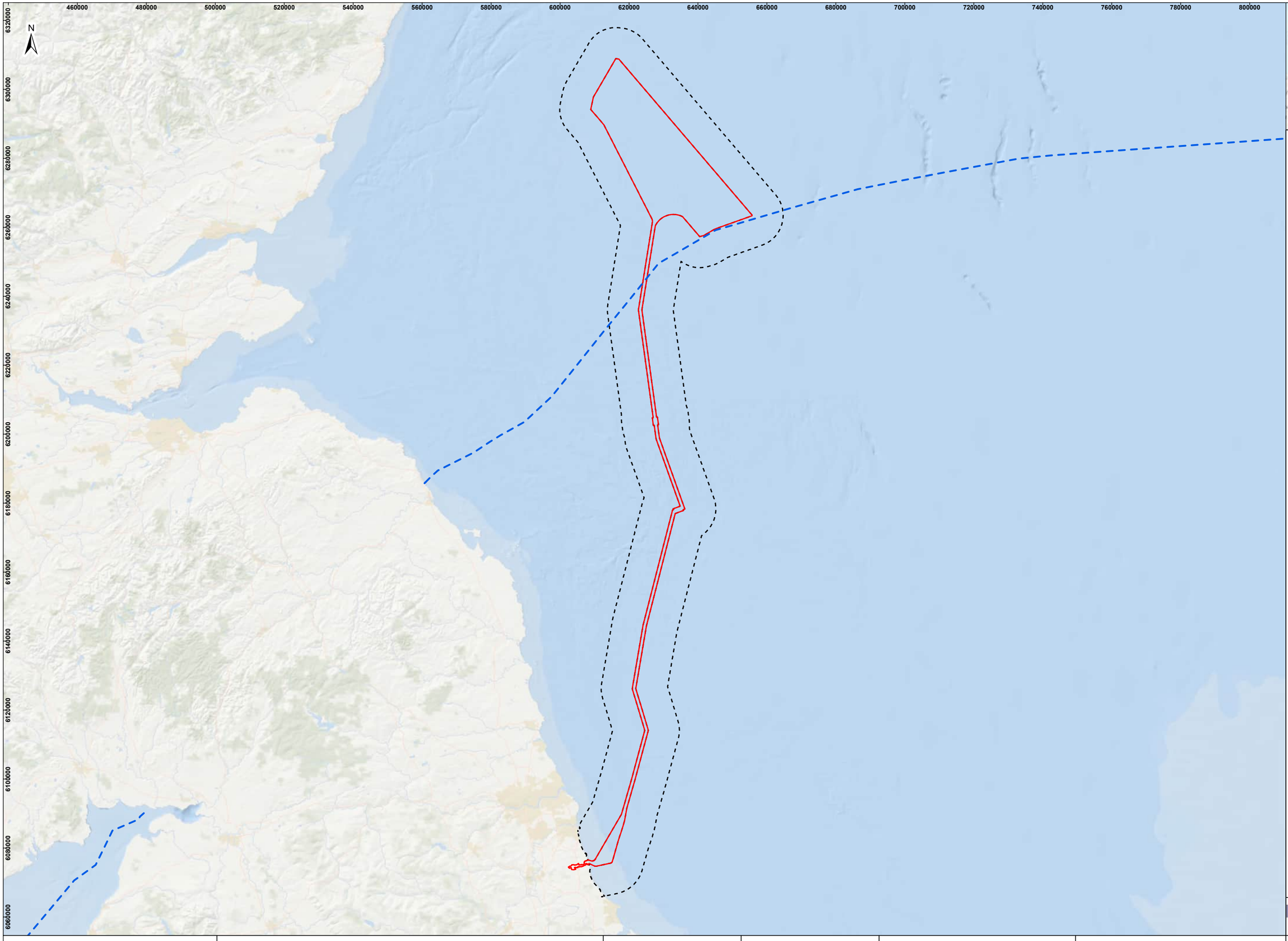
10.4.1 Overview

10.4.1.1 **Volume 1, Chapter 2: Project Description, of the PEIR** sets out the description of the MHPGC Project and **Volume 1, Chapter 4: Approach to Environmental Impact Assessment, of the PEIR** sets out the overarching approach that has been used in developing the PEIR.

10.4.1.2 This section describes the methods and data sources used to characterise the baseline for IOSU within the study area and describes the existing baseline characteristics.

10.4.2 IOSU Study Area

10.4.2.1 The IOSU Study Area is defined by a 9km buffer around the offshore extent of the MHPGC Project PEIR Red Line Boundary up to the MHWS. This buffer represents one tidal excursion, at its maximum during spring tides, as identified in **Volume 2, Chapter 1: Physical Processes, of the PEIR**. The IOSU Study Area represents the maximum extent within which increases in SSC may occur due to MHPGC Project activities and provides the baseline context for IOSU receptors present within the wider area. However, SSC effects are only relevant to recreational diving receptors. For all other IOSU receptors, potential effects are associated with direct interactions with the MHPGC Project and associated vessel activity and therefore only occur where those interactions are reasonably foreseeable. As such, the assessment focuses on the geographical extent of potential impact pathways for each receptor, rather than assuming effects across the entirety of the IOSU Study Area. The receptors considered for each impact are clearly identified within the relevant impact descriptions in **Section 10.8**.





LEGEND

- Scottish/English Border
- MHPGC Project PEIR Red Line Boundary
- Infrastructure and Other Sea Users Study Area (9km Buffer)

Morven Offshore Wind Farm | GoBe APEM Group

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Drawing Title:
THE INFRASTRUCTURE AND OTHER SEA USERS STUDY AREA

0 5 10 15 20 25 km

Scale@A3:1:1,000,000

Geodetic Information:
Datum: European 1950
Projection: ED 1950 UTM Zone 30N

Data Sources:
BP, Ordnance Survey

Service Layer Credits:
World Ocean Base: OceanWise, Esri, Garmin, NaturalVue
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS

Drawing Number:
FIGURE 10-1

VER	DATE	DETAILS	BY	CHECK
00	27/08/2026	Initial Issue	GB	LC
-	-	-	-	-

10.4.3 Relevant guidance

10.4.3.1 The preliminary assessment has been carried out in accordance with the following guidance documents:

- The RYAs position on offshore renewable energy developments: Paper 1 (of 4) – Wind Energy, June 2019 (RYA, 2019);
- Changes to fishing practices around the UK as a result of the development of offshore windfarms – Phase 1 (Revised) (The Crown Estate (TCE), 2016);
- Guidance on assessing the socio-economic impacts of OWFs, produced by Oxford Brooks and Vattenfall (Glasson *et al.*, 2020);
- Pipeline crossing agreement and proximity agreement pack (Oil and Gas UK, 2021);
- Submarine cables and offshore renewable energy installations proximity study (TCE, 2012);
- Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) guidance on the decommissioning of offshore oil and gas installations and pipelines (OPRED, 2025);
- Department for Energy Security and Net Zero (DESNZ) response to consultation on establishing the offshore decommissioning regime for CO_2 transport and storage networks (DESNZ, 2023);
- International Cable Protection Committee (ICPC) recommendations:
  - Recommendation No.2-11B: Cable routing and reporting criteria (ICPC, 2015);
  - Recommendation No.3-10C: Telecommunications cable and oil pipeline/power cables crossing criteria (ICPC, 2014);
  - Recommendation No.13-2C: The proximity of offshore renewable wind energy installations and submarine cable infrastructure in national waters (ICPC, 2013).
- Energy Installations and Submarine Cable Infrastructure in National Waters (ICPC, 2013);
- MGN 654 Safety of Navigation: Offshore Renewable Energy Installations (OREIs) – Guidance on UK Navigational Practice, Safety and Emergency Response (Maritime and Coastguard Agency, 2021);
- International Association of Marine Aids to Navigation & Lighthouse Authorities (IALA) Guidelines (IALA, 2026);
- European Subsea Cables Association (ESCA) Guideline No.6 – The Proximity of Offshore Renewable Energy Installations & Subsea Cable Infrastructures (ESCA, 2023).

10.4.4 Baseline data sources

Desk study

10.4.4.1 Information on the IOSU Study Area was collected through a detailed desktop review of existing studies and datasets. These are summarised in **Table 10.6**.

Table 10.6: Desktop review of existing studies and datasets

Title	Source
Aggregate extraction	European Marine Observation and Data Network (EMODnet), 2025
Bathing waters	DEFRA, 2025
Cable routes	4c Offshore, 2026 KISORCA, 2025 EMODnet, 2025 National Grid Electricity Transmission, 2026 Northumbrian Water Ltd, 2026
Dredging, dumping and disposal sites	Centre for Environment, Fisheries and Aquaculture Science (Cefas), 2026
Hydrocarbon fields	TCE North Sea Transition Authority (NSTA), 2026a
Military PEXA	National Air Traffic Services (NATS), 2025

Title	Source
OWFs	Crown Estate Scotland (CES), 2022 TCE, 2026 EMODnet, 2025
Oil and gas licence blocks	NTSA, 2026b
Pipelines	NTSA, 2025
Recreational activities (including fishing, sailing and motor cruising)	Automatic Identification System (AIS) data displayed in **Volume 2, Annex 8.1: Navigational Risk Assessment, of the PEIR**. RYA – 2019 Recreational Fishing - EMODnet, 2025
Subsea infrastructure	NTSA, 2025.
Wells	NTSA, 2026c NTSA, 2026d
Recreational diving sites	Seasearch Marine Surveys, England, 2026 National Biodiversity Network (NBN) Atlas (2019) – For Scottish sites.
Wave and Tidal	Crown Estate/Crown Estate Scotland, Jan 2022 to June 2026
Aquaculture	Crown Estate Scotland, 2025 NBN Atlas, 2021

Site specific surveys

10.4.4.2 No site-specific surveys have been undertaken to inform the IOSU baseline characterisation due to the availability of suitable data in the public domain (see **Table 10.6**), in conjunction with consultation responses from relevant stakeholders.

10.4.4.3 Survey data was collected to inform **Volume 2, Annex 8.1: Navigational Risk Assessment, of the PEIR** and has been referenced within this chapter where relevant. The data is primarily based on 12 months of AIS data from baseline vessel traffic analysis recorded between October 2024 and September 2025 within the MHPGC Project Scoping Boundary and the Morven North and Morven South vessel traffic surveys outlined in **Volume 2 Chapter 8: Shipping and Navigation.**

Data limitations and assumptions

10.4.4.4 The RYA UK Coastal Atlas of Recreational Boating provides a Geographical Information Systems (GIS) dataset of recreational boating activity around the UK. The dataset provides spatial data, which indicates the location of RYA clubhouses, training centres and marinas, general boating areas, and AIS recreational intensity (RYA, 2019). It has been noted that recreational fishing and pleasure boats under 15m in length are likely to be underestimated in the data because they may not be fitted with AIS. This is further discussed in **Volume 2, Chapter 8: Shipping and Navigation, of the PEIR**.

10.4.4.5 Following the submission of the PEIR, this chapter will be reviewed based on the received feedback and further consultation carried out if required. All received feedback will be incorporated into a finalised IOSU ES chapter as part of the consent application. The RYA Coastal Atlas will also be reviewed to provide further detail on recreational vessel activities to supplement the data reviewed at the PEIR stage.

10.4.5 Overview of baseline environment

10.4.5.1 Infrastructure and Other Sea Users receptors within the IOSU Study Area include:

- Marine aggregate extraction sites;
- marine disposal sites;
- Recreational diving (e.g. Self-contained underwater breathing apparatus (scuba) diving);

- Offshore energy projects (e.g. OWFs, wave and tidal projects, ccs, oil and gas projects);
- Cable and pipelines;
- Military pexa;
- Recreational receptors.

Marine Aggregate Extraction

10.4.5.2 The baseline environment for marine aggregate extraction within the IOSU Study Area in Scottish and English waters is described below. There are no historic or active marine aggregate extraction licences within the IOSU Study Area in Scottish or English waters and therefore marine aggregate extraction receptors have not been considered further.

Marine Disposal Sites

10.4.5.3 The baseline environment for marine disposal sites within the IOSU Study Area in Scottish and English waters is described below, set out in **Table 10.7** and illustrated in Figure 10.2.

10.4.5.4 A kilometre Point (KP) is a reference point used to identify a specific location along the length of a cable route. KP 0 is the start of the cable route, KP 1 is 1km from the start point, KP 10.5 is 10.5km along the route. The closest KP points for the cables identified are outlined in **Table 10.7** below.

Scottish waters

10.4.5.5 There are no historic or active disposal sites within the IOSU Study Area in Scottish waters and therefore Scottish marine disposal sites have not been considered further.

English waters

10.4.5.6 Disposal sites within the IOSU Study Area in English waters are listed in **Table 10.7** (CEFAS, 2026) and shown in **Figure 10.2**. Grey shaded rows refers to closed disposal sites.

Table 10.7: Marine disposal sites within the IOSU Study Area and MHPGC Project PEIR Red Line Boundary

Marine disposal site	Status	Distance from the MHPGC Project PEIR Red Line Boundary (km)	Nearest Kilometre Point (KP)
Bankside Soil Tip (TY121)	Closed	0.1	0
Seaham Foreshore (TY120)	Closed	0.1	0
Noses Point (TY130)	Open	0.2	1
Tyne (TY051)	Closed	0.6	20
Easington Foreshore (TY122)	Closed	2.2	0
Souter Point (Outer) (TY081)	Open	4.5	21
Sunderland (TY090)	Open	5.4	12
Souter Point (Inner) (TY080)	Closed	7.1	22

Recreational Diving

10.4.5.7 The baseline environment for recreational diving within the IOSU Study Area in Scottish and English waters are described below.

Scottish waters

10.4.5.8 There are no identified and documented recreational diving sites within the IOSU Study Area in Scottish waters. **Volume 2, Chapter 1: Physical Processes, of the PEIR**, confirms that water depths within the section of the MHPGC Project PEIR Red Line Boundary that overlaps within Scottish waters range between approximately 72m Lowest Astronomical Tide (LAT) and 60m LAT, therefore it can reasonably be assumed that water depths are too deep for recreational diving and therefore recreational diving in Scottish waters is not considered further within this PEIR assessment.

English waters

10.4.5.9 A total of 28 potential dive sites were identified within the IOSU Study Area with each dive recorded between 2014 and 2020 (Seasearch Marine Surveys, 2026). However, further review of the data sources and the nature of the recorded activities determined that all sites were associated with survey-related diving rather than recreational Self-Contained Underwater Breathing Apparatus (SCUBA) diving. There is a diving club located in Whitley Bay, Deep Blue Dive, onshore and south of the Study area. However, the club dive sites are not located within the IOSU Study Area. Whilst members use chartered dive boats to facilitate their diving expeditions, most clubs also have their own vessels that are transported by road to a range of launch sites.

10.4.5.10 Some divers operate independently rather than through a diving club, using privately owned dive vessels that are trailered by road to various launch sites along the coast. There is still a possibility that non-documented diving sites may be present within the IOSU Study Area, given its larger area. Therefore, recreational diving has been scoped into the assessment for English waters.

Recreational Receptors

10.4.5.11 Navigational safety and risk to recreational vessels are considered in **Volume 2, Chapter 8: Shipping and Navigation, of the PEIR** and commercial fishing is outlined in **Volume 2, Chapter 7: Commercial Fisheries, of the PEIR** and therefore these topics are not considered within this chapter.

10.4.5.12 Recreational sailing is generally divided into two categories: offshore and inshore. Offshore sailing is usually undertaken by yachts in the form of either cruising or organised offshore racing, although offshore racing can also involve powerboats. Inshore sailing is typically undertaken by smaller vessels including dinghies and recreational craft that are used for either cruising at leisure or racing in nearshore areas, predominantly within sight of a club facility. Cruising may include lengthy voyages, including across the North Sea between Scandinavia and Scotland, or short trips between local ports, harbours, and marinas, which often include a return journey to the home port on the same day. Inshore racing takes place around racing marks and navigational buoyage.

Scottish Waters

10.4.5.13 **Figure** 10.4 details AIS tracks recorded between October 2024 to September 2025 and has been used to inform baseline data on recreational vessels. To supplement this, AIS Data from marine vessel traffic surveys and consultation activities carried out to inform **Volume 2, Annex 8.1: Navigational Risk Assessment, of the PEIR**, has been used as an additional data source to inform the baseline for recreational sailing and cruising receptors. There is low intensity of recreational sailing and motor cruising within the MHPGC Project PEIR Red Line Boundary in Scottish waters, as shown in **Figure 9.17** of **Volume 2, Annex 8.1: Navigational Risk Assessment, of the PEIR**. Similarly, there is also a low intensity of recreational fishing within the IOSU Study Area in Scottish waters, verified by density mapping from NATS (2025).

10.4.5.14 There are no designated bathing waters within the Scottish waters of the IOSU Study Area, and as such, bathing waters have not been considered further.

10.4.5.15 There are no documented inshore water sports, including kite surfing, surfing and kayaking, within the Scottish waters of the IOSU Study Area. Therefore, these receptors have not been considered further.

English waters

10.4.5.16 There is low to medium intensity of recreational sailing and motor cruising within the IOSU Study Area in English waters, as shown in both **Figure 10.4** below and **Figure 9.17** of **Volume 2, Annex 8.1: Navigational Risk Assessment, of the PEIR**.

10.4.5.17 There is a high intensity of recreational fishing in the IOSU Study Area in English waters as shown in **Figure 9.10** of **Volume 2, Annex 8.1: Navigational Risk Assessment, of the PEIR**. This is predominantly in the English inshore waters due to the proximity to the port of Seaham which is within the IOSU Study Area (see **Figure 10.4**).

There are no designated bathing waters within the English waters of the IOSU Study Area, as seen in Figure 10.4

10.4.5.18 Figure 10.4 and as such, bathing waters have not been considered further.

10.4.5.19 There are no documented inshore water sports, including kite surfing, surfing and kayaking, within the English waters of the IOSU Study Area, therefore these receptors have not been considered further.

Offshore Energy Projects

10.4.5.20 The baseline environment for Offshore Energy Projects within the IOSU Study Area in Scottish and English waters is described below, set out in **Table 10.8** and illustrated in **Figure 10.3.**

Scottish waters

10.4.5.21 Three OWFs are located within the IOSU Study Area in Scottish waters (see **Table 10.8).**

10.4.5.22 The consent application for the Ossian OWF was submitted in June 2024 and is awaiting a consent decision. The project is located approximately 6km northwest from the MHPGC Project PEIR Red Line Boundary (see **Figure 10.3).**

10.4.5.23 The Morven OWF is being progressed as two separate developments, Morven North and Morven South. Morven North and Morven South are both within the IOSU Study Area and the MHPGC Project PEIR Red Line Boundary and both projects submitted consent applications in May 2026.

Table 10.8: OWFs within the Scottish waters of the IOSU Study Area

Name	Capacity (Megawatts (MW))	Operator	Stage	Distance to the MHPGC Project PEIR Red Line Boundary (km)	Nearest KP
Morven North OWF	3000	Morven Offshore Wind Limited	Consent Application Submitted	0	208
Morven South OWF	3000	Morven Offshore Wind Limited	Consent Application Submitted	0	208
Ossian OWF	3600	Ossian OWF Limited	Consent Application Submitted	~6	245

10.4.5.24 Morven North and Morven South are considered in the whole project assessment set out in **Section 10.1** and **Section 10.10** and therefore, not considered within the project alone assessment presented in **Section 10.8**. Ossian OWF is located approximately 6km from the MHPGC Project PEIR Boundary. At this distance, interaction with MHPGC Project-related activities is not anticipated due to the spatial separation between the discrete activities at Ossian OWF, and as such, Ossian OWF is not taken forward for assessment. Any potential for vessel interaction is detailed in **Volume 2, Chapter 8: Shipping and Navigation.**

10.4.5.25 There are no wave or tidal offshore energy projects, CCS projects, active oil and gas licence blocks, hydrocarbon fields, wells (completed, drilling, plugged, abandoned, or suspended), or subsea infrastructures (**Figure 10.5**) within the IOSU Study Area in Scottish waters and therefore these receptors have not been considered further.

English waters

10.4.5.26 There are no wave or tidal offshore energy projects, OWFs (**Figure 10.3**), CCS projects, active oil and gas licence blocks, hydrocarbon fields, wells (completed, drilling, plugged, abandoned, or suspended), or subsea infrastructures within the IOSU Study Area in English waters (**Figure 10.5**) and therefore these receptors have not been considered further.

Cable and pipeline operators

10.4.5.27 The baseline environment for cable and pipeline operators within the IOSU Study Area in Scottish and English waters are described below. There are no oil and gas pipelines within the IOSU Study Area in Scottish or English waters (**Figure 10.5)** and therefore these have not been considered

further however there is one identified water outfall pipe that has been included here. The proposed and existing cables and outfall pipe are shown in **Figure 10.6**, with details presented in **Table 10.9**.

Scottish waters

10.4.5.28 There are no existing operational cables within the IOSU Study Area in Scottish waters. However, the Eastern Green Link 2 (EGL2), Eastern Green Link 3 (EGL3) and Eastern Green Link 5 (EGL5) High Voltage Direct Current (HVDC) cables will intersect the IOSU Study Area in Scottish waters. EGL2 is a 2GW HVDC subsea cable running 505km between Peterhead in Aberdeenshire and Drax in North Yorkshire and is operated as a joint venture between SSEN Transmission and NGET. Construction of EGL2 began in September 2024 and is scheduled to be operational by 2029. It is anticipated that EGL2 will be operational at the time of construction of the MHPGC Project.

10.4.5.29 The proposed EGL3 project is currently in the planning stage and consists of a subsea cable route from Peterhead in Aberdeenshire to Lincolnshire with an indicative construction date of 2028 and to be fully operational by 2033. A Scoping Report for the project was submitted in January 2024. The EGL3 project is located 2.33km from the MHPGC Project PEIR Red Line Boundary.

10.4.5.30 The proposed EGL5 project is also in the planning stage and if consented, will connect Scotland to England, making landfall at Anderby Creek in Lincolnshire. The project submitted a Scoping Report in September 2025. The EGL5 project is located 3.1km from the MHPGC Project PEIR Red Line Boundary.

10.4.5.31 The Morven Branxton Area Grid Connection Project (hereafter, the 'MBAGC Project') will comprise of the transmission assets that will transport the electricity generated by either Morven North or Morven South to the National Grid, with the point of interconnection to be a location near Branxton, in the East Lothian area of Scotland. At the time of writing, no Scoping Report has been submitted for this project and limited details are available. This project is not part of the applications for the MHPGC Project.

10.4.5.32 As the EGL3, EGL5 and MBAGC Project are in the planning stage with no consent applications submitted, they are not considered part of baseline for infrastructure and other sea users but are considered further in the cumulative assessment (**Section 10.10**).

English waters

10.4.5.33 There are three operational cables (two power cables from North Sea Link, treated as one cable within this chapter due to proximity to one another, and two telecommunications (telecom) cables from Aqua comms, Bulk Fiber Networks, Meta and Altibox) that cross the MHPGC Project PEIR Red Line Boundary in English waters. EGL2 also intersects with the MHPGC Project PEIR Red Line Boundary and as noted above, is likely to be operational at the time of construction of the MHPGC Project.

10.4.5.34 There is one water outfall pipe located within the MHPGC Project PEIR Red Line Boundary, this data was provided directly from consultation with Northumbrian Water Ltd.

10.4.5.35 The Cambois Connection project relates to offshore export cables from within the Berwick Bank Wind Farm array area to a landfall near Cambois, Northumberland. Consent was granted in August 2025, with construction due to begin in late 2026 and is scheduled to be operational in 2029. It is anticipated that the Cambois Connection project will be operational at the time of construction of the MHPGC Project. The Cambois Connection project is located 0.25km from the MHPGC Project PEIR Red Line Boundary.

10.4.5.36 EGL1 is a 2GW HVDC subsea cable running between Torness in East Lothian, Scotland and Hawthorn Pit in County Durham and is operated as a joint venture between SP Energy Networks and NGET. Construction of EGL1 began in March 2025 and the project is scheduled to be operational by 2029. It is anticipated that EGL1 will be operational at the time of construction of the MHPGC Project. The EGL1 project is located 0.5km from the MHPGC Project PEIR Red Line Boundary.

10.4.5.37 In addition, Eastern Green Link 4 (EGL4) is in the planning stage, and if consented, will intersect the MHPGC Project PEIR Red Line Boundary in English waters when fully developed. EGL4 is a HVDC electrical link that will connect Fife in Scotland with Norfolk in England. The project submitted a Scoping Report in January 2024.

10.4.5.38 As the EGL4 project is in the planning stage with no consent applications submitted, it is not considered part of baseline for infrastructure and other sea users but is considered further in the cumulative assessment (**Section 10.10**).

10.4.5.39 There is one active telecom cable located approximately 3km from the MHPGC Project PEIR Red Line Boundary, Havhingsten Segment S2.

Table 10.9: Cables and pipelines within the IOSU Study Area in English waters

Cable Name	Type	Operator	Status	Nearest KP	Distance to MHPGC Project Red Line Boundary (km)
North Sea Link	Power (HVDC)*	National Grid/Statnett	Operational	56	0
Havhingsten Segment 2.1	Telecom	Aqua Comms, Bulk Fiber Networks and Meta.	Operational	47	0
Northumbrian Water Outfall Pipe	Infrastructure	Northumbrian Water Ltd	Operational	1	0
No UK Telecom	Telecom	Altibox	Operational	51	0
EGL2	Power (HVDC)	National Grid Ventures	Under Construction	11	0
EGL4	Power (HVDC)	National Grid Ventures	Scoping Report Published	139	0
Morven Branxton Area Grid Connection Project	Power (HDVC)	Morven Offshore Wind Limited (MvOWL)	Pre-Application	Unknown	0
Berwick Bank ECC (Cambois Connection)	Power (HVAC)	SSE Renewables	Consented	92	0.25
EGL1	Power (HVDC)	National Grid Ventures	Under Construction	19	0.50
EGL3	Power (HVDC)	National Grid Ventures	Scoping Report Published	113	2.33
Havhingsten Segment 2S	Telecom	Aqua Comms, Bulk Fiber Networks and Meta.	Operational	41	3
EGL5	Power (HVDC)	National Grid Ventures	Scoping Report Published	Unknown	3.10

*Two power cables from North Sea Link, treated as one cable within this chapter due to proximity to one another

Military practice areas

10.4.5.40 The baseline environment for military PEXAs within the IOSU Study Area in Scottish and English waters are described below and illustrated in **Figure 10.7.**

Scottish waters

10.4.5.41 There is one military PEXA (Danger Area Complex D613) that covers the entire Scottish area of the IOSU Study Area (D613 is split into four sub-sectors: D613A, D613B, D613C, and D613D). This is an Area of Intense Aerial Activity (AIAA) and a designated military danger area, primarily used for fast-jet and military operational training (minimum flight level 10,000 feet). Due to the subsea nature of the MHPGC Project, this PEXA has not been considered further.

English waters

10.4.5.42 Danger Area Complex D513 (comprising D513A, D513B, and D513C) in Druridge Bay is located within the IOSU Study Area (see **Figure 10.7**). This PEXA is a surface or firing danger area used for Royal Air Force (RAF) firing practice. The firing range is not always in use and access to this area for appropriate activities is permitted where compatible with operational requirements. Temporal and spatial restrictions may be in place in these areas and where other military exercises are carried out.

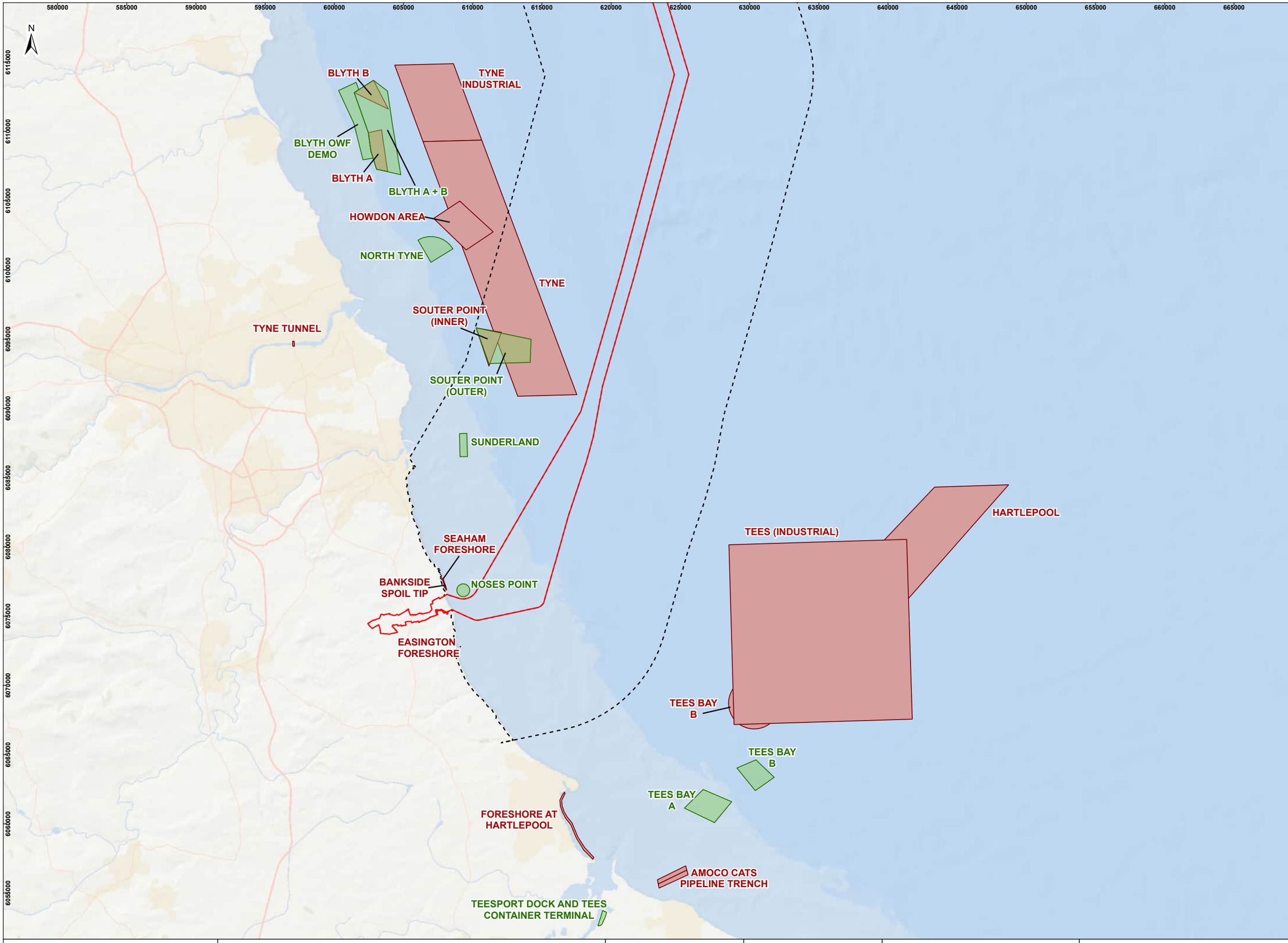
10.4.5.43 The other military PEXA that overlaps with the IOSU Study Area is Danger Area Complex D323, which is also an AIAA and part of a block of restricted military airspace, primarily used for fast-jet combat training and operational exercises (minimum flight level 15,000 feet). As with Danger Area Complex D613, due to the subsea nature of the MHPGC Project, this PEXA has not been considered further.

Summary of key receptors

10.4.5.44 The summary of the key receptors being taken forward for assessment is presented in **Table 10.10** below.

Table 10.10 IOSU receptors being taken forward for assessment.

Impact Pathway	Key Receptors	Jurisdiction
Marine disposal sites	Noses Point (TY130)	English waters
	Souter Point (Outer) (TY081)	
	Sunderland (TY090)	
Recreational receptors	Recreational diving	English waters
	Recreational sailing, motor cruising and fishing.	English and Scottish waters
Cables and pipelines	Havhingsten Segment 2.1	English waters
	NO UK Telecom	
	North Sea Link	
	Northumbrian Water Outfall Pipe	
	Berwick Bank ECC (Cambois Connection)	
	EGL1	
	EGL4	
	EGL2	English and Scottish waters
Military training activities	Danger Area Complex D513	English waters



Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT	**Drawing Title:** DISPOSAL SITES IN RELATION TO THE IOSU STUDY AREA	0 1.5 3 4.5 6 km Scale@A3: 1:250,000	**Geodetic Information:** Datum: European 1950 Projection: ED 1950 UTM Zone 30N	**Data Sources:** BP, Ordnance Survey	**Service Layer Credits:** World Ocean Base: OceanWise, Esri, Garmin, NaturalVue World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS

Drawing Number: FIGURE 10-2

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6300000 6280000 6260000 6240000 6220000 6200000 6180000 6160000 6140000 6120000 6100000 6080000 6060000

N

Kincardine
Bowdun
Bellrock
Morven North
Ossian
Seagreen Phase 1
Seagreen Phase 1A
Morven South
Berwick Bank
Blyth Offshore Demonstrator
Teesside



LEGEND

- Scottish/English Border
- MHPGC Project PEIR Red Line Boundary
- Infrastructure and Other Sea Users Study Area (9km Buffer)

Offshore Wind Farm (Status)

- In Planning
- Consented
- Operational

Morven Offshore Wind Farm | GoBe APEM Group

Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT	**Drawing Title:** OFFSHORE WIND FARMS IN RELATION TO THE IOSU STUDY AREA	0 5 10 15 20 25 km Scale@A31:1,000,000	**Geodetic Information:** Datum: European 1950 Projection: ED 1950 UTM Zone 30N	**Data Sources:** BP, Ordnance Survey

Service Layer Credits: World Ocean Base: OceanWise, Esri, Garmin, NaturalVue; World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS

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6300000 6280000 6260000 6240000 6220000 6200000 6180000 6160000 6140000 6120000 6100000 6080000 6060000

N

BLYTH

TYNEMOUTH

SUNDERLAND

SEAHAM

HARTLEPOOL

TEESPORT

North Sea
SCOTLAND
Glasgow
Edinburgh
UNITED KINGDOM
Belfast
Irish Sea
Manchester
Leeds
Birmingham
NETH
The Hague

LEGEND

- Scottish/English Border
- MHPGC Project PEIR Red Line Boundary
- Infrastructure and Other Sea Users Study Area (9km Buffer)
- Sensitive Areas Bathing Waters
- Royal Yatch Association Clubs
- Ports/Harbours
- AIS Derived Tracklines, Oct 24 to Sept 25 (Recreational Vessels)

Recreational Boating Activity (RYA, 2019)

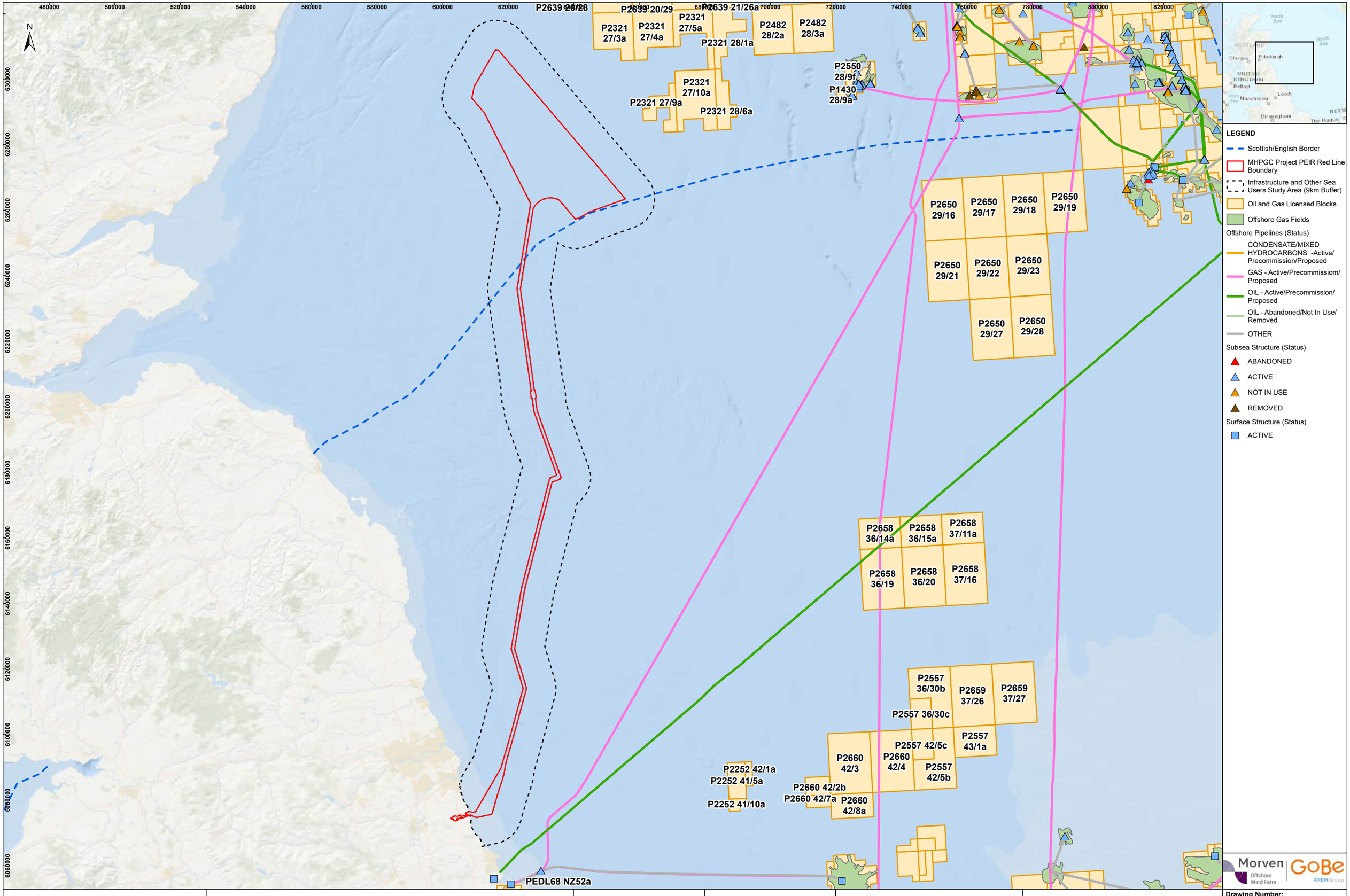
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- 1.5 - 2
- 2 - 3
- 3 - 4

Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT	**Drawing Title:** RECREATIONAL ACTIVITIES IN RELATION TO THE IOSU STUDY AREA	0 5 10 15 20 25 km Scale@A31:1,000,000	**Geodetic Information:** Datum: European 1950 Projection: ED 1950 UTM Zone 30N	**Data Sources:** BP, Ordnance Survey	**Service Layer Credits:** World Ocean Base: OceanWise, Esri, Garmin, NaturalVue World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS World Ocean Base: OceanWise, Esri, GEBCO, Garmin, NaturalVue

Morven Offshore Wind Farm | GoBe APEM Group

Drawing Number: FIGURE 10-4

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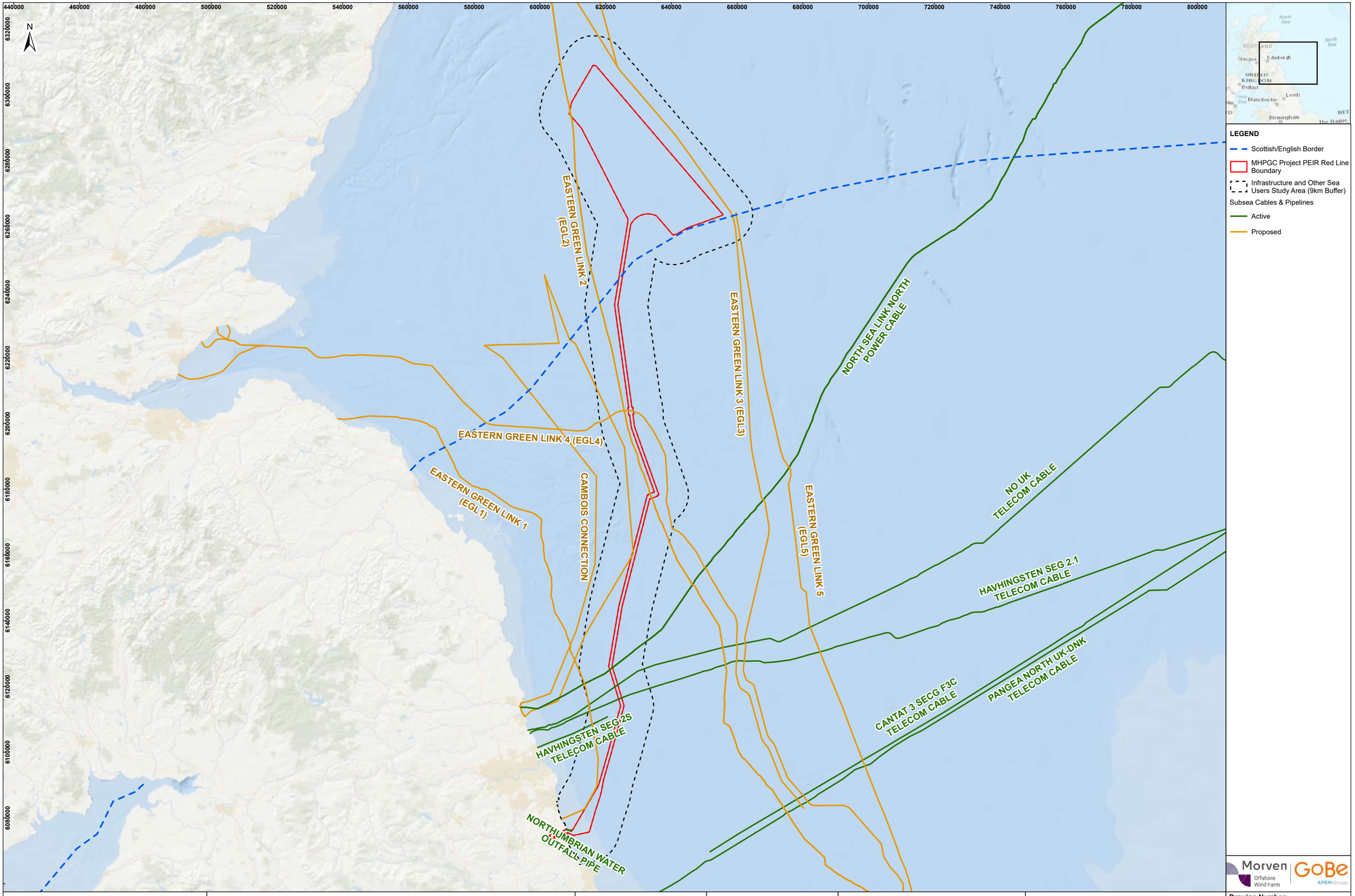


Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT	**Drawing Title:** OIL AND GAS INFRASTRUCTURE IN RELATION TO THE IOSU STUDY AREA	0 5 10 15 20 25 km Scale@A31:1,000,000	**Geodetic Information:** Datum: European 1950 Projection: ED 1950 UTM Zone 30N	**Data Sources:** BP, Ordnance Survey	**Service Layer Credits:** World Ocean Base: OceanWise, Esri, Garmin, NaturalVue World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS

Morven Offshore Wind Farm | GoBe APEM Group

Drawing Number: FIGURE 10-5

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LEGEND

- Scottish/English Border
- MHPGC Project PEIR Red Line Boundary
- Infrastructure and Other Sea Users Study Area (9km Buffer)

Subsea Cables & Pipelines

- Active
- Proposed

Morven Offshore Wind Farm | GoBe APEM Group

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Drawing Title:
CABLES AND PIPELINES IN RELATION TO THE IOSU STUDY AREA

0 5 10 15 20 25 km

Scale@A31:1,000,000

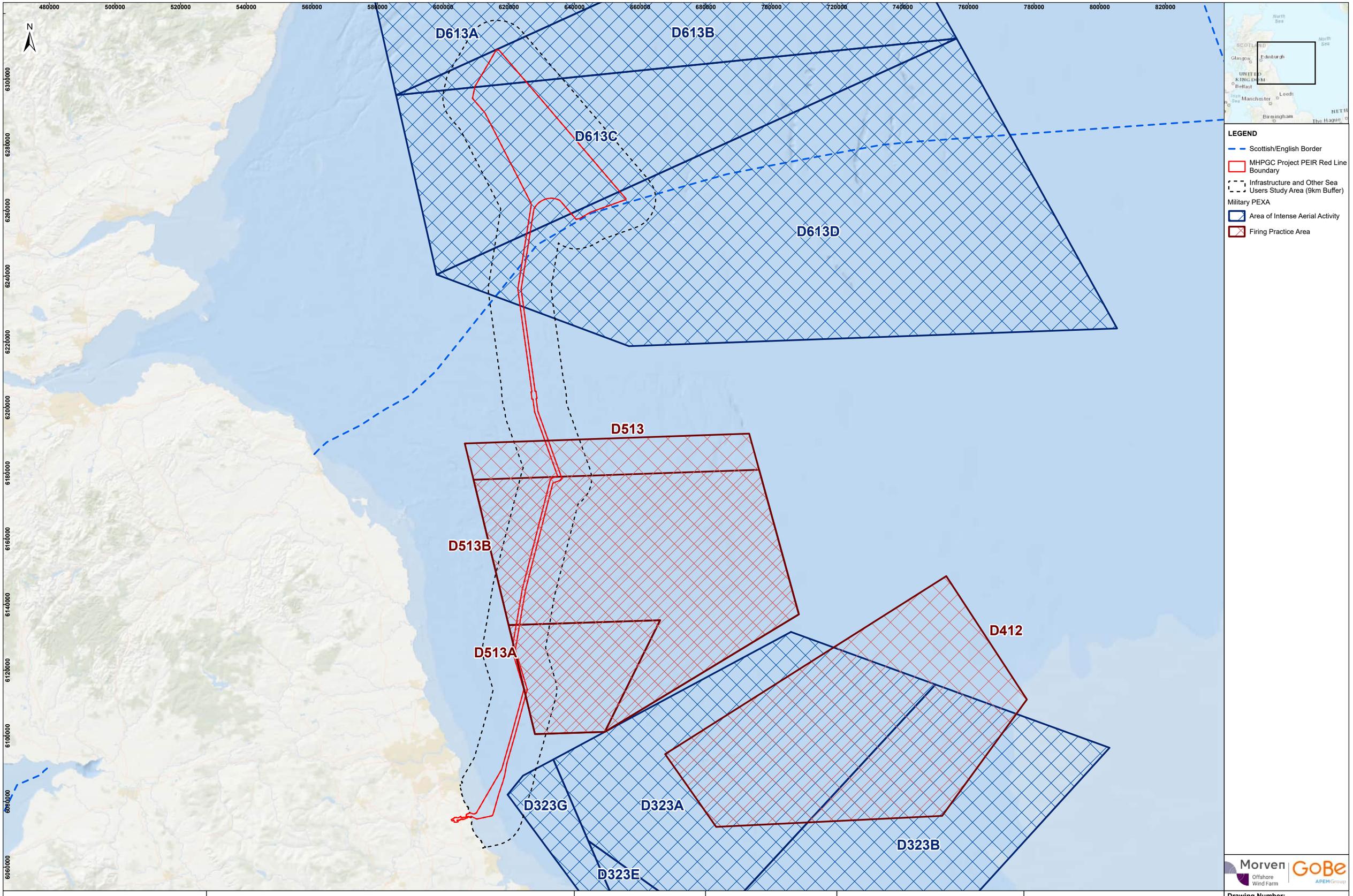
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Datum: European 1950
Projection: ED 1950 UTM Zone 30N

Data Sources:
BP, Ordnance Survey

Service Layer Credits:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
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Drawing Number:
FIGURE 10-6

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LEGEND

- Scottish/English Border
- MHPGC Project PEIR Red Line Boundary
- Infrastructure and Other Sea Users Study Area (9km Buffer)

Military PEXA

- Area of Intense Aerial Activity
- Firing Practice Area

Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT	**Drawing Title:** MILITARY PEXA IN REALTION TO THE IOSU STUDY AREA	0 5 10 15 20 25 km Scale@A31:1,000,000	**Geodetic Information:** Datum: European 1950 Projection: ED 1950 UTM Zone 30N	**Data Sources:** BP, Ordnance Survey	**Service Layer Credits:** World Ocean Base: OceanWise, Esri, Garmin, NaturalVue World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS

Drawing Number: FIGURE 10-7

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10.4.6 Future baseline conditions

10.4.6.1 During the 35-year operational lifetime of the MHPGC Project, the IOSU baseline can be expected to evolve both on a natural basis and in response to global trends such as climate change and other anthropogenic activities. The Infrastructure Planning (EIA) Regulations 2017, the Marine Works (Environmental Impact Assessment) Regulations 2007 and the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 require that "an outline of the likely evolution thereof without implementation of the development 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. Therefore, an assessment of future baseline conditions, in the absence of the MHPGC Project, has been undertaken and is described within this section.

10.4.6.2 The future baseline scenario for IOSU activities as assessed within this chapter is considered unlikely to change substantially from that described in **Section 10.4.5**, in the absence of the MHPGC Project. The future baseline scenario for offshore cables and marine aggregates is subject to gradual change as new projects and sites are identified. The future baseline scenario for oil and gas activities and associated development (including platforms, wells and pipelines) as well as CCS is considered to be subject to the greatest degree of change and will be affected by the 2050 net zero targets. As the oil and gas industry decarbonises to meet these net zero targets, the North Sea industry is expected to diversify through offshore wind, CCS, hydrogen, electricity interconnectors and low-carbon manufacturing. These will depend on the currently unknown outcomes of, for example, acquisitions, exploration and development and decommissioning as well as potential licence applications for CCS projects.

10.4.6.3 The future of offshore wind licensing rounds in the UK is set with several new rounds planned to meet increasing energy demands and achieve decarbonisation goals. The latest rounds aim to award a substantial number of licenses, reflecting the government's commitment to expanding offshore wind capacity. For example, TCE's recent leasing round identified sites capable of hosting up to 8GW of new offshore wind projects. Future rounds will likely continue this trend, focusing on both traditional fixed-bottom and innovative floating wind technologies. Therefore, in the absence of the MHPGC Project, the future baseline scenario for IOSU activities is considered unlikely to change substantially as new offshore wind licensing rounds are executed.

10.5 Impact assessment methodology

10.5.1 Overview

10.5.1.1 **Volume 1, Chapter 4: Approach to Environmental Impact Assessment, of the PEIR** sets out the overarching approach that has been used in developing the preliminary environmental information. This section describes the technical methods used to determine the sensitivity of the receptors and magnitude of effects and sets out the significance criteria that have been used for the preliminary IOSU assessment. The methodologies for assessing sensitivity, magnitude and significance for IOSU are described in more detail below.

10.5.2 Receptor sensitivity

10.5.2.1 When defining sensitivity, reference has been made to the criteria levels set out in **Volume 1, Chapter 4: Approach to Environmental Impact Assessment, of the PEIR**. To determine sensitivity of the receptor, the vulnerability of the receptor to the specific impact and its ability to recover and adapt were also considered (see **Table 10.11**).

Table 10.11: Definition of terms relating to the sensitivity of the receptor

Sensitivity	Definition
Very high	High value/importance and vulnerability and limited potential for recoverability for recreational activities, military activities, cable/pipeline activities, aggregate extraction, CCS or oil and gas operations resulting from: • Very low spatial adaptability due to extent of operational range and/or limited ability to operate in other areas; • Very low spatial tolerance due to dependence upon a limited number of sites; • Very low recoverability with some ability to mitigate loss of area by operating in alternative areas.
High	High value/importance and vulnerability and limited potential for recoverability for recreational activities, military activities, cable/pipeline activities, aggregate extraction, CCS or oil and gas operations resulting from: • Low spatial adaptability due to extent of operational range and/or limited ability to operate in other areas; • Low spatial tolerance due to dependence upon a limited number of sites; • Low recoverability with some ability to mitigate loss of area by operating in alternative areas.
Medium	High or medium value/importance and vulnerability and limited potential for recoverability for recreational activities, military activities, cable/pipeline activities, aggregate extraction, CCS or oil and gas operations resulting from: • Limited spatial adaptability due to extent of operational range and/or limited ability to operate in other areas; • Limited spatial tolerance due to dependence upon a limited number of sites; • Limited recoverability with some ability to mitigate loss of area by operating in alternative areas.
Low	Low or medium value/importance and vulnerability and limited potential for recoverability for recreational activities, military activities, cable/pipeline activities, aggregate extraction, CCS or oil and gas operations resulting from: • Moderate spatial adaptability due to extent of operational range and/or limited ability to operate in other areas; • Moderate spatial tolerance due to dependence upon a limited number of sites; • Moderate recoverability with some ability to mitigate loss of area by operating in alternative areas.
Negligible	Very low value/importance and vulnerability and high potential for recoverability for recreational activities, military activities, cable/pipeline activities, aggregate extraction, CCS or oil and gas operations resulting from: • High spatial adaptability due to extent of operational range and/or limited ability to operate in other areas; • High spatial tolerance due to dependence upon a limited number of sites; • High recoverability with some ability to mitigate loss of area by operating in alternative areas.

10.5.3 Magnitude of impact

10.5.3.1 The magnitude of an impact that could affect IOSU is influenced by several key factors, including the scale of the change, the spatial extent the impact is likely to occur and the duration and frequency of the impact. When defining the magnitude of the impact, criteria detailed in **Volume 1, Chapter 4: Approach to Environmental Impact Assessment, of the PEIR** has been followed (see **Table 10.12**).

Table 10.12: Definition of terms relating to the magnitude of an impact

Magnitude		Definition
High	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial	Large scale or major improvement or resource quality; extensive restoration or enhancement; major improvement of attribute quality.
Medium	Adverse	Loss of resource but not adversely affecting integrity of resource; partial loss of/damage to key characteristics, features or elements.
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Low	Adverse	Some measurable change in attributes, quality or vulnerability, minor loss or, or alteration to, one (maybe more) key characteristics, features or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.
Negligible	Adverse	Very minor loss or detrimental alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to, or positive addition of one or more characteristics, features or elements.
No change		No loss or alteration of characteristics features or elements; no observable impact in either direction.

10.5.4 Significance of effect

10.5.4.1 The significance of the effect upon an IOSU receptor is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The method employed for this assessment is presented in **Table 10.13**.

10.5.4.2 Following the classification of an effect using this methodology, a clear statement will then be made as to whether that effect is significant or not significant. Major and moderate effects are considered to be significant, whilst minor and negligible effects are considered to be not significant. However, professional judgement will also be applied in reaching conclusions as to the significance of effects.

Table 10.13: Matrix used for the assessment of the significance of the effect

Sensitivity of receptor	Magnitude of impact			
	Negligible	**Low**	**Medium**	**High**
Negligible	Negligible	Negligible or minor	Negligible or minor	Minor
Low	Negligible or minor	Negligible or minor	Minor	Minor or moderate
Medium	Negligible or minor	Minor	Moderate	Moderate or major
High	Minor	Minor or moderate	Moderate or major	Major
Very high	Minor	Moderate or major	Major	Major

10.5.5 Assumptions and limitations of the assessment

10.5.5.1 The data sources used in this chapter are detailed in **Table 10.6**. The data used is the most up to date publicly available information which can be obtained from the applicable data sources as cited, and data that has been provided through consultation as detailed in **Section 10.3**. The data is therefore limited by what is available and by what has been made available at the time of writing the PEIR.

10.6 Key parameters for assessment

10.6.1 Scope of the assessment

10.6.1.1 The approach to assessment was presented in the MHPGC Project Scoping Report and has been refined in consultation with relevant statutory and non-statutory consultees as detailed in **Section 10.3** and through consultation with the appropriate statutory bodies, PINS (on behalf of the SoS) and MD-LOT both provided Scoping Opinions in March 2025 (PINS, 2025; MD-LOT, 2025, respectively).

10.6.1.2 **Table 10.14** summarises the impacts considered as part of the assessment, while a summary of the effects scoped out of the assessment is presented in **Table 10.15**.

Table 10.14: Impacts scoped into the assessment

Impact	Phase			Potential effects scoped into the assessment
	C	O&M	D	
Impact on marine disposal sites	✓	✓	✓	The construction, O&M, and decommissioning of the MHPGC Project has the potential to interact with the vessel operations of the existing marine disposal sites within the IOSU study area.
Displacement of recreational activities (including recreational sailing, cruising and recreational fishing)	✓	✓	✓	The presence of advisory safe passing distances surrounding vessels during construction, O&M and decommissioning has the potential to lead to restricted access to areas used for recreational activities, resulting in the displacement of recreational users to alternative locations.
Impacts to early development cables or pipelines or restrictions on access to operational cables or pipelines	✓	✓	✓	The presence of active and proposed cables and pipelines within the IOSU Study Area, together with project activities undertaken in proximity to these assets during construction, O&M, and decommissioning, has the potential to result in interactions with existing infrastructure and temporarily restrict access for inspection, maintenance and repair activities.
Disruption to military training activities	✓	✓	✓	The physical presence of MHPGC Project infrastructure, construction and maintenance vessels, and associated offshore activities during construction, O&M and decommissioning has the potential to restrict access to military practice and exercise areas. This may affect the normal use of these areas for military training activities, resulting in the temporary disruption or rescheduling of exercises and training operations. It should be noted that this impact is considered in the context of firing ranges and surface naval activity, as the project will not involve constructing any surface-piercing infrastructure or the use of large cranes. This is discussed below in Section 10.6.2.
Increased suspended sediment concentrations and associated deposition affecting non-documented recreational diving sites	✓	✓	✓	Increases in suspended sediment concentrations (SSC) and associated sediment deposition arising from seabed preparation activities during construction, O&M, and decommissioning have the potential to reduce underwater visibility and alter seabed conditions at non-documented recreational diving locations, which may temporarily affect access to, or the suitability of, these areas for recreational diving activities.
C = construction; O&M = operations and maintenance; D = decommissioning				

Table 10.15: Impacts scoped out of the assessment

Impact	Justification for scoping out of the assessment
Construction phase	
Increased suspended sediment concentrations and associated deposition affecting aggregate extraction areas.	No aggregate extraction areas are located within the IOSU Study Area. There is therefore no impact pathway, and this potential impact has been scoped out of further assessment.
Alterations to sediment transport pathways affecting aggregate extraction areas.	
Impacts on CCS.	No CCS projects are present within the IOSU Study Area. There is therefore no impact pathway, and this potential impact have been scoped out of further assessment.
Reduction or restriction of oil and gas exploration activities (including surveys, drilling and the placement of infrastructure)	Potential impacts on oil and gas exploration were scoped into the EIA at the Scoping stage as the Scoping Boundary and associated study area overlapped with a number of oil and gas licence blocks, creating the potential for interactions with future exploration activities. Subsequent refinement of the MHPGC Project design has reduced the extent of the MHPGC Project PEIR Red Line Boundary such that this boundary and the associated study area no longer overlap with any oil and gas licence blocks or associated infrastructure. Consequently, there is no longer a pathway for potential impacts on oil and gas exploration, and this topic has been scoped out of further assessment.
Impacts on offshore wind farms	The nearest OWF to the MHPGC Project PEIR Red Line Boundary, apart from Morven North and Morven South, is the proposed Ossian OWF, located approximately 6km from the MHPGC Project PEIR Red Line Boundary. During all phases of the MHPGC Project, any potential interaction with OWFs would be limited to vessel activity and associated advisory safe passing distances around construction, O&M or decommissioning works. Advisory safe passing distances are typically up to 500m around offshore construction and maintenance activities. Therefore, even assuming simultaneous activities at both the MHPGC Project and Ossian OWF, the maximum interaction distance would be approximately 1km. As Ossian OWF is located at a distance of approximately 6km from the MHPGC Project, there will be little to no overlap of vessel activity, advisory safe passing distances or operational areas, and vessel interactions are further assessed in **Volume 2, Chapter 8: Shipping and Navigation**. Potential impacts on OWFs are therefore scoped out of further assessment for all phases of the MHPGC Project.
Operations and maintenance phase	
Interference with offshore microwave fixed communication links	The primary cause of interference on microwave communications is rotating blades associated with turbines, which do not form any part of the transmission infrastructure proposed for the MHPGC Project. Additionally, the MHPGC Project does not include any offshore surface-piercing infrastructure, and vessel presence is not considered as a pathway of effect. Therefore, there is no impact pathway between the MHPGC Project and offshore microwave fixed communication links, and this impact has been scoped out of further assessment.

Impact	Justification for scoping out of the assessment
Reduction or restriction of oil and gas exploration activities (including surveys, drilling and the placement of infrastructure)	Potential impacts on oil and gas exploration were scoped into the EIA at the Scoping stage as the Scoping Boundary and associated study area overlapped with a number of oil and gas licence blocks, creating the potential for interactions with future exploration activities. Subsequent refinement of the MHPGC Project design has reduced the extent of the MHPGC Project PEIR Red Line Boundary such that this boundary and the associated study area no longer overlap with any oil and gas licence blocks or associated infrastructure. Consequently, there is no longer a pathway for potential impacts on oil and gas exploration, and this topic has been scoped out of further assessment.
Impacts on OWFs	See construction justification.
Decommissioning phase	
Increased suspended sediment concentrations and associated deposition affecting aggregate extraction areas.	No aggregate extraction areas are located within the IOSU Study Area. There is therefore no impact pathway, and this potential impact has been scoped out of further assessment.
Alterations to sediment transport pathways affecting aggregate extraction areas.	
Impacts on CCS.	See construction justification.
Reduction or restriction of oil and gas exploration activities (including surveys, drilling and the placement of infrastructure)	Potential impacts on oil and gas exploration were scoped into the EIA at the Scoping stage as the Scoping Boundary and associated study area overlapped with a number of oil and gas licence blocks, creating the potential for interactions with future exploration activities. Subsequent refinement of the MHPGC Project design has reduced the extent of the MHPGC Project PEIR Red Line Boundary such that this boundary and the associated study area no longer overlap with any oil and gas licence blocks or associated infrastructure. Consequently, there is no longer a pathway for potential impacts on oil and gas exploration, and this topic has been scoped out of further assessment.
Impacts on offshore wind farms	See construction justification.

10.6.2 Aviation

10.6.2.1 During consultation on the MHPGC Project Scoping Report, aviation interests were identified as a potential receptor on the basis that consultees understood the MHPGC Project may include offshore above water infrastructure, such as offshore substations or other permanent structures, and/ or the potential use of large construction vessels. Subsequent refinement of the project description has confirmed that the MHPGC Project comprises subsea transmission infrastructure only and does not include any permanent offshore surface-piercing infrastructure.

10.6.2.2 Offshore export cables will be installed on or beneath the seabed and will not introduce above water structures that could affect aviation activities, radar systems, communications, navigation and surveillance infrastructure, flight paths or aerodrome operations. Whilst construction, operation and maintenance and decommissioning activities will require vessels, these activities are temporary, transient and not of a scale that would present a constraint to aviation operations. Accordingly, no credible impact pathway has been identified between the MHPGC Project and aviation receptors.

10.6.2.3 Military aviation interests associated with aerial practice and exercise areas in Scottish waters, including Danger Area Complex D613, have been reviewed. Given the subsea nature of the MHPGC Project and the absence of permanent structures above sea level, no mechanism exists by which the Project could affect military low-flying activities, aerial training activities, aviation radar or other aviation-related defence interests. Military training activities associated with the surface danger area D513 near landfall are considered separately within this chapter, as temporary vessel activity associated with the MHPGC Project has the potential to interact with military exercises undertaken within that area.

10.6.2.4 Aviation impacts scoped out of the assessment are listen in **Table 10.16** below.

Table 10.16 Aviation impacts scoped out of the assessment

Impact	Justification for Scoping Out
Construction	
Interference with civil aviation operations	The MHPGC Project comprises subsea offshore export cables and does not include any permanent surface-piercing infrastructure. Whilst construction activities will require vessels, these activities are temporary and transient in nature and do not represent a credible aviation impact pathway. Therefore, no impact pathway exists between the MHPGC Project and civil aviation operations and this impact has been scoped out of further assessment
Interference with military aviation operations and low-flying activities (including aerial PEXAs)	The MHPGC Project does not include above water offshore structures that could affect military flight operations, low-flying activities or defence aviation assets. Military aerial training areas within Scottish waters, including Danger Area Complex D613, are associated with aviation activity rather than surface military exercises. Due to the subsea nature of the MHPGC Project, no impact pathway exists and this impact has been scoped out of further assessment. The assessment of military training activities associated with surface danger area D513 is considered separately within this chapter.
Impacts on aviation radar, communications, navigation and surveillance (CNS) systems	The MHPGC Project does not include any permanent offshore structures above sea level. As such, there is no mechanism by which the MHPGC Project could interfere with aviation radar or CNS infrastructure. Therefore, no impact pathway exists and this impact has been scoped out of further assessment.
Impacts on meteorological radar and forecasting infrastructure	The offshore elements of the MHPGC Project comprise buried subsea infrastructure, cable and trenchless techniques exit pit protection and will not introduce above water structures which could interfere with meteorological radar systems or forecasting operations. Therefore, no impact pathway exists and this impact has been scoped out of further assessment.
Operations and Maintenance	
Interference with civil aviation operations	The MHPGC Project comprises subsea offshore export cables and does not include any permanent surface-piercing infrastructure. Whilst operation and maintenance activities will require vessels, these activities are temporary and transient in nature and do not represent a credible aviation impact pathway. Therefore, no impact pathway exists between the MHPGC Project and civil aviation operations and this impact has been scoped out of further assessment.
Interference with military aviation operations and low-flying activities (including aerial PEXAs)	The MHPGC Project does not include above water offshore structures that could affect military flight operations, low-flying activities or defence aviation assets. Military aerial training areas within Scottish waters, including Danger Area Complex D613, are associated with aviation activity rather than surface military exercises. Due to the subsea nature of the MHPGC Project, no impact pathway exists and this impact has been scoped out of further assessment. The assessment of military training activities associated with surface danger area D513 is considered separately within this chapter.
Impacts on aviation radar, communications, navigation and surveillance (CNS) systems	The MHPGC Project does not include any permanent offshore structures above sea level. As such, there is no mechanism by which the MHPGC Project could interfere with aviation radar or CNS infrastructure. Therefore, no impact pathway exists and this impact has been scoped out of further assessment.
Impacts on meteorological radar and forecasting infrastructure	The offshore elements of the MHPGC Project comprise buried subsea infrastructure, cable and trenchless techniques exit pit protection and will not introduce above water structures which could interfere with meteorological radar systems or forecasting operations. Therefore, no impact pathway exists and this impact has been scoped out of further assessment.
Decommissioning	
Interference with civil aviation operations	The MHPGC Project comprises subsea offshore export cables and does not include any permanent surface-piercing infrastructure. Whilst operation and maintenance activities will require vessels, these activities are temporary and transient in nature and do not represent a credible aviation impact pathway. Therefore, no impact pathway exists

Impact	Justification for Scoping Out
	between the MHPGC Project and civil aviation operations and this impact has been scoped out of further assessment.
Interference with military aviation operations and low-flying activities (including aerial PEXAs)	The MHPGC Project does not include above water offshore structures that could affect military flight operations, low-flying activities or defence aviation assets. Military aerial training areas within Scottish waters, including Danger Area Complex D613, are associated with aviation activity rather than surface military exercises. Due to the subsea nature of the MHPGC Project, no impact pathway exists and this impact has been scoped out of further assessment. The assessment of military training activities associated with surface danger area D513 is considered separately within this chapter.
Impacts on aviation radar, communications, navigation and surveillance (CNS) systems	The MHPGC Project does not include any permanent offshore structures above sea level. As such, there is no mechanism by which the Project could interfere with aviation radar or CNS infrastructure. Therefore, no impact pathway exists and this impact has been scoped out of further assessment.
Impacts on meteorological radar and forecasting infrastructure	The offshore elements of the MHPGC Project comprise buried subsea infrastructure, cable and trenchless techniques exit pit protection and will not introduce above water structures which could interfere with meteorological radar systems or forecasting operations. Therefore, no impact pathway exists and this impact has been scoped out of further assessment.

10.6.3 Maximum design scenario

10.6.3.1 The maximum design scenario (MDS) for each impact identified in **Section 10.6** has been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. The MDS presented in **Table 10.17**. has been selected from the parameters provided in **Volume 1, Chapter 2: Project Description, of the PEIR** and methodology outlined in **Volume 1, Chapter 4: Approach to Environmental Impact Assessment, of the PEIR**.

Table 10.17: MDS relevant for the assessment of potential impacts on IOSU

Impact	Maximum Design Scenario	Explanation
Note: The cable length measurements are for the maximum distance between the Offshore Substation Platform (OSP) and trenchless drill exit pit unless otherwise stated. For clarity one trench length is as follows: • OSP to trenchless techniques exit pit – up to 324.67km; • OSP to MHWS – up to 326.00km • Scottish waters (OSP – Scottish-English Offshore Waters Boundary) – up to 98km; • English waters (English offshore waters boundary – exit pit) – up to 226.67km; • English waters (English offshore waters boundary – MHWS) – up to 228.00km		
Construction		
Impact on marine disposal sites Displacement of recreational activities (including recreational sailing, cruising and recreational fishing) Impacts to early development cables or pipelines or restrictions on access to operational cables or pipelines Disruption to military training activities	**Construction duration:** up to four years **Number of cables:** up to 2 Conductors and 2 Fibre Optic Cables **Number of trenches:** up to two **Pre-construction activities:** • Maximum duration of pre-construction enabling works = 24 month; • Unexploded Ordnance (UXO) clearance; • Clearance of up to 22 UXOs, plus a contingency of 2 UXOs per TW, within the export cable corridor with a weight of up to 697kg; • Scottish waters: 8 UXOs (for funnel area out with overlap with Morven North and Morven South); • English waters: 14 UXOs; • Method of UXO clearance is low-order deflagration, but consideration of high-order clearance is provided for information only and does not form part of the consent application. **Sandwave clearance:** • Sandwave clearance activities undertaken using mass flow excavator (MFE) over an approximate four month duration; • Sediment disturbance rate is 1000kg/s; • Surface width of up to 28m per trench and base width of up to 20m per trench. Per trench = 1,484,000m²	The greatest amount of infrastructure, the greatest number of vessels and the greatest extent of safety zones, over the longest construction period.

Impact	Maximum Design Scenario	Explanation
	• Scottish waters: 31km length × 28m width = 868,000m²; • English waters: 22km length × 28m width = 616,000m². Total (up to two trenches) = 2,968,000m² • Scottish waters: 1,736,000m²; • English waters: 1,232,000m². **Cable installation (trenching):** • Installation via trenching of up to 324.67km of cable, with a trench width of up to 2.1m and a depth of up to 3m; • Trenching rate is 400m/hr. Per trench = 2,045,421m^3 • Scottish waters: 98km length × 2.1m width x 3m depth = 617,400m²; • English waters: 226.67km length × 2.1m width x 3m depth = 1,428,021m². Total (up to two trenches) = 4,090,842m^3 • Scottish waters: 1,234,800m^3; • English waters: 2,856,042m^3. **Trenchless techniques (landfall) (English waters):** • Up to four boreholes. Trenchless installation via Horizontal Directional Drilling (HDD), (conduit diameter of 1.6m, conduit length of 2,000m). Drilling fluid discharge up to 180m^3 each and up to 1,083m^3 total; • Trenchless drill punchout will be up to approximately 1660m offshore of MHWS in water depths up to 20m Lowest Astronomical Tide (LAT); • Up to four exit pits (140m long × 50m wide x 5m deep). Area up to 7,000m² each; 28,000m² total. Volume up to 18,667m^3 each; 74,668m^3 total; • Up to two floatation pits (240m long × 55m wide x 5m deep). Area up to 13,200m² each; 26,400m² total. Volume up to 39,167m^3 each; 78,334m^3 total. **Vessels (Scottish and English waters):** • Maximum number of return trips for vessels over the construction period: 550;	

Impact	Maximum Design Scenario	Explanation
	• Maximum number of vessels on site at one time over the construction period: 33. **Landfall vessels (English waters):** • Maximum number of return trips for vessels over the construction period: 250; • Maximum number of vessels on site at one time over the construction period: 14. **Landfall installation jack-up operations (English waters): Additional vessels to facilitate the trenchless drill exit pit installation:** • 1 x jack-up vessel; • 1 x barge; • 4 x barge support tugs; • 1 x CSV; • 1 x supply vessel. **Details of vessel activities:** Installation activities will involve vessels that are restricted in their ability to manoeuvre and will take place on a 24/7 basis. **Safety Zones:** Use of 500m advisory safe passing distances around cable installation vessels.	
Increased suspended sediment concentrations and associated deposition affecting recreational diving sites.	**Construction duration:** up to four years. **Sandwave clearance:** • Sandwave clearance activities undertaken over an approximate four month duration; • Surface width of up to 28 m per trench and base width of up to 20 m per trench. Per trench = 1,484,000m² • Scottish waters: 31km length × 28m width = 868,000m²; • English waters: 22km length × 28m width = 616,000m². Total (up to two trenches) = 2,968,000m² • Scottish waters: 1,736,000m²; • English waters: 1,232,000m². **Cable installation (trenching):** • Installation via trenching of up to 324.67km of cable, with a trench width of up to 2.1m and a depth of up to 3m;	The MDS is defined by the maximum spatial extent of seabed disturbance from cable installation, route preparation, sandwave clearance and landfall works. Landfall works and vessel interactions are defined by the maximum footprint of exit pits, floatation pits, anchor spreads and jack-up activities. The MDS is inherently precautionary, assuming all maximum parameters occur concurrently with no reduction for overlapping disturbance footprints. **Site preparation:** • Sandwave clearance activities may be undertaken using a range of techniques (plough and MFE), over an approximate four-month duration in both Scottish and English waters. Releases via both are modelled; • A conservative MFE near-bed sediment release rate of 1000 kg/s conservatively estimated based

Impact	Maximum Design Scenario	Explanation
	• Trenching rate is 400m/hr. Per trench = 2,045,421m^3 • Scottish waters: 98km length × 2.1m width x 3m depth = 617,400m²; • English waters: 226.67 km length × 2.1m width x 3m depth = 1,428,021m². Total (up to two trenches) = 4,090,842m^3 • Scottish waters: 1,234,800m^3; • English waters: 2,856,042m^3. **Trenchless techniques (landfall) (English waters):** • Up to four boreholes. Trenchless installation via HDD, (conduit diameter of 1.6m, conduit length of 2,000m). Drilling fluid discharge up to 180m^3 each and up to 1,083m^3 total;f • Trenchless drill punchout will be up to approximately 1660m offshore of MHWS in water depths up to 20m LAT; • Up to four exit pits (140m long × 50m wide x 5m deep). Area up to 7,000m² each; 28,000m² total. Volume up to 18,667m^3 each; 74,668m^3 total; • Up to two floatation pits (240m long × 55m wide x 5m deep). Area up to 13,200m² each; 26,400m² total. Volume up to 39,167m^3 each; 78,334m^3 total.	on the MDS trench cross section dimensions, the speed of progress of the tool and the bulk density of the local sediment type; • Dredge spoil release is simulated as an instantaneous release at the water surface. 10% of 11,000 m^3 is assumed to form the passive phase of the plume; • Other seabed preparation such as sandwave clearance plough, boulder clearance and PLGR may be used but do not represent the MDS in terms of potential increases in SSC and associated deposition. **Cable installation:** • Trenching may be carried out by mechanical cutting, jet trenching, ploughing or Controlled Flow Excavation (CFE). Jet trenching is anticipfated to generate the highest suspended sediment concentrations (SSC) and has therefore been assumed as the MDS; • Suspension of 100% of material from the trench cross section will give the MDS for sediment disturbance; • Conservatively assumes 100% fluidisation of material expelled from a U-shaped trench. In reality trenching will move a proportion of material rather than bringing it fully into suspension; • Offshore export cable corridor trenching modelling assumes sediment release along the whole offshore export cable corridor; • Cable routes cross a variety of seabed materials, and burial depth may be up to 3m in some areas. The assessment therefore considers this upper bound to define the MDS in terms of sediment disturbance; • Trenching rate will be up to 400m/hr.

Impact	Maximum Design Scenario	Explanation
		Trenchless techniques (landfall): • Trenchless installation methods include HDD and Direct Pipe; • HDD represents the maximum MDS for sediment disturbance due to the potential for drilling fluid release (frac-out); • The MDS for sediment disturbance by trenchless installation is given by applying a conservative Bentonite concentration of 100 kg/m^3 in drilling mud, the volume of spoil released is equal to the maximum volume of the bore; • Other stages of drilling (pilot hole drilling and stages of reaming) may result in smaller release events separated in time. But the MDS is considered as a release of drilling mud from a single conduit; • Two drills could be operational at one time; however, the timing of drilling will be staggered meaning there will not be an occasion where punch-out occurs simultaneously (or within 6 hours of each other). • Trenchless drill punchout will be up to approximately 1,660 m offshore of MHWS in water depths up to -20 m LAT.
Operation and Maintenance		
Impact on marine disposal sites Displacement of recreational activities (including recreational sailing, cruising and recreational fishing) Impacts to early development cables or pipelines or restrictions on access to operational cables or pipelines Disruption to military training activities	**Operational lifetime:** up to 35 years. **Cable repairs (English and Scottish waters)**: • Up to 41 export cable repairs, each with a length of up to 2 km and a 20 m width. Up to 40,000 m^2 of temporary disturbance each; 1,640,000 m^2 total; • Up to 4% of the cable route length, up to 13 km, may require remediation per year. Remediation may occur in different locations and for varying lengths but it is anticipated that up to 13 km of export cable length per year per trench will require remediation with a maximum width of 20m. Up	The greatest amount of infrastructure, the greatest number of vessels and the greatest extent of safety zones, over the operational period.

Impact	Maximum Design Scenario	Explanation
	to 522,240 m^2 of temporary disturbance per year; total 18,278,400 m^2. **Distance between trenches**: up to 50m. **Percentage of route requiring cable protection:** 10.69%. **Cable protection height:** up to 2m. **Number of crossings**: up to 16 crossings with existing and planned infrastructure. **Crossing protection height:** up to 2m. **Number of Trenchless Drill exit points (English waters):** up to four exit points Trenchless Drill Length = max 1,660m from MLWS to exit pit. Trenchless Drill Punchout/Exit Water Depth = Max -20m LAT. **Trenchless drill exit point protection (English waters):** backfill, rock placement and mattress protection will be implemented. Maximum height above seabed of 0.35m with intention to restore to original seabed level. **Geophysical surveys per year:** up to five per year. **Vessel presence:** Routine inspection (no remediation/repair) constitutes survey activity (survey vessel) up to 2 surveys per year per trench; duration 2 weeks per survey; 3 return trips per survey; 2 vessel max at 1 time per survey. **Per year for 2 trenches:** • Surveys – 4; • Return trip – 4x3 = 12; • Total vessels at time – 2. Routine inspection (no remediation/repair) constitutes survey activity Uncrewed Surface Vessel (USV) up to 2 surveys per year per trench; duration 6 weeks per survey; 110 return trips (up to 4 USV + 1 guard vessel with port call every 4 days) (55 per survey = 110); up to 4 USV + 1 guard vessel = 5 max at 1 time per survey. **Per year for 2 trenches:** • Surveys – 4; • Return trips – 4x55 = 220;	

Impact	Maximum Design Scenario	Explanation
	• Total vessels at time – 5; • Remediation (up to 13.056km per year per trench, in different locations along route). **Vessels on site for remediation activities, for up to two trenches:** • Up to four operation and maintenance vessels on site at any one time, comprising a combination of construction support vessel (CSV) and/or Service Operation Vessels (SOV) and/or guard vessel and/or rock dump vessels and/or crew transfer vessels (CTVs)/workboats. **Vessel movements (remediation), for up to two trenches:** • Up to 62 operation and maintenance vessel movements (return trips) each year, consisting of CSV or SOV and/or guard vessel and/or rock dump vessels and/or CTVs/workboats; • Repair (41 lifetime repairs, for up to two trenches). **Vessels on site for repair activities, for up to two trenches:** • Up to four operation and maintenance vessels on site at any one time, comprising a combination of CLV and/or barge and/or Barge Handlers/Tugs and/or Jack-Up and/or CSV and/or CTV and/or Rockdump. **Vessel movements (repair), for up to two trenches:** Up to 245 operation and maintenance vessel movements (return trips) over the operational lifetime (35 years) consisting of CLV and/or barge and/or Jack-Up and/or Barge Handlers/Tugs and/or CSV and/or CTV and/or Rockdump	
Increased suspended sediment concentrations and associated deposition affecting recreational diving sites	• Operational life of 35 years; • Cable repairs (English and Scottish waters): • Up to 41 export cable repairs, each with a length of up to 2km and a 20m width. Up to 40,000m^2 of temporary disturbance each; 1,640,000m^2 total; • Up to 4% of the cable route length, up to 13km, may require remediation per year. Remediation may occur in different locations and for varying lengths but it is anticipated that up to 13km of export cable length per year per trench will require remediation with a maximum width of 20m. Up to 522,240m^2 of temporary disturbance per year; total 18,278,400m^2.	**Cable repairs (English and Scottish waters):** • The greatest foreseeable number of cable reburial and repair events is considered to be the MDS for sediment dispersion; • The majority of cable repairs are anticipated to be c.500 to 1,000m. The MDS utilises the area of disturbance by repair, which provides a highly conservative area; • The repair of cables may be undertaken using similar techniques to those employed during installation, therefore the potential increases in SSC and deposition would be in-line with the construction phase.

Impact	Maximum Design Scenario	Explanation
Decommissioning		
Impact on marine disposal sites	**Decommissioning of four subsea cables and any associated cable protection** The approach to decommissioning will be defined and be subject to an EIA at the (future) time of decommissioning, in line with and subject to prevailing decommissioning and EIA requirements. Current assumptions are that cables will be removed where possible and appropriate to do so, while cable protection measures would preferentially be left in situ, although removal has been assessed as the MDS. For the purposes of this MDS, total removal of all offshore infrastructure, including buried cables and cable protection, has been assumed. On this basis, the environmental impacts associated with decommissioning are anticipated to be similar to, or lower than, those associated with construction.	
Displacement of recreational activities (including recreational sailing, cruising and recreational fishing)		
Impacts to early development cables or pipelines or restrictions on access to operational cables or pipelines		
Disruption to military training activities		
Increased suspended sediment concentrations and associated deposition affecting recreational diving sites	**Cables and cable protection (English and Scottish waters):** All export cables and cable protection will be removed.	

10.7 Commitments adopted as part of the MHPGC Project

10.7.1.1 As set out in **Volume 1, Chapter 4: Approach to Environmental Impact Assessment, of the PEIR** and **Volume 1, Annex 4.1: Draft Commitments Register, of the PEIR**, several measures have been adopted as part of the MHPGC Project to reduce the potential for impacts on IOSU.

10.7.1.2 Embedded mitigation includes the following measures as identified in the Institute of Sustainability and Environmental Professionals (ISEP), formerly Institute of Environmental Management and Assessment (IEMA) Guide to Shaping Quality Development (IEMA, 2015):

- Primary mitigation - measures included as part of the project design. ISEP describes these as "modifications to the location or design of the development made during the pre-application phase that are an inherent part of the project and do not require additional action to be taken". This includes modifications arising through the iterative design process. These measures will be secured through the consent itself through the description of the project and the parameters secured in the DCO and marine licence, or both;
- Tertiary mitigation - ISEP describes these as "actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects".

10.7.1.3 Embedded mitigation measures that will form part of the final design (and are established legislative requirements/good practice, or both) have been taken into account as part of the initial assessment presented in **Section 10.8** (i.e., the initial determination of impact magnitude and significance of effects assumes implementation of these measures). This ensures that the measures that the Applicant is committed to are considered in the assessment of effects.

10.7.1.4 Where an assessment identifies likely significant adverse effects, secondary mitigation measures may be applied. These are measures that could further prevent, reduce and, where possible, offset these effects. They are defined by ISEP as "actions that will require further activity to achieve the anticipated outcome" and may be imposed as part of the planning consent, or through inclusion in the ES. These include measures required to reduce the significance of environmental effects and may be secured through an environmental management plan. For secondary mitigation measures both pre-mitigation and residual effects are presented. No secondary mitigation measures are proposed for effects assessed as Not Significant in EIA terms.

10.7.1.5 The measures relevant to IOSU are outlined in **Table 10.18.** As there is a secured commitment to implementing these measures, they are considered inherently part of the design of the MHPGC Project and have therefore been considered in the assessment presented in **Section 10.8**.

Table 10.18: Embedded commitments relevant to IOSU implemented as part of the MHPGC Project

Commitment number	Measure adopted	How the measure will be secured
CoT04/MM-004	Advance warning will be provided via Notice to Mariners to ensure that the appropriate authorities are informed of offshore construction, operation and maintenance, and decommissioning activities. Copies of all notices must be provided to the MMO, MCA and UK Hydrographic Office (UKHO) as well as other interested parties, as appropriate. Early notification will allow appropriate marking of all installed infrastructure on UKHO Admiralty/nautical charts.	Will be secured via dML condition and/or condition of Scottish Marine Licence(s)
CoT06/MM-006	An Outline Offshore Environmental Management Plan (OEMP) will be prepared and submitted with the application for development consent. A Detailed OEMP will be developed in accordance with the Outline OEMP. The Outline OEMP will include: • An Outline Marine Biosecurity Plan; • An Outline Marine Pollution Contingency Plan; • An Outline Marine Mammal Mitigation Protocol; • An Outline Vessel Traffic Management Plan; • An Outline Navigational Safety Plan; • A chemical risk assessment that includes information such as how chemicals will be used, stored, and transported, in line with recognised best-practice guidance; • A dropped-object protocol will be established to cover the reporting and recovery of any items lost overboard that could endanger other sea users; • A Marine Emergency Action Card outlining the steps to be followed in the case of a marine emergency; • Provisions for the handling and disposal of waste.	Will be secured via dML condition and/or condition of Scottish Marine Licence(s)
CoT07/MM-007	An Outline Offshore Operations and Maintenance Plan will be prepared and submitted as part of the application for development consent. A Detailed Offshore Operations and Maintenance Plan will be produced prior to entering the operation and maintenance phase.	Will be secured via dML condition and/or condition of Scottish Marine Licence(s)

Commitment number	Measure adopted	How the measure will be secured
CoT08/MM-010	An Outline Offshore Cable Specification and Installation Plan (CSIP) will be prepared and submitted with the application for development consent. It will include cable burial to be the preferred option for cable protection, where practicable. A Detailed CSIP will be developed prior to construction in accordance with the Outline CSIP. The Outline CSIP will include (but is not limited to): • A Cable Burial Risk Assessment (CBRA), which will define burial depths and safeguards, based on seabed conditions and external aggression and climate change hazards, to keep the offshore export cables protected and compliant through all project phases while upholding navigational and environmental safety; • The implementation, management and monitoring of cable protection.	Will be secured via dML condition and/or condition of Scottish Marine Licence(s)
CoT09/MM-012	An Offshore Crossing Schedule will be prepared and submitted as part of the application for development consent. Crossing and proximity agreements will be put in place with known existing cable and pipeline infrastructure owners prior to installation of the offshore export cables and associated cable protection.	Will be secured via dML condition and/or condition of Scottish Marine Licence(s)
CoT19/MM-032	Ongoing liaison with the fishing industry through the appointment of a Company Fisheries Liaison Officer(s) (CFLO)(s) and adherence to good practice guidance with regards to fisheries liaison (e.g. Fishing Liaison with Offshore Wind and Wet Renewables Group FLOWW (2025) guidance for English Waters).	Will be secured via dML condition and/or condition of Scottish Marine Licence(s)
CoT28/MM-076	An Outline Navigational Safety Plan will form part of the Outline Offshore Environmental Management Plan (OEMP), which will be prepared and submitted with the application for development consent. It will detail measures to ensure compliance with international marine regulations. A Detailed Navigational Safety Plan will be developed in accordance with the outline plan.	Will be secured via dML condition and/or condition of Scottish Marine Licence(s)

Commitment number	Measure adopted	How the measure will be secured
CoT30/MM-078	An Outline Vessel Traffic Management Plan (VTMP) will form part of the Outline OEMP, which will be prepared and submitted with the application for development consent. A Detailed VTMP will be developed pre-construction in line with the Outline VTMP, and in accordance with the relevant legislation, guidance and industry best practice. The Detailed VTMP will: • Detail vessel routing to and from construction areas and ports to avoid areas of high risk, including liaison with the Port of Seaham and the Port of Sunderland; • Include vessel standards and a code of conduct for vessel operators in compliance with international marine regulations as adopted by the Flag State, including the Convention on the International Regulations for Preventing Collisions at Sea (COLREGs) (International Maritime Organization (IMO), 1972/77) and the International Convention for the Safety of Life at Sea (SOLAS) (IMO, 1974); • Detail measures to reduce disturbance to marine mammal receptors from transiting vessels, such as slow transit through the MHPGC Project and other measures as detailed in the Outline Marine Mammal Mitigation Protocol; • Detail measures to reduce disturbance to red throated diver from transiting vessels, such as slow transit through the MHPGC Project and other measures as detailed in the Red Throated Diver Protocol; • Liaison with the Port of Seaham and the Port of Sunderland.	Will be secured via dML condition and/or condition of Scottish Marine Licence(s)
CoT31/MM-085	Aids to navigation (marking and lighting) will be deployed in accordance with international maritime regulations and the latest relevant available standard industry guidance as advised by either Trinity House or MCA, as appropriate. This will include a buoyed construction area around cable laying operations, cable repairs and during cable maintenance.	Will be secured via dML condition and/or condition of Scottish Marine Licence(s)
CoT32/MM-086	An Advisory Safety Statement will be submitted as part of the application for development consent, which specifies safety distances to be adopted during installation.	Will be secured via dML condition and/or condition of Scottish Marine Licence(s)
CoT39	Dredge and disposal activity within English Waters will be undertaken in accordance with the Dredge and Disposal Site Characterisation Report that will be prepared and submitted with the application for development consent.	Will be secured via dML condition

10.8 Assessment of impacts

10.8.1 Overview

10.8.1.1 This section includes the assessment of the impacts to IOSU arising from the construction, O&M and decommissioning phases of the MHPGC Project. A summary of the receptors and effects is presented in **Table 10.10**.

10.8.1.2 Impacts and receptors have been identified using the 9km Infrastructure and Other Sea Users Study Area. However, a more targeted approach has been applied for disposal sites, recreational users, subsea cables and pipelines and PEXA, for which a 1km buffer has been used to determine whether receptors are taken forward for assessment. This is because potential impacts on these receptors are highly localised in nature and are generally limited to the immediate vicinity of the MHPGC Project activities. In contrast, diving sites have been assessed using the full 9km Study Area, as potential effects on diving receptors, including changes to underwater visibility, may extend beyond the immediate footprint of the works.

10.8.2 Construction phase

Impact on marine disposal sites

10.8.2.1 The construction of the MHPGC Project has the potential to interact with the vessel operations of disposal sites. This may occur through vessel traffic related to the MHPGC Project interfering with existing vessel traffic routes to such sites. These disposal sites are focused within the inshore area and as such, this potential interaction is likely to be associated with landfall works, and construction works within the nearshore area.

10.8.2.2 Of the three open marine disposal sites within the IOSU Study Area (**Table 10.7)**, one site is located within 1km of the MHPGC Project PEIR Red Line Boundary. This site, Noses Point (TY130), is located approximately 0.2km from the MHPGC Project PEIR Red Line Boundary and therefore has the potential to interact with the MHPGC Project through vessel traffic associated with construction works. The remaining two open disposal sites, Souter Point (Outer) (TY081) and Sunderland (TY090), are located 4.5km and 5.4km from the MHPGC Project PEIR Red Line Boundary, respectively. At these distances, interaction with MHPGC Project-related vessel traffic is not anticipated due to the spatial separation between the discrete disposal operations and MHPGC Project activities (including any advisory safe passing distances), and as such, these two sites are not taken forward for assessment.

10.8.2.3 There are no open disposal sites within the IOSU Study Area located in Scottish waters and as such, the potential impact on marine disposal sites in Scottish waters is not considered further in this assessment.

Receptor sensitivity – English waters

10.8.2.4 Open offshore disposal sites are of national importance as they provide designated locations for the deposition of dredged material arising from the maintenance and capital dredging of ports, harbours and navigation channels. These sites support the continued operation of the maritime sector and associated economic activities, although assigning a direct economic value to individual disposal sites is challenging due to variability in dredging requirements and disposal volumes between years. The ongoing management and monitoring of dredged material disposal sites around the coast of England by the MMO and Cefas demonstrates their strategic role in supporting marine infrastructure and navigation (MMO, 2024).

10.8.2.5 Noses Point (TY130) is licensed for the disposal of up to 430,000 tonnes of dredged material arising from Seaham Harbour (Cefas, 2026). It has therefore been assumed that this site is used for the disposal of maintenance dredgings from Seaham harbour, with material deposited via bottom-dumping methods.

10.8.2.6 The disposal site is of high regional value due to the likely importance of navigational dredging to the maintenance and operation of Seaham Harbour. The disposal site is somewhat vulnerable to

impacts that may arise from the MHPGC Project and recoverability is limited. The sensitivity of the receptor is therefore considered to be **medium**.

Magnitude of impact – English waters

10.8.2.7 Pre-construction activities (e.g. surveys, sandwave clearance, boulder clearence 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 vessel traffic related to the MHPGC Project interfering with existing vessel traffic routes to such sites.

10.8.2.8 The impacts to the open disposal sites could occur for the duration of the pre-construction and construction period for the MHPGC Project. While construction activities would extend across up to a four-year period, individual works in the vicinity of open sites would be short-term and spatially constrained. Specifically for Noses Point disposal site, during construction, there may be up to 14 vessels on site at any one time at the landfall, which is where the Noses Point disposal site is located in proximity to.

10.8.2.9 As described in **Table 10.18**, Notices to Mariners will be issued regularly during the construction phase, advising of the location, nature and timing of activities associated with the MHPGC Project (CoT04/MM-004), ensuring that activities at the disposal site can be planned accordingly.

10.8.2.10 For Noses Point disposal site, 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 adverse**.

Significance of effect – English waters

10.8.2.11 In English waters, it is considered that the receptor sensitivity is **medium** and the magnitude of impact on marine disposal sites is **low adverse** for Noses Point (TY130). Therefore, the effect of impact on this marine disposal site during the construction phase is considered to be **negligible adverse** to **minor adverse**, which is not significant in EIA terms.

Additional mitigation and residual effect – English waters

10.8.2.12 No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible adverse** to **minor adverse**, which is not significant in EIA terms.

Displacement of recreational activities (including recreational sailing, cruising and recreational fishing)

10.8.2.13 Activities (e.g. the presence of vessels during seabed preparation and cable installation) during the construction phase of the MHPGC Project may result in the temporary displacement of recreational sea users, including motor cruising, sailing, recreational fishing, and inshore water sports within the IOSU Study Area.

10.8.2.14 The MDS reflects the largest extent of vessel presence and of advisory safe passing distances associated with construction as well as duration of the construction phase that would cause the largest potential disruption of recreational activities, as detailed in **Table 10.16.**

Receptor sensitivity

Scottish waters

10.8.2.15 Recreational sailing, cruising and fishing activity within the IOSU Study Area in Scottish waters is generally low due to the distance offshore. Baseline information indicates limited recreational vessel movements and low levels of recreational fishing activity within and adjacent to the MHPGC Project PEIR Red Line Boundary in Scottish waters.

10.8.2.16 Recreational users are generally mobile and able to adapt activities or alter routes to avoid temporary construction activities and associated advisory safe passing distances (CoT32/MM-086). Alternative recreational waters are available within the wider region, and any displacement would be temporary in nature. Whilst recreational activities are recognised as having value to local communities, their vulnerability to the impact is considered low, and recoverability is high following

completion of construction activities. The sensitivity of recreational receptors in Scottish waters is therefore considered to be **medium**.

English waters

10.8.2.17 Recreational sailing and motor cruising activity within the IOSU Study Area in English waters is of low to medium intensity, whilst recreational fishing activity is of relatively high intensity, particularly within inshore waters associated with Seaham and the wider Sunderland coastline. These activities contribute to the recreational value of the coastal environment and support local leisure and tourism interests.

10.8.2.18 Although recreational users would be able to alter routes and utilise alternative sailing and fishing grounds during construction activities, the higher level of baseline use means a greater number of users may experience temporary displacement when compared with Scottish waters. However, the impact would remain localised and temporary, with recreational activities expected to recover immediately following completion of construction works. The sensitivity of recreational receptors in English waters is therefore considered to be **medium**.

Magnitude of impact

Scottish waters

10.8.2.19 There is a low intensity of recreational vessel activity in the IOSU Study Area in Scottish waters, as shown in **Figure 9.17** of **Volume 2, Annex 8.1: Navigational Risk Assessment, of the PEIR**, with general boating and fishing in the vicinity.

10.8.2.20 During the construction phase, a maximum of 33 offshore construction vessels may be present on site at any one time. The presence of these vessels, together with advisory safe passing distances associated with construction activities (CoT32/MM-086), may result in localised and temporary displacement of recreational users. However, given the low level of baseline recreational activity within Scottish waters and the availability of alternative areas for navigation and recreational fishing, only a small number of users are likely to be affected. Any disruption would be temporary and fully reversible following completion of construction activities. Therefore, the magnitude of displacement of recreational activities in Scottish waters during the construction phase is considered to be **negligible adverse**.

English waters

10.8.2.21 As displayed in **Figure 9.17** of **Volume 2, Annex 8.1: Navigational Risk Assessment, of the PEIR**, within English waters recreational activity is of low to medium intensity of recreational vessel activity in the nearshore area of the IOSU Study Area. Higher recreational vessel intensity is found around the MHPGC Project landfall with a general boating area and high levels of recreational water sports clubs in the vicinity.

10.8.2.22 During the construction phase, up to 14 vessels may be present on site at any one time within the landfall and nearshore construction area. The presence of construction vessels, together with advisory safe passing distances associated with installation activities (CoT32/MM-086), may result in localised and temporary displacement of recreational sailing, cruising and fishing activities. Recreational users may be required to alter routes or access alternative fishing grounds whilst construction activities are underway.

10.8.2.23 Although a greater number of recreational users may be affected in English waters compared with Scottish waters due to the higher baseline level of recreational activity, the spatial extent of the affected area would be limited in the context of the wider area available for recreation. The impact would be temporary and reversible, and recreational users would retain access to alternative sailing routes and fishing locations throughout the construction period. As such, the magnitude of displacement of recreational activities in English waters during the construction phase is considered to be **low adverse**.

Significance of effect

Scottish waters

10.8.2.24 Overall, it is considered that the receptor sensitivity is **medium** and the magnitude of displacement of recreational activities is **negligible adverse.** Therefore, the effect of displacement of recreational

activities, during the construction phase, is considered to be **negligible or minor adverse**, which is not significant in EIA terms.

English waters

10.8.2.25 Overall, it is considered that the receptor sensitivity is **medium** and the magnitude of displacement of recreational activities is **low adverse.** Therefore, the effect of displacement of recreational activities, during the construction phase, is considered to be **minor adverse**, which is not significant in EIA terms.

Additional mitigation and residual effect

10.8.2.26 No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible or minor adverse**, which is not significant in EIA terms.

Impacts to early development cables or pipelines or restrictions on access to operational cables or pipelines

10.8.2.27 Activities during the construction phase of the MHPGC Project such as seabed preparation and clearance as well as cable laying activities may result in temporary impacts on existing or proposed cables and pipelines. Construction vessel traffic and advisory safe passing distances may temporarily restrict access to these assets within the IOSU Study Area.

10.8.2.28 The MDS reflects the greatest amount of infrastructure, the greatest number of vessels and the greatest extent of advisory safe passing distances, over the longest construction period. This scenario would cause the largest potential disruption in relation to cables and pipelines, as detailed in **Table 10.16.**

10.8.2.29 In relation to the cables that are considered part of the baseline and scoped into the assessment, there are three operational cables (North Sea Link power cables, Havhingsten Segment 2.1 telecommunications cable, and the NO UK telecommunications cable), two cables currently under construction that will be operational by the time the MHPGC Project is commencing construction (EGL2 and EGL1), one power cable that is currently consented (Cambois Connection) that will also be operational by the time the MHPGC Project is commencing construction and one active water outfall pipe that intersects the MHPGC Project PEIR Red Line Boundary. These cables and the outfall pipe are scoped in to the assessment presented below.

Receptor sensitivity

Scottish waters

10.8.2.30 The EGL2 project is the only cable within the baseline that is located within Scottish waters (see

10.8.2.31 **Figure** 10.6). The EGL2 cable is unlikely to be crossed in Scottish waters but it is located in close proximity to the MHPGC Project. EGL2 is considered to be limited in spatial tolerance and adaptability and of moderate vulnerability, although this cable is currently under construction, this is due to end by 2028 so will not be overlapping with the MHPGC Project construction period. Therefore, it is considered that the receptor sensitivity is considered to be **medium**.

English waters

10.8.2.32 Three active operational cables (North Sea Link power cables, Havhingsten Segment 2.1 telecommunications cable, and the NO UK telecommunications cable) are likely to be crossed by the MHPGC Project. The EGL2, EGL 1, and the Cambois Connection power cables will all intersect the IOSU Study Area in English waters once installed, with only the EGL2 cable being crossed by the MHPGC Project. The Northumbrian Water outfall pipe will also cross the MHPGC Project PEIR Red Line Boundary. These receptors are also considered limited in spatial tolerance and adaptability and of moderate vulnerability. Therefore, it is considered that the receptor sensitivity is considered to be **medium.**

Magnitude of impact

10.8.2.33 Pre-construction activities such as UXO clearance and surveys, construction activity, and increased numbers of vessels in the vicinity of the MHPGC Project may lead to effects on including effects on, or restriction of access to, infrastructure for maintenance activities as well as potential damage

to cables or pipelines. The design and methodology of the cable/pipeline crossings will be confirmed in agreement with the asset owners.

10.8.2.34 The impacts to these other subsea cables or pipelines could occur for the duration of the pre-construction and construction period for the MHPGC Project. During construction, there may be up to 33 vessels on site at any one time, with up to 14 vessels at any one time at the landfall.

10.8.2.35 As described in **Table 10.18**, cables or pipelines to be crossed by the MHPGC Project cables would be covered by a crossing agreement with the relevant operator so that there would not be an impediment to asset maintenance operations (CoT09/MM-012). This is a formal arrangement that establishes the responsibilities and obligations of both parties and to allow operations to be managed safely.

10.8.2.36 Additionally, Notices to Mariners will be issued regularly during the construction phase, advising of the location, nature and timing of activities associated with the MHPGC Project, ensuring that maintenance activities at these cables can be planned accordingly (CoT04/MM-004).

10.8.2.37 The impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to the cables/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 adverse**.

Significance of effect

10.8.2.38 In both Scottish and English waters, it is considered that the receptor sensitivity is **medium** and the magnitude of impacts to proposed and existing cables is **low adverse**. Therefore, the effect of impacts to proposed and existing cables during the construction phase, is considered to be **minor adverse**, which is not significant in EIA terms.

Additional mitigation and residual effect

10.8.2.39 No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **minor adverse**, which is not significant in EIA terms.

Disruption to military training activities

10.8.2.40 Activities during the construction phase of the MHPGC Project could disrupt military training activities within the IOSU Study Area by limiting access to military PEXA area through presence of construction vessels and advisory safe passing distances.

10.8.2.41 The MDS reflects the largest extent of vessel presence and of the advisory safe passing distances associated with construction as well as the maximum construction duration that would cause the largest potential disruption of military training activities, as detailed in **Table 10.16**.

10.8.2.42 Navigational safety and risk to military vessels are considered in **Volume 2, Chapter 8: Shipping and Navigation, of the PEIR**.

10.8.2.43 There is one surface-based military PEXA (Military Practice Area D513) that overlaps with the IOSU Study Area in English waters. The other military PEXA that overlaps with the IOSU Study Area relates to airspace and are therefore not taken forward for assessment due to the subsea nature of the MHPGC Project. There are no surface-based military PEXA located in Scottish waters and as such the potential impact on military training activities in Scottish waters is not considered further in this assessment.

Receptor sensitivity – English waters

10.8.2.44 There is one military PEXA, Danger Area Complex D513, that overlaps with the MHPGC Project PEIR Red Line Boundary (see **Figure 10.7**). PEXAs are essential areas for ongoing training and practice for the MoD. Any temporary restriction from Danger Area Complex D513 will be very short term and other PEXAs will still be available for training throughout the period of restriction. However, as construction progresses incrementally along the MHPGC Project PEIR Red Line Boundary, the associated advisory safe passing distances would move with the active works area, meaning only a limited section of the PEXA would be affected at any one time. Consequently, training activities

may be able to continue within unaffected parts of the Danger Area Complex, reducing the need to utilise alternative PEXAs during the construction period.

10.8.2.45 The Danger Area Complex D513 with the potential to be obstructed as a result of construction associated with the MHPGC Project is considered to be of medium value. However, vulnerability is considered low as any restrictions would be temporary, localised and limited to the active construction area at a given time, allowing military activities to continue within unaffected parts of the PEXA or, if required, within alternative PEXAs. Recoverability is considered high as full access would be restored following completion of construction activities. The sensitivity of the receptor is therefore considered to be **low**.

Magnitude of impact – English waters

10.8.2.46 During construction phase of the MHPGC Project, vessels used for cable installation could temporarily restrict access to Danger Area Complex D513 (see **Figure 10.7**). A maximum of 14 vessels could be on site near the landfall at any one time, with up to 33 on site further offshore at any one time.

10.8.2.47 Regular NtMs throughout the construction phase (see CoT04/MM-004), advising the location and nature of construction activities in relation to Danger Area Complex D513, along with ongoing liaison and consultation with the MoD will facilitate the management of any potential interactions between construction activities and military exercises. This will ensure that both parties are aware of planned activities and, where reasonably practicable, enable construction programming and military operations to be coordinated to minimise potential adverse impacts. The impact is predicted to be of local spatial extent, short to medium term duration, intermittent and of high reversibility. It is predicted that the impact will affect the receptor directly. Therefore, it is considered that the magnitude of disruption to military training activities, during the construction phase is considered to be **low adverse**.

Significance of effect – English waters

10.8.2.48 It is considered that the receptor sensitivity is **low** and the magnitude of displacement of recreational activities is **low adverse.** Therefore, the effect of disruption to military training activities, during the construction phase, is considered to be **negligible or minor adverse**, which is not significant in EIA terms.

10.8.2.49 This conclusion is supported by the assessment of a comparable offshore cable project, the Cambois Connection, in the vicinity of the MHPGC Project that overlaps within the same Danger Area Complex, for which the MoD confirmed that it had no objection following consultation on the consent application (MoD, 2023). In relation to the MHPGC Project, consultation has been undertaken with the MoD and a follow-up request for comments has recently been issued. Any consultation responses received will be incorporated into the final assessment and, where necessary, appropriate mitigation or coordination measures agreed.

Additional mitigation and residual effect – English waters

10.8.2.50 No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible or minor adverse**, which is not significant in EIA terms.

Increased suspended sediment concentrations and associated deposition affecting non-documented recreational diving sites

10.8.2.51 Activities which cause disturbance to the seabed (e.g. seabed preparation and the installation of offshore export cables) during the construction phase of the MHPGC Project may result in temporary increases in SSC and associated deposition affecting non-documented recreational dive sites within the IOSU Study Area by reducing water clarity and altering seabed conditions, potentially affecting the safety and experience of recreational divers.

10.8.2.52 The MDS reflects the maximum construction period and most disruptive seabed preparation and cable installation methods associated with construction that would cause the largest potential for increased SSC and deposition, as detailed in **Table 10.17.**

10.8.2.53 Due to the water depths within the IOSU Study Area within Scottish waters, it can be reasonably assumed that there will be no recreational diving taking place in this area. As such, the potential impacts on non-documental recreational diving sites in Scottish waters is not considered further in this assessment.

Receptor sensitivity – English waters

10.8.2.54 No recognised recreational scuba diving sites have been identified within the IOSU Study Area. Although 28 potential dive sites were recorded between 2014 and 2020, review of the available information indicates that these locations are associated with survey-related diving activities rather than recreational scuba diving. Nevertheless, it is acknowledged that informal or undocumented recreational diving activity may occur within the Study Area and, as a precautionary approach, scuba diving has been retained within the assessment.

10.8.2.55 Recreational diving activity is generally transient and mobile in nature, with divers able to relocate to alternative locations should temporary restrictions or disturbances occur. Any effects associated with offshore construction activities, such as temporary reductions in water clarity, would be spatially and temporally limited. Furthermore, Notices to Mariners (CoT04/MM-004) would be issued throughout relevant project phases, providing advance notification of activities and enabling dive operators and recreational users to plan activities accordingly.

10.8.2.56 Given the absence of identified recreational dive sites within the IOSU Study Area, the availability of alternative diving locations in the wider region, and the temporary nature of potential effects, the receptor is considered to have low vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore considered to be **low**.

Magnitude of impact – English waters

10.8.2.57 **Volume 2, Chapter 1: Physical Processes, of the PEIR** describes the potential elevations in SSC and deposition to the seabed as a result of construction phase activities. The volume and extent of sediment mobilisation will vary depending on the construction method used and the local seabed conditions. During the construction phase, sandwave clearance using MFE, jet trenching for cable installation, and trenchless techniques at landfall will cause the largest increases in SSC, mobilising the greatest volume of material, resulting in elevated SSC and wider dispersion.

10.8.2.58 Mobilised sediment is expected to be temporary, reversible, and subject to natural dispersion by prevailing coastal processes, as described in **Volume 2, Chapter 1: Physical Processes, of the PEIR.** Therefore, it is considered that the magnitude of increased SSC and associated deposition affecting non-documented recreational diving sites, during the construction phase is considered to be **low adverse**.

Significance of effect – English waters

10.8.2.59 Overall, it is considered that the receptor sensitivity is **low** and the magnitude of increased SSC and associated deposition affecting recreational diving sites is **low adverse**. Therefore, the effect of increased SSC and associated deposition affecting non-documented recreational diving sites, during the construction phase, is considered to be **negligible adverse**, which is not significant in EIA terms.

Additional mitigation and residual effect

10.8.2.60 No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible adverse**, which is not significant in EIA terms.

10.8.3 O&M phase

Impact on marine disposal sites

10.8.3.1 Activities associated with the O&M phase of the MHPGC Project, such as cable inspection, maintenance and cable reburial have the potential to interact with marine disposal sites. This may occur through temporary restrictions on access associated with the O&M vessel activity in the vicinity of the disposal sites.

10.8.3.2 Of the three open marine disposal sites within the IOSU Study Area (**Table 10.7**), one site is located within 1km of the MHPGC Project PEIR Red Line Boundary. This site, Noses Point (TY130), is located approximately 0.2km from the MHPGC Project PEIR Red Line Boundary and therefore has the potential to interact with the MHPGC Project through vessel traffic associated with O&M works. The remaining two open disposal sites, Souter Point (Outer) (TY081) and Sunderland (TY090), are located 4.5km and 5.4km from the MHPGC Project PEIR Red Line Boundary, respectively. At these distances, interaction with MHPGC Project-related vessel traffic is not anticipated due to the spatial separation between the discrete disposal operations and MHPGC Project activities (including any advisory safe passing distances), and as such, these two sites are not taken forward for assessment.

10.8.3.3 There are no open disposal sites within the IOSU Study Area located in Scottish waters and as such, the potential impact on marine disposal sites in Scottish waters is not considered further in this assessment.

Receptor sensitivity – English Waters

10.8.3.4 As described for the construction phase assessment, open marine disposal sites are of regional importance in supporting dredging operations required for the continued operation and maintenance of ports and harbours. Noses Point (TY130) is licensed for the disposal of dredged material arising from Seaham Harbour and is considered to support the ongoing operation of the harbour.

10.8.3.5 Noses Point (TY130) is of high regional value due to the importance of navigational dredging to the maintenance and operation of Seaham Harbour. The disposal site is somewhat vulnerable to impacts arising from temporary restrictions on access, although recoverability is high following completion of maintenance activities. The sensitivity of the receptor is therefore considered to be **medium.**

Magnitude of impact – English waters

10.8.3.6 O&M activities such as cable inspection, maintenance and reburial have the potential to impact the operation of disposal sites through the temporary presence of maintenance vessels and associated advisory safety distances. The impacts to Noses Point (TY130) have the potential to occur throughout the operational life of the MHPGC Project, although individual maintenance activities would be infrequent, short-term and spatially limited.

10.8.3.7 There will be fewer vessels involved in project activities during the O&M phase when compared to the construction phase, with typical vessel numbers being up to two survey vessels on site, five USVs, four O&M vessels for remediation and four O&M vessels for repairs on site at any one time. Activities are anticipated to be limited to routine surveys as part of the monitoring programme, with remedial works on protection of the offshore export cables carried out as the need is identified. If cable repairs are required, this may require CLVs, which are Rapid Response and Maintenance (RAM,) vessels to undertake the work. Up to 41 cable repair events expected over the 35-year operational lifespan. Over the operational lifetime, up to 245 vessel movements associated with repairs are expected, with the majority of these consisting of CTVs. Annual vessel movements associated with surveys and repairs are expected to total 294 movements per year, with the majority of these comprised of USV and Guard Vessels (GVs) relating to survey activities.

10.8.3.8 As described in **Table 10.18**, Notice to Mariners (CoT04/MM-004) will be issued during maintenance activities, advising of the location, nature and timing of works associated with the MHPGC Project, ensuring that disposal operations can be planned accordingly.

10.8.3.9 The potential impact is predicted to cause a minor shift away from the baseline, leading to a temporary reduction in access to the disposal site over a short-term duration. The frequency of repetition would be intermittent throughout the operational life of the project. The magnitude is therefore considered to be **low adverse**.

Significance of effect – English waters

10.8.3.10 In English waters, it is considered that the receptor sensitivity is **medium** and the magnitude of impact on marine disposal sites is **low adverse**. Therefore, the effect of impact on marine disposal sites, during the O&M phase, is considered to be **minor**, which is not significant in EIA terms.

Additional mitigation and residual effect

10.8.3.11 No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **minor adverse**, which is not significant in EIA terms.

Displacement of recreational activities (including recreational sailing, cruising and recreational fishing)

10.8.3.12 Activities during the O&M phase of the MHPGC Project, such as inspection, maintenance and repair works may result in the displacement of recreational sea users, including recreational sailing, motor cruising and recreational fishing within the IOSU Study Area.

10.8.3.13 The MDS reflects the largest extent of vessel presence and of the safety zones associated with O&M that would cause the largest potential disruption of recreational activities, as detailed in **Table 10.17.**

Receptor sensitivity

Scottish waters

10.8.3.14 Recreational sailing, motor cruising and recreational fishing activity within the IOSU Study Area in Scottish waters is generally of low intensity due to the distance offshore.

10.8.3.15 Recreational users are generally mobile and able to alter routes or utilise alternative areas to avoid temporary maintenance activities and associated advisory safety distances. Any displacement would be temporary in nature and recreational activities would be expected to return to baseline conditions immediately following completion of O&M activities. Given the low level of baseline activity, low vulnerability and high recoverability of the receptor, the sensitivity of recreational receptors in Scottish waters is therefore considered to be **medium.**

English waters

10.8.3.16 Recreational sailing and motor cruising within the IOSU Study Area in English waters is of relatively low to medium intensity, whilst recreational fishing is of relatively high intensity, particularly within the inshore waters associated with Seaham and the wider Sunderland coastline (see **Figure 9.17** of **Volume 2, Annex 8.1: Navigational Risk Assessment, of the PEIR**).

10.8.3.17 Although recreational users would be able to alter routes and utilise alternative sailing routes and fishing grounds during O&M activities, the higher level of baseline use means a greater number of users may experience temporary displacement compared with Scottish waters. However, the impact would remain localised and temporary, with recreational activities expected to recover immediately following completion of maintenance works. The sensitivity of recreational receptors in English waters is therefore considered to be **medium.**

Magnitude of impact

Scottish waters

10.8.3.18 There is a low intensity of recreational vessel activity in the IOSU Study Area in Scottish waters, with general boating and fishing in the vicinity.

10.8.3.19 A total of 15 vessels are expected to be on site at any one time, including the potential for cable repair or remediation occurring concurrently with survey work. The presence of these vessels, together with advisory safety distances associated with O&M activities, may result in localised and temporary displacement of recreational users. However, given the low level of baseline recreational fishing and the distance offshore in Scottish waters, along with the availability of alternative areas for navigation and recreational fishing, only a small number of users are likely to be affected. Any disruption would be temporary and fully reversible following completion of maintenance activities. Therefore, it is considered that the magnitude of displacement of recreational activities in Scottish waters during the O&M phase is considered to be **negligible adverse.**

English waters

10.8.3.20 Recreational activity within English waters is generally low to medium intensity within the nearshore area of the IOSU Study Area, as shown in

10.8.3.21 **Figure** 10.4**.** Recreational fishing is of relatively high intensity, particularly within the inshore waters associated with Seaham and the wider Sunderland coastline.

10.8.3.22 During the O&M phase, a maximum of 15 vessels, together with advisory safety distances associated with these activities, may result in localised and temporary displacement of recreational sailing, cruising and fishing activities. Recreational users may be required to alter routes or access alternative fishing grounds whilst maintenance activities are underway.

10.8.3.23 Recreational vessels will retain access and transit rights through the IOSU Study Area, meaning long-term displacement is not considered to arise. Overall, the impact is predicted to be local in spatial extent, and reversible over the operational lifespan of the project. Therefore, it is considered that the magnitude of displacement of recreational activities, during the O&M phase is considered to be **low adverse**.

Significance of effect

Scottish waters

10.8.3.24 For Scottish waters overall, it is considered that the receptor sensitivity is **medium** and the magnitude of displacement of recreational activities is **negligible adverse.** Therefore, the effect of displacement of recreational activities, during the O&M phase, is considered to be **negligible or minor adverse**, which is not significant in EIA terms.

English waters

10.8.3.25 For English waters overall, it is considered that the receptor sensitivity is **medium** and the magnitude of displacement of recreational activities is **low adverse.** Therefore, the effect of displacement of recreational activities, during the O&M phase, is considered to be **minor adverse**, which is not significant in EIA terms.

Additional mitigation and residual effect

10.8.3.26 No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible adverse** (Scottish waters) or **minor adverse** (English waters), which is not significant in EIA terms.

Impacts to early development cables or pipelines or restrictions on access to operational cables or pipelines

10.8.3.27 Activities during the O&M phase of the MHPGC Project, such as cable inspection, maintenance and repair activities, may result in temporary impacts on existing or proposed cables and pipelines or restrict access to these assets if operational within the IOSU Study Area.

10.8.3.28 The MDS reflects the largest extent of maintenance activities, the greatest number of vessels and the greatest extent of advisory safety zones over the operational lifetime of the MHPGC Project, as detailed in **Table 10.16.**

10.8.3.29 In relation to the cables that are considered part of the baseline and scoped into the assessment, there are three operational cables (North Sea Link power cables, Havhingsten Segment 2.1 telecommunications cable, and the NO UK telecommunications cable), two cables currently under construction that will be operational by the time the MHPGC Project is commencing construction (EGL2 and EGL1), and one power cable that is currently consented (Cambois Connection) that will also be operational by the time the MHPGC Project is commencing construction. There is one water outfall pipe, Northumbrian Water outfall pipe located within the MHPGC Project PEIR Red Line Boundary. These cables and the water outfall pipe are scoped in to the assessment presented below.

Receptor sensitivity

Scottish waters

10.8.3.30 The EGL2 project is the only cable within the baseline that is located within Scottish waters (see

10.8.3.31 **Figure** 10.6). The EGL2 cable is unlikely to be crossed in Scottish waters but it is located in close proximity to the MHPGC Project. EGL2 is considered to be limited in spatial tolerance and adaptability and of moderate vulnerability. Therefore, it is considered that the receptor sensitivity is considered to be **medium**.

English waters

10.8.3.32 The three active operational cables (North Sea Link power cables, Havhingsten Segment 2.1 telecommunications cable, and the NO UK telecommunications cable) will be crossed by the MHPGC Project. The EGL2, EGL 1, and the Cambois Connection power cables will all intersect the IOSU Study Area in English waters once installed, with only the EGL2 cable being crossed by the MHPGC Project. There is also one water outfall pipe owned by Northumbrian Wate Ltd that also intersects the MHPGC Project PEIR Red Line Boundary. These receptors are also considered limited in spatial tolerance and adaptability and of moderate vulnerability. Therefore, it is considered that the receptor sensitivity is considered to be **medium.**

Magnitude of impact

10.8.3.33 O&M activities, including cable inspection, maintenance and repair activities, together with increased vessel presence in the vicinity of the MHPGC Project, may lead to restrictions on access to subsea cable and pipeline infrastructure (either existing or proposed). There is also potential for interaction between the MHPGC Project maintenance activities and existing or proposed cable assets if activities occur in close proximity.

10.8.3.34 During the O&M phase, there may be up to 41 cable repairs and 35 remediation events over the operational lifetime. In the event that these cable repairs and remediation events 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 advisory safe passing distances. A total of 15 vessels are expected to be on site at any one time, including the potential for cable repair or remediation occurring concurrently with survey work.

10.8.3.35 As described in **Table 10.18,** existing agreements with asset owners, including crossing and proximity agreements (where required) will ensure that maintenance activities can be managed safely and that there would not be an impediment to asset maintenance operations. These agreements establish the responsibilities and obligations of all relevant parties and facilitate the safe management of activities in the vicinity of existing infrastructure. Additionally, Notices to Mariners will be issued (CoT04/MM-004), where required, advising of the location, nature and timing of O&M activities with the MHPGC Project, ensuring that maintenance activities at these cables can be planned accordingly.

10.8.3.36 The impact is predicted to cause a minor shift away from the baseline, leading to a temporary reduction in access to cables/ pipelines over a short-term duration during maintenance activities. The frequency of repetition would be intermittent throughout the operational life of the MHPGC Project. The magnitude is therefore considered to be **low adverse.**

Significance of effect

10.8.3.37 For both Scottish and English waters, it is considered that the receptor sensitivity is **medium** and the magnitude of impacts to proposed and existing cables or pipelines is **low adverse**. Therefore, the effect of impacts to proposed and existing cables or pipelines, during the O&M phase, is considered to be **minor adverse**, which is not significant in EIA terms.

Additional mitigation and residual effect

10.8.3.38 No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **minor adverse**, which is not significant in EIA terms.

Disruption to military training activities

10.8.3.39 Activities during the O&M phase of the MHPGC Project could disrupt military training activities within the IOSU Study Area by limiting access to military PEXA areas through the presence of maintenance vessels and associated advisory safety distances.

10.8.3.40 The MDS reflects the largest extent of vessel presence and advisory safety distances associated with O&M activities that would cause the largest potential disruption of military training activities, as detailed in **Table 10.17**.

10.8.3.41 There is one surface-based military PEXA (Military Practice Area D513) that overlaps with the IOSU Study Area in English waters. The other military PEXA that overlap with the IOSU Study Area relate to airspace and are therefore not taken forward for assessment due to the subsea nature of the MHPGC Project. There are no surface-based military PEXA located in Scottish waters and as such the potential impact on military training activities in Scottish waters is not considered further in this assessment.

Receptor sensitivity – English waters

10.8.3.42 There is one military PEXA, Danger Area Complex D513, that overlaps with the MHPGC Project PEIR Red Line Boundary (see **Figure 10.7**). PEXAs are essential areas for ongoing training and practice for the MoD. Any temporary restriction from Danger Area Complex D513 will be short term and other PEXAs will still be available for training throughout the period of restriction. However, as O&M activities may progress incrementally or occur sporadically along the MHPGC Project PEIR Red Line Boundary, the associated advisory safe passing distances for vessels would move with the active works area, meaning only a limited section of the PEXA would be affected at any one time. Consequently, training activities may be able to continue within unaffected parts of the Danger Area Complex, reducing the need to utilise alternative PEXAs during the O&M period.

10.8.3.43 The Danger Area Complex D513 with the potential to be obstructed as a result of O&M associated with the MHPGC Project is considered to be of low vulnerability, high recoverability, and medium value. The sensitivity of the receptor is therefore considered to be **low**.

Magnitude of impact – English waters

10.8.3.44 During the O&M phase of the MHPGC Project, vessels undertaking inspection and maintenance repair activities could temporarily restrict access to Military Practice Area D513. A total of 15 vessels are expected to be on site at any one time, including the potential for cable repair or remediation occurring concurrently with survey work.

10.8.3.45 Regular NtMs throughout the O&M phase (see CoT04/MM-004), advising the location and nature of maintenance activities in relation to Danger Area Complex D513, along with ongoing liaison and consultation with the MoD will facilitate the management of any potential interactions between these maintenance activities and military exercises. This will ensure that both parties are aware of planned activities and, where reasonably practicable, enable construction programming and military operations to be coordinated to minimise potential adverse impacts. The impact is predicted to be of local spatial extent, short to medium term duration, intermittent and of high reversibility. It is predicted that the impact will affect the receptor directly. Therefore, it is considered that the magnitude of disruption to military training activities, during the construction phase is considered to be **low adverse**.

Significance of effect – English waters

10.8.3.46 It is considered that the receptor sensitivity is **low** and the magnitude of disruption to military training activities is **low adverse.** Therefore, the effect of displacement disruption of military training activities military training activities, during the O&M phase, is considered to be **negligible or minor adverse**, which is not significant in EIA terms.

10.8.3.47 This conclusion is supported by the limited scale and infrequent nature of O&M activities, which would typically involve a small number of vessels operating for short periods. Consultation has been undertaken with the MoD and a follow-up request for comments has recently been issued. An Outline Communications Plan will also be provided (CoT39), which sets out the Applicant's approach to communications with relevant and necessary parties, including the MoD. Any consultation responses received will be incorporated into the final assessment and, where necessary, appropriate mitigation or coordination measures agreed.

Additional mitigation and residual effect

10.8.3.48 No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible or minor adverse**, which is not significant in EIA terms.

10.8.3.49 Ongoing engagement with the MoD will continue throughout the O&M phase to further understand and manage any interactions with Danger Area Complex D513. Therefore, the residual effect of

disruption to military training activities during the O&M phase is considered to be **negligible or minor adverse**, which is not significant in EIA terms

Increased suspended sediment concentrations and associated deposition affecting non-documented recreational diving sites

10.8.3.50 Activities which disturb the seabed during the O&M phase of the MHPGC Project, such as cable maintenance and reburial, may result in temporary increases in SSC and associated deposition affecting non-documented recreational diving sites within the IOSU Study Area by reducing water clarity and alter seabed conditions.

10.8.3.51 The MDS reflects the operational lifespan and the most disruptive O&M activities that would cause the largest potential for increased SSC and deposition, as detailed in **Table 10.17.**

10.8.3.52 Due to water depths within the IOSU Study Area in Scottish waters, it can be reasonably assumed that recreational diving activity is unlikely to occur. As such, the potential impacts on non-documented recreational diving sites in Scottish waters are not considered further in this assessment.

Receptor sensitivity – English waters

10.8.3.53 As described in the construction phase assessment, **section 10.8.2.54** , no recognised recreational scuba diving sites have been identified within the IOSU Study Area. Nevertheless, it is acknowledged that informal or undocumented recreational diving may occur and, as a precautionary approach, recreational diving has been retained within the assessment.

10.8.3.54 Recreational diving activity is generally transient and mobile in nature, with divers able to relocate to alternative locations should temporary disturbances occur. Any effects associated with maintenance activities would be localised and temporary. Furthermore, Notices to Mariners would be issued throughout relevant O&M activities, providing advance notification of works and enabling dive operators and recreational users to plan accordingly.

10.8.3.55 Given the absence of identified recreational dive sites within the IOSU Study Area, the availability of alternative locations, and the temporary nature of potential effects, the receptor is considered to have low vulnerability, high recoverability and low value. The sensitivity of the receptor is therefore considered to be **low.**

Magnitude of impact – English waters

10.8.3.56 **Volume 2, Chapter 01: Physical Processes, of the PEIR** describes the potential elevations in SSC and associated deposition with O&M activities. Any increases in SSC are expected to be highly localised, temporary and confined to the vicinity of maintenance activities, with conditions returning to baseline shortly after completion of works. Given the limited scale, duration and spatial extent of these activities relative to recreational diving, the potential for reductions in water clarity affecting non-documented recreational diving sites is expected to be minimal. Therefore, it is considered that the magnitude of increased SSC and associated deposition affecting non-documented recreational diving sites, during the O&M phase in English waters is considered to be **negligible adverse.**

Significance of effect – English waters

10.8.3.57 Overall, it is considered that the receptor sensitivity is **low** and the magnitude of increased SSC and associated deposition affecting non-documented recreational diving sites is **negligible adverse**. Therefore, the effect of SSC and associated deposition affecting non-documented recreational diving sites, during the O&M phase, is considered to be **negligible adverse,** which is not significant in EIA terms.

Additional mitigation and residual effect

No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible adverse**, which is not significant in EIA terms.

10.8.4 Decommissioning phase

Impact on marine disposal sites – English waters

10.8.4.1 The approach to decommissioning will be determined based on legislation and best practice at the time and is therefore yet to be finalised. However, the decommissioning phase activities are likely to be the reverse of the construction phase activities. As such, the impact on marine disposal sites in English waters during the decommissioning phase, in English waters, is anticipated to be the same or less than those experienced during the construction phase, resulting in a **minor** adverse significance (see **Paragraph 10.8.2.11**), which is not significant in EIA terms.

Displacement of recreational activities (including recreational sailing, cruising and recreational fishing)

10.8.4.2 The approach to decommissioning will be determined based on legislation and best practice at the time and is therefore yet to be finalised. However, the decommissioning phase activities are likely to be the reverse of the construction phase activities.

Scottish waters

10.8.4.3 The impact of displacement of recreational activities during the decommissioning phase, in Scottish waters, is anticipated to be the same or less than those experienced during the construction phase, resulting in a **negligible** or **minor adverse** significance (see **Paragraph 10.8.2.24**), which is not significant in EIA terms.

English waters

10.8.4.4 The impact of displacement of recreational activities during the decommissioning phase, in English waters, is anticipated to be the same or less than those experienced during the construction phase, resulting in a **minor adverse** significance (see **Paragraph 10.8.2.25**), which is not significant in EIA terms.

Impacts to early development cables or pipelines or restrictions on access to operational cables or pipelines – Scottish and English waters

10.8.4.5 The approach to decommissioning will be determined based on legislation and best practice at the time and is therefore yet to be finalised. However, the decommissioning phase activities are likely to be the reverse of the construction phase activities. As such, in both Scottish and English waters, the effect of impacts to cables during the decommissioning phase, is considered to be of **minor adverse significance** (see **Paragraph 10.8.2.38**), which is not significant in EIA terms.

Disruption of military training activities – English waters

10.8.4.6 The approach to decommissioning will be determined based on legislation and best practice at the time and is therefore yet to be finalised. However, the decommissioning phase activities are likely to be the reverse of the construction phase activities. As such, the impact of disruption of military training activities during the decommissioning phase in English waters, considered to be **negligible or minor adverse** (see **Paragraph 10.8.2.48**), which is not significant in EIA terms.

Increased suspended sediment concentrations and associated deposition affecting recreational diving sites – English waters

10.8.4.7 The approach to decommissioning will be determined based on legislation and best practice at the time and is therefore yet to be finalised. However, the decommissioning phase activities are likely to be the reverse of the construction phase activities. As such, the impact of increased SSC and associated deposition affecting recreational diving sites during the decommissioning phase in English waters, is considered to be **negligible adverse** (see **Paragraph 10.8.2.59**), which is not significant in EIA terms.

10.9 Whole project assessment and Cumulative Effects Assessment methodology

10.9.1 Methodology

10.9.1.1 The Morven Programme comprises four distinct projects: Morven North, Morven South, MHPGC Project, and MBAGC Project.

10.9.1.2 The following assessment scenarios have been considered to identify the LSE of MHPGC Project in combination with other projects on the same receptor, as follows (and summarised in **Table 10.20**):

- Whole project assessment: to identify the potential impacts associated with MHPGC Project together with Morven North and Morven South in turn, (Scenario 1: Morven North and Scenario 2: Morven South), each of which would comprise a "Whole Project";
- Morven Programme assessment: to identify potential impacts associated with all four components of the Morven Programme (Morven North, Morven South, MHPGC Project, and MBAGC Project) together with other relevant projects, plans and activities (Scenario 3);
- Cumulative Effects Assessment (CEA): to identify the potential impacts associated with MHPGC Project together with relevant projects, plans and activities, including other components of the Morven Programme, using a tiered approach (Scenario 4).

10.9.1.3 The whole project assessment and CEA have been undertaken in accordance with the methodology described in **Volume 1, Chapter 4: Approach to Environmental Impact Assessment, of the PEIR**. The different scenarios considered in the MHPGC Project whole project assessment and CEA can be seen in **Table 10.19.**

Table 10.19 Scenarios to be considered in the MHPGC Project whole project assessment and Cumulative Effects Assessment for IOSU.

Whole project assessment		Morven Programme assessment (Offshore Ornithology and Shipping and Navigation chapters only)	CEA
Scenario 1	**Scenario 2**	**Scenario 3**	**Scenario 4**
MHPGC Project and Morven North	MHPGC Project and Morven South	MHPGC Project, Morven North, Morven South and MBAGC Project	MHPGC Project, Tier 1 (including Morven North and Morven South), Tier 2 and Tier 3 (including MBAGC Project) projects and plans screened in

10.9.1.4 For the purposes of IOSU, Scenarios 1, 2, and 4 have been taken forward for assessment. Scenario 3 has not been included as it is not applicable to this chapter. As discussed in **Volume 1, Chapter 4: Approach to Environmental Impact Assessment, of the PEIR**, the Morven Programme assessment (Scenario 3) is only required for specific chapters to provide further context to, and to support, the conclusions of the CEA scenario (Scenario 4), in agreement with the relevant stakeholders for these topics. As Scenario 3 does not form the basis of the CEA conclusions, it is considered a supplementary assessment to the CEA scenario (Scenario 4) for these specific topics. The approach to CEA presented in this IOSU chapter complies with the requirements under the EIA Regulations to assess the LSE on the environment arising from a project cumulatively with other relevant plans, projects and activities, and no supplementary assessment of the Morven Programme (Scenario 3) is required or has been requested by relevant stakeholders with regard to IOSU.

10.9.1.5 The projects and plans selected as relevant to the CEA presented within this chapter are based upon the results of a screening exercise (see **Volume 1, Annex 4.3: Cumulative Screening and Location Plan, of the PEIR**). Each project or plan has been considered on a case-by-case basis for

screening in or out of this chapter's assessment based upon data confidence, effect-receptor pathways and the spatial/temporal scales involved.

10.9.1.6 In undertaking the CEA for MHPGC Project, it should be noted that other projects and plans under consideration will have differing potential for proceeding to an operational stage and hence a differing potential to ultimately contribute to a cumulative impact alongside MHPGC Project. Therefore, a tiered approach has been adopted, whereby all third-party projects and plans considered have been allocated into 'tiers' reflecting their current stage within the planning and development process. This provides a framework for placing relative weight upon the potential for each project/plan included in the CEA to ultimately be realised, based upon the project/plan's current stage of maturity and certainty in the project/plan's parameters. The tiered approach utilised within the MHPGC Project CEA employs the following tiers:

- Tier 1 assessment – Existing developments either built (operational) or under construction[1]; approved developments awaiting implementation; and permitted/submitted application(s), but not yet determined, plus Morven North and Morven South;
- Tier 2 assessment – All plans/projects assessed under Tier 1, plus plans/projects where a scoping report has been submitted and is in the public domain;
- Tier 3 assessment – All plans/projects assessed under Tier 1 and 2, plus MBAGC Project, and plans/projects that are reasonably foreseeable (e.g. projects identified in development plans, projects in other plans and programmes, offshore renewable energy projects that have a Crown Estate Scotland Lease Option Agreement).

10.9.1.7 The specific projects and plans screened into the CEA for IOSU are outlined in **Table 10.20**.

10.9.1.8 All impacts considered for the MHPGC Project alone have also been considered within the CEA (listed in **Table 10.14**).

10.9.1.9 In relation to cables, marine disposal sites and OWFs, the MHPGC Project PEIR Red Line Boundary plus a 1km buffer has been used to screen these projects. This buffer is based upon the 500m advisory safe passing distances which will be advised in relation to the construction, maintenance and decommissioning of the MHPGC Project together with similar advisory safe passing distances that may be requested around cables, disposal sites and OWFs.

[1] Note that existing developments are included in Tier 1 CEA long list but are generally screened out of the CEA assessments, aside from the following exceptions:

1) Existing developments which were not present at the time of baseline characterisation, where a potential cumulative impact-receptor pathway has been identified.

2) Existing developments are screened into tier 1 assessments for specific topics where there is a large conceptual, temporal and spatial overlap between project impacts. In these instances, the potential for ongoing effects through cumulative impact-receptor pathways throughout project lifetime, across the development phases, means that they are considered within quantitative assessment for these topic CEAs (e.g., offshore ornithology assessments consider the cumulative effects of operational offshore wind farms).

Table 10.20: List of other projects and plans considered within the Cumulative Effects Assessment for IOSU.

Project/plan	Status	Distance from MHPGC Project (km)	Description of project/plan	Estimated dates of construction (if applicable)	Estimated dates of operation (if applicable)	Overlap with MHPGC Project
Tier 1						
Offshore wind projects						
Morven North	Application submitted, awaiting decision	0.00	OWF (fixed foundation)	2033-2037	2038 onwards	Yes. Overlap of construction phase and/or operational phase with the construction and/or operational phases of the MHPGC Project.
Morven South	Application submitted, awaiting decision	0.00	OWF (fixed foundation)	2033-2037	2038 onwards	Yes. Overlap of construction phase and/or operational phase with the construction and/or operational phases of the MHPGC Project.
Cables and pipelines						
NO-UK Telecommunications Cables	Operational	0.00	Telecommunications cable	-		Yes. Overlap of operational phase with the construction and operational phases of MHPGC Project.
Havhingsten Telecommunications Cable	Operational	0.00	Telecommunications cable	-		Yes. Overlap of operational phase with the construction and operational phases of MHPGC Project.
North Sea Link North Power Cable	Operational	0.00	Power cable	-		Yes. Overlap of operational phase with the construction and operational phases of MHPGC Project.
Northumbrian Water outfall pipeline	Operational	0.00	Outfall pipe	-		Yes. Overlap of operational phase with the construction and operational phases of MHPGC Project.

Project/plan	Status	Distance from MHPGC Project (km)	Description of project/plan	Estimated dates of construction (if applicable)	Estimated dates of operation (if applicable)	Overlap with MHPGC Project
EGL2 Power Cable	Under Construction	0.00	Power cable	2026-2029	2029 onwards	Yes. Overlap of operational phase with the construction and operational phases of MHPGC Project.
Berwick Bank ECC (Cambois Connection - Northumberland)	Consented	0.25	OWF export cable	2028-2031	2032 onwards	Yes. Overlap of operational phase with the construction or operational phases of MHPGC Project.
EGL1	Under construction	0.50	Power cable	2025-2029	2029 onwards	Yes. Overlap of operational phase with the construction or operational phases of MHPGC Project.
Marine disposal sites						
Noses Point (TY130)	Open disposal site	0.16	Disposal site	-	2026 Onwards	Yes. Overlap of operational phase with construction or operational phases of MHPGC Project
Tier 2						
Cables and pipelines						
EGL4 Scoping Route	Scoping report submitted	0.00	Transmission cable	2028-2032	2033 onwards	Yes. Overlap of operational phase with the construction or operational phases of the MHPGC Project.
Tier 3						
Cables and pipelines						
MBAGC Project	Pre-application	0.00	Potential transmission for Morven North or Morven South	Unknown	Unknown	Unknown. MBAGC Project phases may overlap with MHPGC Project phases.

10.9.2 Maximum Design Scenario – Whole project assessment and Cumulative Effects Assessment

10.9.2.1 The MDSs identified in **Table 10.21** have been selected as those having the potential to result in the greatest potential effect on an identified receptor or receptor group in relation to the whole project assessment and CEA. The MDSs have been based on the MHPGC Project alone assessment MDS (**Table 10.17**), as well as publicly available information on other third-party projects and plans that have been screened into the CEA (**Table 10.20**). Where applicable, the Morven North and Morven South alone assessment MDSs, and project information available for MBAGC Project have also informed the MDSs outlined in **Table 10.21**.

10.9.2.2 Although several cables and pipelines that will be crossed by the MHPGC Project have been screened into the CEA due to their proximity to the MHPGC Project as outlined within the MHPGC Project commitments, **Section 10.7,** crossing and proximity agreements will be put in place with cable and pipeline infrastructure owners (CoT09/MM-012), as such, it is considered unlikely that any significant cumulative impacts would occur, so the topic is not considered further in the CEA for this chapter. Due lack of interaction with the MHPGC Project, the following cables have been excluded from the CEA:

- NO-UK telecommunications cable – operational;
- Havhingsten telecommunications cable - operational;
- North Sea Link North power cables - operational;
- Northumbrian Water outfall pipe – operational;
- Eastern Green Link 2 (EGL2) power cable - under construction; and
- Eastern Green Link 4 (EGL4) power cable – proposed.

Table 10.21: Maximum Design Scenario considered for the assessment of potential whole project and cumulative effects on IOSU

Potential Effect	Phase[2][3]			Maximum Design Scenario	Justification
	C	O	D		
Impact on marine disposal sites	✓	✓	✓	**Scenario 1** MDS as described for MHPGC Project (see **Table 10.17)**, assessed cumulatively with Morven North. **Scenario 2** MDS as described for MHPGC Project (see **Table 10.17**), assessed cumulatively with Morven South. **Scenario 4** MDS as described for MHPGC Project (**Table 10.17**), assessed cumulatively with Tier 1 (including Morven North and Morven South), Tier 2 and Tier 3 (including MBAGC Project) projects and plans. Tier 1 • Morven North; • Morven South; • Berwick Bank export cable (Cambois Connection); • EGL1 power cable. Tier 3 • MBAGC Project	Outcome of the CEA will be greatest when the activities of other projects/plans occur concurrently within the same area creating the greatest area that will be restricted at any one time for any single receptor.
Displacement of recreational activities	✓	✓	✓	**Scenario 1** MDS as described for MHPGC Project (see **Table 10.17**), assessed cumulatively with Morven North. **Scenario 2** MDS as described for MHPGC Project (see **Table 10.17**), assessed cumulatively with Morven South. **Scenario 4**	Outcome of the CEA will be greatest when the activities of other projects/plans occur concurrently within the same area creating the greatest area that will be restricted at any one time for any single receptor.

[2] C= Construction, O= Operations and maintenance, D= Decommissioning phases

[3] "✓" is used to denote the phase the potential impact can occur, "X" outlines there is no impact within this project phase

Potential Effect	Phase[23]			Maximum Design Scenario	Justification
	C	O	D		
				MDS as described for MHPGC Project (**Table 10.17**), assessed cumulatively with Tier 1 (including Morven North and Morven South), Tier 2 and Tier 3 (including MBAGC Project) projects and plans. Tier 1 • Morven North; • Morven South; • Berwick Bank export cable (Cambois Connection); • EGL1 power cable; • Noses Point marine disposal site (TY130). Tier 3 • MBAGC Project	
Disruption to military training	✓	✓	✓	**Scenario 1** MDS as described for MHPGC Project (see **Table 10.17**), assessed cumulatively with Morven North. **Scenario 2** MDS as described for MHPGC Project (see **Table 10.17**), assessed cumulatively with Morven South. **Scenario 4** MDS as described for MHPGC Project (**Table 10.17**), assessed cumulatively with Tier 1 (including Morven North and Morven South), Tier 2 and Tier 3 (including MBAGC Project) projects and plans. Tier 1 • Morven North; • Morven South; • Berwick Bank export cable (Cambois Connection); • EGL1 power cable; • Noses Point marine disposal site (TY130). Tier 3 • MBAGC Project	Outcome of the CEA will be greatest when the activities of other projects/plans occur concurrently within the same area creating the greatest area that will be restricted at any one time for any single receptor.

Potential Effect	Phase[23]			Maximum Design Scenario	Justification
	C	O	D		
Impacts to early development cables or pipelines or restrictions on access to operational cables or pipelines	✓	✓	✓	**Scenario 1** MDS as described for MHPGC Project (see **Table 10.17**), assessed cumulatively with Morven North. **Scenario 2** MDS as described for MHPGC Project (see **Table 10.17**), assessed cumulatively with Morven South. **Scenario 4** MDS as described for MHPGC Project (**Table 10.17**), assessed cumulatively with Tier 1 (including Morven North and Morven South), Tier 2 and Tier 3 (including MBAGC Project) projects and plans. Tier 1 • Morven North; • Morven South; • Berwick Bank export cable (Cambois Connection); • EGL1 power cable; • Noses Point marine disposal site (TY130); Tier 3 • MBAGC Project	Outcome of the CEA will be greatest when the activities of other projects/plans occur concurrently within the same area creating the greatest area that will be restricted at any one time for any single receptor.
Increased suspended sediment concentration affecting un-documented recreational diving sites	✓	✓	✓	**Scenario 1** MDS as described for MHPGC Project (see **Table 10.17**), assessed cumulatively with Morven North. **Scenario 2** MDS as described for MHPGC Project (see **Table 10.17**), assessed cumulatively with Morven South. **Scenario 4** MDS as described for MHPGC Project (**Table 10.17**), assessed cumulatively with Tier 1 (including Morven North and Morven South), Tier 2 and Tier 3 (including MBAGC Project) projects and plans. Tier 1 • Morven North;	Outcome of the CEA will be greatest when the activities of other projects/plans occur concurrently within the same area creating the greatest area that will be restricted at any one time for any single receptor.

Potential Effect	Phase[23]			Maximum Design Scenario	Justification
	C	O	D		
				• Morven South; • Berwick Bank export cable (Cambois Connection); • EGL1 power cable; • Noses Point marine disposal site (TY130). Tier 3 • MBAGC Project	

10.10 Whole project assessment and Cumulative Effects Assessment

10.10.1.1 A description of the significance of whole project and cumulative effects upon IOSU receptors arising from each identified impact is given below. The whole project assessment and CEA for MHPGC Project is presented in **Table 10.22** to **Table 10.30.**

10.10.2 Displacement of recreational activities (including recreational sailing, cruising and recreational fishing)

10.10.2.1 The summary of the whole project assessment for displacement of recreational activities (including recreational sailing, cruising and recreational fishing) is presented in **Table 10.22**, and CEA for displacement of recreational activities (including recreational sailing, cruising and recreational fishing) is presented in **Table 10.23**.

Table 10.22: MHPGC Project whole project assessment for displacement of recreational activities (including recreational sailing, cruising and recreational fishing)

	Whole project assessment	
	Scenario 1: MHPGC Project and Morven North	**Scenario 2: MHPGC Project and Morven South**
Construction phase		
Magnitude of impact	The whole project assessment for Scenario 1 considers the MHPGC Project together with Morven North. The impact of Morven North plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. The spatial extent of the potential impact will be relatively small in the context of the available sailing, motor cruising and recreational fishing area in the northern North Sea, with the potential for localised displacement of recreational craft from the advisory safe passing distances associated with the construction of each project. The whole project impact is predicted to be of regional spatial extent, short to medium term duration, intermittent and low reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **low adverse**.	The whole project assessment for Scenario 2 considers the MHPGC Project together with Morven South. The impact of Morven South plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. The spatial extent of the potential impact will be relatively small in the context of the available sailing, motor cruising and recreational fishing area in the northern North Sea, with the potential for localised displacement of recreational craft from the advisory safe passing distances associated with the construction of each project. The whole project impact is predicted to be of regional spatial extent, short to medium term duration, intermittent and low reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **low adverse**.
Sensitivity of receptor	The sensitivity of recreational receptors in Scottish waters are considered to be **medium** (**Paragraph 10.8.2.15** *et seq.*), and in English waters are considered to be **medium** (**Paragraph 10.8.2.17** *et seq.*).	
Significance of effect	For Scottish waters, the magnitude of the whole project impact is deemed to be **low adverse** and the sensitivity of the receptor is considered to be **medium**. The whole project effect will, therefore, be of **negligible** to **minor adverse** significance, which is not significant in EIA terms. For English waters, the magnitude of the whole project impact is deemed to be **low adverse** and the sensitivity of the receptor is considered to be **medium**. The whole project effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.	
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible** to **minor adverse**, which is not significant in EIA terms.	
Operations and maintenance phase		
Magnitude of impact	During the operations and maintenance phase, the cumulative magnitude of impact is considered to be lower than that experienced during construction. The impact of Morven North plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. The spatial extent of the potential impact will be relatively small in the	During the operations and maintenance phase, the cumulative magnitude of impact is considered to be lower than that experienced during construction. The impact of Morven South plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the

	Whole project assessment	
	Scenario 1: MHPGC Project and Morven North	**Scenario 2: MHPGC Project and Morven South**
	context of the available sailing, motor cruising and recreational fishing area in Scottish waters of the North Sea, with the potential for localised displacement of recreational craft from the advisory safe passing distances associated with the operation and maintenance of each project. The whole project impact is predicted to be of regional spatial extent, short term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **negligible adverse**.	project-alone assessment. The spatial extent of the potential impact will be relatively small in the context of the available sailing, motor cruising and recreational fishing area in Scottish waters of the North Sea, with the potential for localised displacement of recreational craft from the advisory safe passing distances associated with the operation and maintenance of each project. The whole project impact is predicted to be of regional spatial extent, short term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **negligible adverse**.
Sensitivity of receptor	The sensitivity of recreational receptors in Scottish waters are considered to be **medium** (**Paragraph 10.8.2.15** *et seq.*), and in English waters are considered to be **medium** (**Paragraph 10.8.2.17** *et seq.*).	
Significance of effect	For Scottish waters, the magnitude of the whole project impact is deemed to be **negligible adverse** and the sensitivity of the receptor is considered to be **medium**. The whole project effect will, therefore, be of **negligible adverse** significance, which is not significant in EIA terms. For English waters, the magnitude of the whole project impact is deemed to be **negligible adverse** and the sensitivity of the receptor is considered to be **medium**. The whole project effect will, therefore, be of **negligible adverse** significance, which is not significant in EIA terms.	
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible** to **minor adverse**, which is not significant in EIA terms.	
Decommissioning phase		
Magnitude of impact	The magnitude of decommissioning activities are expected to be the same or less than the effects from construction. The impact of Morven North plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. The spatial extent of the potential impact will be relatively small in the context of the available sailing, motor cruising and recreational fishing area in the northern North Sea, with the potential for localised displacement of recreational craft from the advisory safe passing distances associated with the decommissioning of each project. The whole project impact is predicted to be of regional spatial extent, short to medium term duration, intermittent and low reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **low adverse**.	The magnitude of decommissioning activities are expected to be the same or less than the effects from construction. The impact of Morven South plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. The spatial extent of the potential impact will be relatively small in the context of the available sailing, motor cruising and recreational fishing area in the northern North Sea, with the potential for localised displacement of recreational craft from the advisory safe passing distances associated with the decommissioning of each project. The whole project impact is predicted to be of regional spatial extent, short to medium term duration, intermittent and low reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **low adverse**.

	Whole project assessment	
	Scenario 1: MHPGC Project and Morven North	**Scenario 2: MHPGC Project and Morven South**
Sensitivity of receptor	The sensitivity of recreational receptors in Scottish waters are considered to be **low** to **medium** (**Paragraph 10.8.2.15** *et seq.*), and in English waters are considered to be **medium** (**Paragraph 10.8.2.17** *et seq.*).	
Significance of effect	For Scottish waters, the magnitude of the whole project impact is deemed to be **low adverse** and the sensitivity of the receptor is considered to be **medium**. The whole project effect will, therefore, be of **negligible** to **minor adverse** significance, which is not significant in EIA terms. For English waters, the magnitude of the whole project impact is deemed to be **low adverse** and the sensitivity of the receptor is considered to be **medium**. The whole project effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.	
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible** to **minor adverse**, which is not significant in EIA terms.	

Table 10.23: MHPGC Project CEA for displacement of recreational activities (including recreational sailing, cruising and recreational fishing)

CEA	
Scenario 4: MHPGC Project and Tier 1 (including Morven North and Morven South), Tier 2 and Tier 3 (including MBAGC Project) projects and plans screened in	
Construction phase	
Magnitude of impact	The CEA for Scenario 4 considers the MHPGC Project together with all Tier 1, Tier 2 and Tier 3 projects and plans screened into the assessment. This includes Morven North and Morven South, together with other Tier 1 projects (Berwick Bank export cable (Cambois Connection), the EGL1 power cable and the Noses Point marine disposal site (TY130)), and a single Tier 3 project comprising the MBAGC Project. The construction of the MHPGC Project, together with the other elements of Scenario 4 may displace recreational craft and recreational fishing vessels, resulting in a loss of recreational resource in Scottish waters and English waters of the northern North Sea. The spatial extent of the impact on recreational boating activities taking place in Scottish and English waters of the northern North Sea will be relatively limited in the context of the available sailing and sea angling areas in the wider vicinity, with the potential for localised displacement of recreational marine craft from the individual safety zones and/or advisory clearance/safe passing distances around structures and vessels associated with each project. Potential impacts relating to safety zones implemented during the construction phases are reversible as once each piece of infrastructure has been installed and commissioned these will be removed. Advisory clearance/safe passing distances around vessels will be transient as the vessel progressively completes the relevant installation, maintenance, and survey activity. It is improbable that the timelines of all projects would coincide in such a manner as to repeatedly displace the same recreational vessel. The cumulative effect is predicted to be of regional spatial extent, short to medium term duration, continuous and low reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **low adverse**.
Sensitivity of receptor	The sensitivity of recreational receptors in Scottish waters are considered to be **medium** (**Paragraph 10.8.2.15** *et seq.*), and in English waters are considered to be **medium** (**Paragraph 10.8.2.17** *et seq.*).
Significance of effect	For Scottish waters, the magnitude of the whole project impact is deemed to be **negligible adverse** and the sensitivity of the receptor is considered to be **medium**. The whole project effect will, therefore, be of **negligible** to **minor adverse** significance, which is not significant in EIA terms. For English waters, the magnitude of the whole project impact is deemed to be **low adverse** and the sensitivity of the receptor is considered to be **medium**. The whole project effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible** to **minor adverse**, which is not significant in EIA terms.
Operations and maintenance phase	
Magnitude of impact	The CEA for Scenario 4 considers the MHPGC Project together with all Tier 1, Tier 2 and Tier 3 projects and plans screened into the assessment. This includes Morven North and Morven South, together with other Tier 1 projects (Berwick Bank export cable (Cambois Connection), the EGL1 power cable and the Noses Point marine disposal site (TY130)), and a single Tier 3 project comprising the MBAGC Project.

CEA	
Scenario 4: MHPGC Project and Tier 1 (including Morven North and Morven South), Tier 2 and Tier 3 (including MBAGC Project) projects and plans screened in	
	During the O&M phase, recreational activities are anticipated to resume across the cable route. The magnitude of cumulative displacement is therefore lower than during construction. Cumulative displacement during O&M may arise from intermittent advisory safe passing distances associated with repair or remediation activities. These activities are infrequent, localised and short-term across all Tier 1 and 3 projects. The cumulative magnitude of impact during O&M is therefore assessed as **negligible adverse**, and lower than that experienced during construction.
Sensitivity of receptor	The sensitivity of recreational receptors in Scottish waters are considered to be **medium** (**Paragraph 10.8.2.15** *et seq.*), and in English waters are considered to be **medium** (**Paragraph 10.8.2.17** *et seq.*).
Significance of effect	The cumulative magnitude is deemed to be **negligible adverse** and the sensitivity of the receptor is considered to be **medium** for Scottish waters and **medium** for English waters. The cumulative effect will, therefore, be of **negligible** to **minor adverse** significance, which is not significant in EIA terms.
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible** to **minor adverse**, which is not significant in EIA terms.
Decommissioning phase	
Magnitude of impact	The CEA for Scenario 4 considers the MHPGC Project together with all Tier 1, Tier 2 and Tier 3 projects and plans screened into the assessment. This includes Morven North and Morven South, together with other Tier 1 projects (Berwick Bank export cable (Cambois Connection), the EGL1 power cable and the Noses Point marine disposal site (TY130)), and a single Tier 3 project comprising the MBAGC Project. The effects of decommissioning activities are expected to be the same or less than the effects from construction. The spatial extent of the impact on recreational activities taking place in Scottish and English waters of the northern North Sea will be relatively limited in the context of the available sailing and sea angling areas in the wider vicinity, with the potential for localised displacement of recreational marine craft from the individual safety zones and/or advisory clearance/safe passing distances around structures and vessels associated with each project. Safety zones will be temporary until each structure has been decommissioned, and advisory clearance distances around vessels will be transient as the vessel progressively completes the relevant decommissioning activity. It is improbable that the timelines of all projects would coincide in such a manner as to repeatedly displace the same recreational vessel. The cumulative effect is predicted to be of regional spatial extent, short to medium term duration, continuous and low reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be **low adverse**.
Sensitivity of receptor	The sensitivity of recreational receptors in Scottish waters are considered to be **medium** (**Paragraph 10.8.2.15** *et seq.*), and in English waters are considered to be **medium** (**Paragraph 10.8.2.17** *et seq.*).
Significance of effect	For Scottish waters, the magnitude of the whole project impact is deemed to be **negligible adverse** and the sensitivity of the receptor is considered to be **low** to **medium**. The whole project effect will, therefore, be of **negligible** to **minor adverse** significance, which is not significant in EIA terms. For English waters, the magnitude of the whole project impact is deemed to be **low adverse** and the sensitivity of the receptor is considered to be **medium**. The whole project effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.

CEA	
Scenario 4: MHPGC Project and Tier 1 (including Morven North and Morven South), Tier 2 and Tier 3 (including MBAGC Project) projects and plans screened in	
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible** to **minor adverse**, which is not significant in EIA terms.

10.10.3 Impacts to cables or pipelines or restrictions on access to cables and pipelines

10.10.3.1 The summary of the whole project assessment for impacts to cables or pipelines or restrictions on access to cables and pipelines is presented in **Table 10.24**, and the CEA for impacts to cables or pipelines or restrictions on access to cables and pipelines is presented in **Table 10.25**.

Table 10.24 : MHPGC Project whole project assessment for impacts to cables or pipelines or restrictions on access to cables and pipelines.

	Whole project assessment	
	Scenario 1: MHPGC Project and Morven North	**Scenario 2: MHPGC Project and Morven South**
Construction phase		
Magnitude of impact	The whole project assessment for Scenario 1 considers the MHPGC Project together with Morven North. The impact of Morven North plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. Whilst there is potential for temporary access restrictions during installation activities, access would continue to be managed through standard industry practices including crossing and proximity agreements (CoT09) and navigational notifications. The magnitude is therefore assessed as **low adverse.**	The whole project assessment for Scenario 2 considers the MHPGC Project together with Morven South. The impact of Morven South plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. Whilst there is potential for temporary access restrictions during installation activities, access would continue to be managed through standard industry practices including crossing and proximity agreements and navigational notifications. The magnitude is therefore assessed as **low adverse.**
Sensitivity of receptor	Scottish waters - The sensitivity of the EGL2 cable is considered to be **medium** (**Paragraph 10.8.2.30**). English waters - The three active operational cables (North Sea Link power cables, Havhingsten Segment 2.1 telecommunications cable, and the NO UK telecommunications cable) will be crossed by the MHPGC Project. The EGL2, EGL 1, and the Cambois Connection power cables will all intersect the IOSU Study Area in English waters once installed, with only the EGL2 cable being crossed by the MHPGC Project. There is one water outflow pipe that intersects the MHPGC Project PEIR Red Line Boundary. The sensitivity of these cables/pipeline is considered to be **medium** (**Paragraph 10.8.2.32**).	
Significance of effect	Overall, the sensitivity of the receptors are considered to be **medium** in both Scottish and English waters and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **minor significance**, which is not significant in EIA terms.	
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **minor adverse**, which is not significant in EIA terms.	
Operations and maintenance phase		
Magnitude of impact	During the operations and maintenance phase, the cumulative magnitude of impact is considered to be lower than that experienced during construction. The impact of Morven North plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. Agreements with asset owners, including crossing and proximity agreements (where required) will ensure that maintenance activities can be managed safely and that there would not be an impediment to asset maintenance operations. Due to the	During the operations and maintenance phase, the cumulative magnitude of impact is considered to be lower than that experienced during construction. The impact of Morven South plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. Agreements with asset owners, including crossing and proximity agreements (where required) will ensure that maintenance activities can be managed safely and that there would not be an impediment to asset maintenance operations. Due to the

	Whole project assessment	
	Scenario 1: MHPGC Project and Morven North	**Scenario 2: MHPGC Project and Morven South**
	infrequent and short-term nature of O&M activities, impact magnitude is assessed as **low adverse**.	infrequent and short-term nature of O&M activities, impact magnitude is assessed as **low adverse**.
Sensitivity of receptor	Scottish waters - The sensitivity of the EGL2 cable is considered to be **medium** (**Paragraph 10.8.2.30**). English waters - The three active operational cables (North Sea Link power cables, Havhingsten Segment 2.1 telecommunications cable, and the NO UK telecommunications cable) and one water outfall pipe (Northumbrian Water Outfall Pipe) will be crossed by the MHPGC Project. The EGL2, EGL 1, and the Cambois Connection power cables will all intersect the IOSU Study Area in English waters once installed, with only the EGL2 cable being crossed by the MHPGC Project. The sensitivity of these cables is considered to be **medium** (**Paragraph 10.8.2.32**).	
Significance of effect	Overall, the sensitivity of the receptors are considered to be **medium** in both Scottish and English waters and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.	
Further mitigation and residual significance	No secondary mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the designed-in measures outlined in **Table 10.18**), remains **minor adverse**, which is not significant in EIA terms.	
Decommissioning phase		
Magnitude of impact	The magnitude of decommissioning activities are expected to be the same or less than the effects from construction. The impact of Morven North plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. As such, the magnitude is considered to be **low adverse**.	The magnitude of decommissioning activities are expected to be the same or less than the effects from construction. The impact of Morven South plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. As such, the magnitude is considered to be **low adverse**.
Sensitivity of receptor	Scottish waters - The sensitivity of the EGL2 cable is considered to be **medium** (**Paragraph 10.8.2.30**). English waters - The three active operational cables (North Sea Link power cables, Havhingsten Segment 2.1 telecommunications cable, and the NO UK telecommunications cable) will be crossed by the MHPGC Project. The EGL2, EGL 1, and the Cambois Connection power cables will all intersect the IOSU Study Area in English waters once installed, with only the EGL2 cable being crossed by the MHPGC Project. The sensitivity of these cables is considered to be **medium** (**Paragraph 10.8.2.32**).	
Significance of effect	Overall, the sensitivity of the receptors are considered to be **medium** in both Scottish and English waters and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.	
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **minor adverse**, which is not significant in EIA terms.	

Table 10.25: MHPGC Project CEA for impacts to cables or pipelines or restrictions on access to cables and pipelines

Scenario 4: MHPGC Project, Tier 1 (including Morven North and Morven South), Tier 2, and Tier 3 (including MBAGC Project) Projects	
Construction phase	
Magnitude of impact	The CEA for Scenario 4 considers the MHPGC Project together with all Tier 1, Tier 2 and Tier 3 projects and plans screened into the assessment. This includes Morven North and Morven South, together with other Tier 1 projects (Berwick Bank export cable (Cambois Connection), the EGL1 power cable and the Noses Point marine disposal site (TY130)), and a single Tier 3 project comprising the MBAGC Project. Although construction activities associated with the MHPGC Project may overlap temporally and spatially with those of other offshore developments and cable projects within the cumulative scenario, any restrictions on access to existing or planned cables and pipelines would be temporary and localised. The ability of asset owners to access, inspect, repair and maintain infrastructure would be maintained, albeit potentially requiring additional coordination between developers and asset operators. Established industry processes, including crossing and proximity agreements and advance notification procedures, would reduce the potential for disruption. Consequently, the cumulative magnitude of impact is assessed as **low adverse**.
Sensitivity of receptor	Scottish waters - The sensitivity of the EGL2 cable is considered to be **medium** (**Paragraph 10.8.2.30**). English waters - The three active operational cables (North Sea Link power cable, Havhingsten Segment 2.1 telecommunications cable, and the NO UK telecommunications cable) and one water outfall pipeline (Northumbrian Water Outfall Pipe) will be crossed by the MHPGC Project. The EGL2, EGL 1, and the Cambois Connection power cables will all intersect the IOSU Study Area in English waters once installed, with only the EGL2 cable being crossed by the MHPGC Project. The sensitivity of these cables is considered to be **medium** (**Paragraph 10.8.2.32**).
Significance of effect	Overall, the sensitivity of the receptors are considered to be **medium** in both Scottish and English waters and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **minor significance**, which is not significant in EIA terms.
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **minor adverse**, which is not significant in EIA terms.
Operations and maintenance phase	
Magnitude of impact	The CEA for Scenario 4 considers the MHPGC Project together with all Tier 1, Tier 2 and Tier 3 projects and plans screened into the assessment. This includes Morven North and Morven South, together with other Tier 1 projects (Berwick Bank export cable (Cambois Connection), the EGL1 power cable and the Noses Point marine disposal site (project code: TY130)), and a single Tier 3 project comprising the MBAGC Project. During the operations and maintenance phase, the cumulative magnitude of impact is considered to be lower than that experienced during construction. During operation and maintenance, vessel activity associated with the MHPGC Project and other projects within the cumulative scenario may result in periodic restrictions on access to existing or planned cables and pipelines. However, these activities would be intermittent, geographically limited and of relatively short duration. Access to infrastructure would not be permanently prevented, and infrastructure owners would retain the ability to undertake maintenance and repair activities through routine coordination mechanisms. Therefore, the cumulative magnitude of impact is assessed as **low adverse**.
Sensitivity of receptor	Scottish waters - The sensitivity of the EGL2 cable is considered to be **medium** (**Paragraph 10.8.2.30**).

Scenario 4: MHPGC Project, Tier 1 (including Morven North and Morven South), Tier 2, and Tier 3 (including MBAGC Project) Projects	
	English waters - The three active operational cables (North Sea Link power cables, Havhingsten Segment 2.1 telecommunications cable, and the NO UK telecommunications cable) and one water outfall pipe (Northumbrian Water Ltd) will be crossed by the MHPGC Project. The EGL2, EGL 1, and the Cambois Connection power cables will all intersect the IOSU Study Area in English waters once installed, with only the EGL2 cable being crossed by the MHPGC Project. The sensitivity of these cables is considered to be **medium** (**Paragraph 10.8.2.32**).
Significance of effect	Overall, the sensitivity of the receptors are considered to be **medium** in both Scottish and English waters and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **minor significance**, which is not significant in EIA terms.
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **minor adverse**, which is not significant in EIA terms.
Decommissioning phase	
Magnitude of impact	The CEA for Scenario 4 considers the MHPGC Project together with all Tier 1, Tier 2 and Tier 3 projects and plans screened into the assessment. This includes Morven North and Morven South, together with other Tier 1 projects (Berwick Bank export cable (Cambois Connection), the EGL1 power cable and the Noses Point marine disposal site (TY130)), and a single Tier 3 project comprising the MBAGC Project. The magnitude of decommissioning activities are expected to be the same or less than the effects from construction. Decommissioning activities could result in temporary restrictions on access to existing or planned cables and pipelines, similar to those identified during the construction phase. Any effects would be short term and confined to the vicinity of decommissioning activities, with opportunities for coordination between project operators and infrastructure owners reducing the potential for disruption. As access would not be permanently affected and impacts would be temporary and reversible, the cumulative magnitude of impact is assessed as **low adverse**.
Sensitivity of receptor	Scottish waters - The sensitivity of the EGL2 cable is considered to be **medium** (**Paragraph 10.8.2.30**). English waters - The three active operational cables (North Sea Link power cables, Havhingsten Segment 2.1 telecommunications cable, and the NO UK telecommunications cable) and one water outfall pipe (Northumbrian Water Ltd) will be crossed by the MHPGC Project. The EGL2, EGL 1, and the Cambois Connection power cables will all intersect the IOSU Study Area in English waters once installed, with only the EGL2 cable being crossed by the MHPGC Project. The sensitivity of these cables is considered to be **medium** (**Paragraph 10.8.2.32**).
Significance of effect	Overall, the sensitivity of the receptors are considered to be **medium** in both Scottish and English waters and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **minor significance**, which is not significant in EIA terms.
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **minor adverse**, which is not significant in EIA terms.

10.10.4 Impact on marine disposal sites

10.10.4.1 The summary of the whole project assessment for impacts on marine disposal sites is presented in **Table 10.26**, and the CEA for impacts on marine disposal sites is presented in **Table 10.27**.

Table 10.26: MHPGC whole project assessment for potential impacts to marine disposal sites.

	Whole project assessment	
	Scenario 1: MHPGC Project and Morven North	**Scenario 2: MHPGC Project and Morven South**
Construction phase		
Magnitude of Impact	The whole project assessment for Scenario 1 considers the MHPGC Project together with Morven North. The impact of Morven North plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. Whilst Noses Point marine disposal site (TY130) is located in English waters and is spatially separated from Morven North, there is potential for vessels associated with Morven North to transit through, or in proximity to, the MHPGC Project when travelling to and from offshore works. This may result in a small increase in vessel activity within the wider area and a corresponding increase in the potential for temporary restrictions on access to Noses Point. However, any interactions would remain temporary, localised and reversible, and disposal operations would not be prevented from taking place. The magnitude is therefore assessed as **low adverse**.	The whole project assessment for Scenario 2 considers the MHPGC Project together with Morven South. The impact of Morven South plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. Whilst Noses Point marine disposal site (TY130) is located in English waters and is spatially separated from Morven South, there is potential for vessels associated with Morven South to transit through, or in proximity to, the MHPGC Project when travelling to and from offshore works. This may result in a small increase in vessel activity within the wider area and a corresponding increase in the potential for temporary restrictions on access to Noses Point. However, any interactions would remain temporary, localised and reversible, and disposal operations would not be prevented from taking place. The magnitude is therefore assessed as **low adverse**.
Sensitivity of receptor	English waters - The sensitivity of the Noses Point disposal site (TY130) is considered to be **medium** (**Paragraph 10.8.2.6**).	
Significance of effect	Overall, the sensitivity of the receptor is considered to be **medium** and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.	
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **minor adverse**, which is not significant in EIA terms.	
Operations and maintenance phase		
Magnitude of impact	During the operations and maintenance phase, the cumulative magnitude of impact is considered to be lower than that experienced during construction. The addition of Morven North is not considered likely to increase the impact magnitude concluded within the project-alone assessment. Operational and maintenance activities associated with both developments may result in an increase in vessel activity within the wider area; however, any restrictions on access to marine disposal sites would remain intermittent, short term and highly localised. The spatial and temporal overlap between disposal site activities and project-	During the operations and maintenance phase, the cumulative magnitude of impact is considered to be lower than that experienced during construction. The addition of Morven South is not considered likely to increase the impact magnitude concluded within the project-alone assessment. Operational and maintenance activities associated with both developments may result in an increase in vessel activity within the wider area; however, any restrictions on access to marine disposal sites would remain intermittent, short term and highly localised. The spatial and temporal overlap between disposal site activities and project-

	Whole project assessment	
	Scenario 1: MHPGC Project and Morven North	**Scenario 2: MHPGC Project and Morven South**
	related vessel activity would continue to be limited and disposal site operations would not be prevented. The magnitude is therefore assessed as **low adverse**.	related vessel activity would continue to be limited and disposal site operations would not be prevented. The magnitude is therefore assessed as **low adverse**.
Sensitivity of effect	English waters - The sensitivity of the Noses Point disposal site (TY130) is considered to be **medium** (**Paragraph 10.8.2.6**).	
Significance of effect	Overall, the sensitivity of the receptor is considered to be **medium** and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.	
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **minor adverse**, which is not significant in EIA terms.	
Decommissioning phase		
Magnitude of impact	The magnitude of decommissioning activities are expected to be the same or less than the effects from construction. The impact of Morven North plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. As such, the magnitude is considered to be **low adverse**.	The magnitude of decommissioning activities are expected to be the same or less than the effects from construction. The impact of Morven South plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. As such, the magnitude is considered to be **low adverse**.
Sensitivity of receptor	English waters - The sensitivity of the Noses Point disposal site (TY130) is considered to be **medium** (**Paragraph 10.8.2.6**).	
Significance of effect	Overall, the sensitivity of the receptor is considered to be **medium** and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.	
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **minor adverse**, which is not significant in EIA terms.	

Table 10.27: MHPGC CEA for potential impacts to marine disposal sites

Scenario 4: MHPGC Project, Tier 1 (including Morven North and Morven South), Tier 2, and Tier 3 (including MBAGC Project) Projects	
Construction phase	
Magnitude of impact	The CEA for Scenario 4 considers the MHPGC Project together with all Tier 1, Tier 2 and Tier 3 projects and plans screened into the assessment. This includes Morven North and Morven South, together with other Tier 1 projects (Berwick Bank export cable (Cambois Connection), the EGL1 power cable, and a single Tier 3 project comprising the MBAGC Project. The cumulative impact of these projects on Noses Point marine disposal site (TY130) is not considered likely to increase the impact magnitude concluded within the project-alone assessment. Whilst concurrent construction activities may increase the number of project vessels operating within the wider area and could result in temporary restrictions on access to Noses Point, any overlap between disposal activities and construction works would be short term, localised and temporary in nature. Disposal operations would not be prevented and users of the disposal site would continue to receive advance notification of activities through standard industry communication measures, allowing disposal operations to be planned accordingly. The cumulative impact would therefore result in a measurable but limited change to disposal site operations. The magnitude is therefore assessed as **low adverse**.
Sensitivity of receptor	English waters - The sensitivity of the Noses Point disposal site (TY130) is considered to be **medium** (**Paragraph 10.8.2.6**).
Significance of effect	Overall, the sensitivity of the receptor is considered to be **medium** and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **minor adverse**, which is not significant in EIA terms.
Operations and maintenance phase	
Magnitude of impact	The CEA for Scenario 4 considers the MHPGC Project together with all Tier 1, Tier 2 and Tier 3 projects and plans screened into the assessment. This includes Morven North and Morven South, together with other Tier 1 projects (Berwick Bank export cable (Cambois Connection), the EGL1 power cable, and a single Tier 3 project comprising the MBAGC Project. During the operations and maintenance phase, the cumulative magnitude of impact is considered to be lower than that experienced during construction. The cumulative impact of these projects on Noses Point marine disposal site (TY130) is not considered likely to increase the impact magnitude concluded within the project-alone assessment. O&M activities associated with multiple developments may result in an increase in vessel movements and occasional maintenance activities within the wider area. However, such activities would be intermittent, of relatively short duration and spatially limited. Any restrictions on access to Noses Point would be temporary and reversible, with sufficient opportunity for disposal operators to adapt the timing of activities where necessary. Disposal operations would continue throughout the operational life of the developments and no long-term loss of access is anticipated. The magnitude is therefore assessed as **low adverse**.
Sensitivity of receptor	English waters - The sensitivity of the Noses Point disposal site (TY130) is considered to be **medium** (**Paragraph 10.8.2.6**).
Significance of effect	Overall, the sensitivity of the receptor is considered to be **medium** and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.

Scenario 4: MHPGC Project, Tier 1 (including Morven North and Morven South), Tier 2, and Tier 3 (including MBAGC Project) Projects	
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **minor adverse**, which is not significant in EIA terms.
Decommissioning phase	
Magnitude of impact	The CEA for Scenario 4 considers the MHPGC Project together with all Tier 1, Tier 2 and Tier 3 projects and plans screened into the assessment. This includes Morven North and Morven South, together with other Tier 1 projects (Berwick Bank export cable (Cambois Connection), the EGL1 power cable, and a single Tier 3 project comprising the MBAGC Project. The magnitude of decommissioning activities are expected to be the same or less than the effects from construction. The cumulative impact of these projects on Noses Point marine disposal site (TY130) is not considered likely to increase the impact magnitude concluded within the project-alone assessment. Decommissioning activities are anticipated to result in effects comparable to those identified during construction, with temporary increases in vessel activity and short-term restrictions on access to the disposal site. Any interactions would remain localised, temporary and reversible and would not prevent the continued use of Noses Point. As with construction, disposal operators would be able to plan activities around notified works, resulting in only a limited change to existing disposal site operations. The magnitude is therefore assessed as **low adverse**.
Sensitivity of receptor	English waters - The sensitivity of the Noses Point disposal site (TY130) is considered to be **medium** (**Paragraph 10.8.2.6**).
Significance of effect	Overall, the sensitivity of the receptor is considered to be **medium** and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **minor adverse** significance, which is not significant in EIA terms.
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **minor adverse**, which is not significant in EIA terms.

10.10.5 Disruption to military training activities

10.10.5.1 The summary of the whole project assessment for disruption to military training activities is presented in **Table 10.28**, and the CEA for disruption to military training activities is presented in **Table 10.29**.

Table 10.28: MHPGC Project whole project assessment for disruption to military training activities.

	Whole project assessment	
	Scenario 1: MHPGC Project and Morven North	**Scenario 2: MHPGC Project and Morven South**
Construction phase		
Magnitude of Impact	The whole project assessment for Scenario 1 considers the MHPGC Project together with Morven North. Whilst military training activities within Danger Area Complex D513 are spatially distinct from the Morven North, there is potential for project vessels associated with the OWFs to transit through, or in proximity to, the area when travelling to and from construction works. This may result in a small increase in vessel activity within the wider area and a corresponding increase in the potential for temporary interactions with military training activities. However, any interaction would remain temporary, localised and reversible and would be limited to the duration of the construction works. Military training activities would not be prevented from occurring and the functionality of Danger Area Complex D513 would be maintained. The magnitude is therefore assessed as **low adverse**.	The whole project assessment for Scenario 2 considers the MHPGC Project together with Morven South. Whilst military training activities within Danger Area Complex D513 are spatially distinct from the Morven North, there is potential for project vessels associated with the OWFs to transit through, or in proximity to, the area when travelling to and from construction works. This may result in a small increase in vessel activity within the wider area and a corresponding increase in the potential for temporary interactions with military training activities. However, any interaction would remain temporary, localised and reversible and would be limited to the duration of the construction works. Military training activities would not be prevented from occurring and the functionality of Danger Area Complex D513 would be maintained. The magnitude is therefore assessed as **low adverse**.
Sensitivity of receptor	English waters - The sensitivity of the Danger Area Complex D513 is considered to be **low** (**Paragraph 10.8.2.45**).	
Significance of effect	Overall, the sensitivity of the receptor is considered to be **low** and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **negligible or minor adverse** significance, which is not significant in EIA terms.	
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible or minor adverse**, which is not significant in EIA terms.	
Operations and maintenance phase		
Magnitude of impact	The impact of Morven North together with the MHPGC Project is not considered likely to increase the impact magnitude concluded within the project-alone assessment. Whilst operation and maintenance activities associated with Morven North may increase vessel movements within the wider area, any interaction with military training activities within Danger Area Complex D513 would remain intermittent, short term and spatially limited. Similar to the project-alone assessment, temporary disruption may occur where vessel activity coincides with military exercises; however, military training activities would continue to operate around planned project activities where required. Any effects would be	The impact of Morven South together with the MHPGC Project is not considered likely to increase the impact magnitude concluded within the project-alone assessment. Whilst operation and maintenance activities associated with Morven South may increase vessel movements within the wider area, any interaction with military training activities within Danger Area Complex D513 would remain intermittent, short term and spatially limited. Similar to the project-alone assessment, temporary disruption may occur where vessel activity coincides with military exercises; however, military training activities would continue to operate around planned project activities where required. Any effects would be

	Whole project assessment	
	Scenario 1: MHPGC Project and Morven North	**Scenario 2: MHPGC Project and Morven South**
	reversible and would not result in the long-term loss of access to, or use of, the military training area. The magnitude is therefore assessed as **low adverse**.	reversible and would not result in the long-term loss of access to, or use of, the military training area. The magnitude is therefore assessed as **low adverse**.
Sensitivity of receptor	English waters - The sensitivity of the Danger Area Complex D513 is considered to be **low** (**Paragraph 10.8.2.45**).	
Significance of effect	Overall, the sensitivity of the receptor is considered to be **low** and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **negligible or minor adverse** significance, which is not significant in EIA terms.	
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible or minor adverse**, which is not significant in EIA terms.	
Decommissioning phase		
Magnitude of impact	The magnitude of decommissioning activities are expected to be the same or less than the effects from construction. The impact of Morven North plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. As such, the magnitude is considered to be **low adverse**.	The magnitude of decommissioning activities are expected to be the same or less than the effects from construction. The impact of Morven South plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. As such, the magnitude is considered to be **low adverse**.
Sensitivity of receptor	English waters - The sensitivity of the Danger Area Complex D513 is considered to be **low** (**Paragraph 10.8.2.45**).	
Significance of effect	Overall, the sensitivity of the receptor is considered to be **low** and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **negligible or minor adverse** significance, which is not significant in EIA terms.	
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible or minor adverse**, which is not significant in EIA terms.	

Table 10.29: MHPGC Project CEA for disruption to military training activities

Scenario 4: MHPGC Project, Tier 1 (including Morven North and Morven South), Tier 2, and Tier 3 (including MBAGC Project) Projects	
Construction Phase	
Magnitude of impact	The CEA for Scenario 4 considers the MHPGC Project together with all Tier 1, Tier 2 and Tier 3 projects and plans screened into the assessment. This includes Morven North and Morven South, together with other Tier 1 projects (Berwick Bank export cable (Cambois Connection), the EGL1 power cable and the Noses Point marine disposal site (TY130)), and a single Tier 3 project comprising the MBAGC Project. The cumulative impact of these projects on military training activities within Danger Area Complex D513 is not considered likely to increase the impact magnitude concluded within the project-alone assessment. Whilst the additional projects may result in an increase in vessel traffic within the wider area, including vessel transits associated with offshore construction activities, impacts would remain limited to temporary interactions between project vessels and military exercises. Regular Notices to Mariners (NtMs), together with ongoing liaison and consultation with the MoD, would facilitate management of potential interactions, ensuring that planned construction activities and military exercises can, where reasonably practicable, be coordinated to minimise potential adverse impacts. The impact is predicted to be of local spatial extent, short to medium-term duration, intermittent and highly reversible, directly affecting the receptor. The magnitude is therefore assessed as **low adverse**.
Sensitivity of receptor	English waters - The sensitivity of the Danger Area Complex D513 is considered to be **low** (**Paragraph 10.8.2.45**).
Significance of effect	Overall, the sensitivity of the receptor is considered to be **low** and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **negligible or minor adverse** significance, which is not significant in EIA terms.
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible or minor adverse**, which is not significant in EIA terms.
Operations and Maintenance phase	
Magnitude of impact	The CEA for Scenario 4 considers the MHPGC Project together with all Tier 1, Tier 2 and Tier 3 projects and plans screened into the assessment. This includes Morven North and Morven South, together with other Tier 1 projects (Berwick Bank export cable (Cambois Connection), the EGL1 power cable and the Noses Point marine disposal site (TY130)), and a single Tier 3 project comprising the MBAGC Project. The cumulative impact of these projects on military training activities within Danger Area Complex D513 is not considered likely to increase the impact magnitude concluded within the project-alone assessment. Operation and maintenance activities associated with multiple developments may result in an increase in vessel movements within the wider area; however, such activities would be intermittent, temporary and geographically limited. Through continued liaison with the MoD and notification of planned offshore activities, military training exercises would continue to be programmed and undertaken alongside offshore operations. Any disruption would be temporary and reversible and would not result in any long-term reduction in the use or functionality of D513. The impact is predicted to be of local spatial extent, medium-term duration, intermittent and highly reversible, directly affecting the receptor. The magnitude is therefore assessed as **low adverse**.
Sensitivity of receptor	English waters - The sensitivity of the Danger Area Complex D513 is considered to be **low** (**Paragraph 10.8.2.45**).
Significance of effect	Overall, the sensitivity of the receptor is considered to be **low** and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **negligible or minor adverse** significance, which is not significant in EIA terms.

Scenario 4: MHPGC Project, Tier 1 (including Morven North and Morven South), Tier 2, and Tier 3 (including MBAGC Project) Projects	
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible or minor adverse**, which is not significant in EIA terms.
Decommissioning phase	
Magnitude of impact	The CEA for Scenario 4 considers the MHPGC Project together with all Tier 1, Tier 2 and Tier 3 projects and plans screened into the assessment. This includes Morven North and Morven South, together with other Tier 1 projects (Berwick Bank export cable (Cambois Connection), the EGL1 power cable and the Noses Point marine disposal site (TY130)), and a single Tier 3 project comprising the MBAGC Project. The cumulative impact of these projects on military training activities within Danger Area Complex D513 is not considered likely to increase the impact magnitude concluded within the project-alone assessment. Whilst decommissioning activities may result in a temporary increase in vessel activity within the wider area, any interactions with military training activities would remain limited to the periods during which decommissioning works are undertaken. Continued liaison with the MoD and communication of planned activities would facilitate coordination between project activities and military exercises, minimising the potential for adverse impacts. The impact is predicted to be of local spatial extent, short to medium-term duration, intermittent and highly reversible, directly affecting the receptor. The magnitude is therefore assessed as **low adverse**.
Sensitivity of receptor	English waters - The sensitivity of the Danger Area Complex D513 is considered to be **low** (**Paragraph 10.8.2.45**).
Significance of effect	Overall, the sensitivity of the receptor is considered to be **low** and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **negligible or minor adverse** significance, which is not significant in EIA terms.
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible or minor adverse**, which is not significant in EIA terms.

10.10.6 Increased suspended sediment concentrations and associated deposition affecting non-documented recreational diving sites

10.10.6.1 The summary of the whole project assessment for increased suspended sediment concentrations and associated deposition affecting non-documented recreational diving sites is presented in Table 10.30, and the CEA for increased suspended sediment concentrations and associated deposition affecting non-documented recreational diving sites is presented in Table 10.31.

Table 10.30: MHPGC Project whole project assessment for increased suspended sediment concentrations and associated deposition affecting non-documented recreational diving sites.

	Whole project assessment	
	Scenario 1: MHPGC Project and Morven North	**Scenario 2: MHPGC Project and Morven South**
Construction phase		
Magnitude of Impact	The whole project assessment for Scenario 1 considers the MHPGC Project together with Morven North. The impact of Morven North together with the MHPGC Project is not considered likely to increase the impact magnitude concluded within the project-alone assessment. Whilst construction activities associated with both developments may result in localised sediment mobilisation and temporary elevations in SSC, non-documented recreational diving activity is anticipated to be concentrated within the nearshore waters of the IOSU Study Area, whereas Morven North is located further offshore in deeper waters that are generally not conducive to recreational diving activities. Any sediment mobilisation associated with the MHPGC Project and Morven North would remain temporary, reversible and subject to natural dispersion by prevailing coastal processes. Consequently, any reduction in water clarity affecting non-documented recreational diving sites would remain short term and localised, with conditions returning to baseline following completion of works. The magnitude is therefore assessed as **low adverse**.	The whole project assessment for Scenario 2 considers the MHPGC Project together with Morven South. The impact of Morven South together with the MHPGC Project is not considered likely to increase the impact magnitude concluded within the project-alone assessment. Whilst construction activities associated with both developments may result in localised sediment mobilisation and temporary elevations in SSC, non-documented recreational diving activity is anticipated to be concentrated within the nearshore waters of the IOSU Study Area, whereas Morven South is located further offshore in deeper waters that are generally not conducive to recreational diving activities. Any sediment mobilisation associated with the MHPGC Project and Morven South would remain temporary, reversible and subject to natural dispersion by prevailing coastal processes. Consequently, any reduction in water clarity affecting non-documented recreational diving sites would remain short term and localised, with conditions returning to baseline following completion of works. The magnitude is therefore assessed as **low adverse**.
Sensitivity of receptor	English waters - The sensitivity of recreational divers is considered to be **low** (**Paragraph 10.8.2.56**).	
Significance of effect	Overall, the sensitivity of the receptor is considered to be **low** and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **negligible adverse** significance, which is not significant in EIA terms.	
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible adverse**, which is not significant in EIA terms.	
Operations and maintenance phase		
Magnitude of impact	The impact of Morven North together with the MHPGC Project is not considered likely to increase the impact magnitude concluded within the project-alone assessment. Any increases in SSC associated with operation and maintenance activities for the MHPGC Project and Morven North would remain highly localised, temporary and confined to the vicinity of maintenance works. Given that recreational diving activity	The impact of Morven South together with the MHPGC Project is not considered likely to increase the impact magnitude concluded within the project-alone assessment. Any increases in SSC associated with operation and maintenance activities for the MHPGC Project and Morven South would remain highly localised, temporary and confined to the vicinity of maintenance works. Given that recreational diving activity

	Whole project assessment	
	Scenario 1: MHPGC Project and Morven North	**Scenario 2: MHPGC Project and Morven South**
	is expected to be focused within accessible nearshore areas and that Morven North is located further offshore in deeper waters, the potential for cumulative reductions in water clarity affecting non-documented recreational diving sites would remain minimal. Conditions would be expected to return to baseline shortly following completion of activities. The magnitude is therefore assessed as **negligible adverse**.	is expected to be focused within accessible nearshore areas and that Morven South is located further offshore in deeper waters, the potential for cumulative reductions in water clarity affecting non-documented recreational diving sites would remain minimal. Conditions would be expected to return to baseline shortly following completion of activities. The magnitude is therefore assessed as **negligible adverse**.
Sensitivity of effect	English waters - The sensitivity of recreational divers is considered to be **low** (**Paragraph 10.8.2.56**).	
Significance of effect	Overall, the sensitivity of the receptor is considered to be **low** and the magnitude of impact is considered to be **negligible adverse**. The effect will, therefore, be of **negligible adverse** significance, which is not significant in EIA terms.	
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible adverse**, which is not significant in EIA terms.	
Decommissioning phase		
Magnitude of impact	The magnitude of decommissioning activities are expected to be the same or less than the effects from construction. The impact of Morven North plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. As such, the magnitude is considered to be **low adverse**.	The magnitude of decommissioning activities are expected to be the same or less than the effects from construction. The impact of Morven South plus the MHPGC Project is not considered likely to cumulatively raise the impact magnitude rating concluded in the project-alone assessment. As such, the magnitude is considered to be **low adverse**.
Sensitivity of receptor	English waters - The sensitivity of recreational divers is considered to be **low** (**Paragraph 10.8.2.56**).	
Significance of effect	Overall, the sensitivity of the receptor is considered to be **low** and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **negligible adverse** significance, which is not significant in EIA terms.	
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible adverse**, which is not significant in EIA terms.	

Table 10.31: MHPGC Project CEA for increased suspended sediment concentrations and associated deposition affecting non-documented recreational diving sites.

Scenario 4: MHPGC Project, Tier 1 (including Morven North and Morven South), Tier 2, and Tier 3 (including MBAGC Project) Projects	
Construction Phase	
Magnitude of impact	The CEA for Scenario 4 considers the MHPGC Project together with all Tier 1, Tier 2 and Tier 3 projects and plans screened into the assessment. This includes Morven North and Morven South, together with other Tier 1 projects (Berwick Bank export cable (Cambois Connection), the EGL1 power cable and the Noses Point marine disposal site (TY130)), and a single Tier 3 project comprising the MBAGC Project. The cumulative impact of these projects on non-documented recreational diving sites is not considered likely to increase the impact magnitude concluded within the project-alone assessment. Whilst construction activities associated with multiple projects have the potential to generate temporary increases in SSC and associated deposition, recreational diving activity is likely to be concentrated within accessible nearshore waters in English waters. Morven North, Morven South and the MBAGC Project are located substantially further offshore and/or within Scottish waters and are therefore unlikely to overlap with areas typically used for recreational diving. Although the Cambois Connection and EGL1 projects are located within English waters and may contribute to localised increases in SSC, any sediment mobilisation would remain temporary and reversible and would be dispersed through natural coastal processes. Consequently, any reduction in water clarity affecting non-documented recreational diving sites would remain localised and temporary, with conditions returning to baseline following completion of works. The magnitude is therefore assessed as **low adverse**.
Sensitivity of receptor	English waters - The sensitivity of recreational divers is considered to be **low** (**Paragraph 10.8.2.56**).
Significance of effect	Overall, the sensitivity of the receptor is considered to be **low** and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **negligible adverse** significance, which is not significant in EIA terms.
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible adverse**, which is not significant in EIA terms.
Operations and maintenance phase	
Magnitude of impact	The CEA for Scenario 4 considers the MHPGC Project together with all Tier 1, Tier 2 and Tier 3 projects and plans screened into the assessment. This includes Morven North and Morven South, together with other Tier 1 projects (Berwick Bank export cable (Cambois Connection), the EGL1 power cable and the Noses Point marine disposal site (TY130)), and a single Tier 3 project comprising the MBAGC Project. The cumulative impact of these projects on non-documented recreational diving sites is not considered likely to increase the impact magnitude concluded within the project-alone assessment. Any increases in SSC associated with operation and maintenance activities across the cumulative scenario would be highly localised and confined to the immediate vicinity of maintenance works. Given the limited scale and duration of maintenance activities, together with the offshore location of much of the cumulative development relative to areas suitable for recreational diving, the potential for cumulative reductions in water clarity affecting non-documented recreational diving sites would remain minimal. Conditions would be expected to return rapidly to baseline following completion of activities. The magnitude is therefore assessed as **negligible adverse**.
Sensitivity of receptor	English waters - The sensitivity of recreational divers is considered to be **low** (**Paragraph 10.8.2.56**).
Significance of effect	Overall, the sensitivity of the receptor is considered to be **low** and the magnitude of impact is considered to be **negligible adverse**. The effect will, therefore, be of **negligible adverse** significance, which is not significant in EIA terms.

Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible adverse**, which is not significant in EIA terms.
Decommissioning phase	
Magnitude of impact	The CEA for Scenario 4 considers the MHPGC Project together with all Tier 1, Tier 2 and Tier 3 projects and plans screened into the assessment. This includes Morven North and Morven South, together with other Tier 1 projects (Berwick Bank export cable (Cambois Connection), the EGL1 power cable and the Noses Point marine disposal site (TY130)), and a single Tier 3 project comprising the MBAGC Project. The cumulative impact of these projects on non-documented recreational diving sites is not considered likely to increase the impact magnitude concluded within the project-alone assessment. Whilst decommissioning activities may result in temporary increases in SSC and associated deposition, effects would be comparable to those identified during construction and would remain temporary, localised and reversible. Recreational diving activity is anticipated to remain focused within nearshore English waters, whereas several of the cumulative developments are located further offshore and are unlikely to contribute materially to effects at recreational diving locations. Any increases in SSC would therefore be dispersed naturally through prevailing coastal processes, with conditions returning to baseline following completion of works. The magnitude is therefore assessed as **low adverse**.
Sensitivity of receptor	English waters - The sensitivity of recreational divers is considered to be **low** (**Paragraph 10.8.2.56**).
Significance of effect	Overall, the sensitivity of the receptor is considered to be **low** and the magnitude of impact is considered to be **low adverse**. The effect will, therefore, be of **negligible adverse** significance, which is not significant in EIA terms.
Further mitigation and residual significance	No mitigation measures for IOSU are considered necessary because the likely effect in the absence of further mitigation (beyond the commitments outlined in **Table 10.18**), remains **negligible adverse**, which is not significant in EIA terms.

10.11 Transboundary effects

10.11.1.1 A screening of transboundary impacts has been carried out and any potential for significant transboundary effects with regard to IOSU from the construction, O&M and decommissioning phases of the MHPGC Project upon interests of other states has been assessed as part of the PEIR. The potential transboundary impacts are screened within **Volume 1, Annex 4.2: Transboundary Screening, of the PEIR**.

10.11.1.2 The offshore components of the MHPGC Project and the IOSU Study Area are located within UK territorial waters, which were considered as part of the baseline assessment (see **Section 10.4.5**). Any impacts on IOSU receptors due to construction, O&M and decommissioning activities are likely to be confined to 9km from the MHPGC Project PEIR Red Line Boundary, aligning with the IOSU Study Area. This is based on professional judgement, including taking one tidal excursion around the MHPGC Project PEIR Red Line Boundary as informed by **Volume 2, Chapter 1: Physical Processes, of the PEIR**. Therefore, no transboundary impacts with regards to IOSU are anticipated and no significant effects would arise.

10.12 Inter-related effects

10.12.1.1 Inter-related effects are the combined impact of multiple aspects of the MHPGC Project on a single receptor. These are as follows:

- **Project lifetime effects**: Assessment of the scope for effects that occur throughout more than one phase of the MHPGC Project (construction, O&M and decommissioning), to interact to potentially create a more significant effect on a receptor than if just assessed in isolation in these three phases;
- **Receptor led effects**: Assessment of the scope for all effects (including inter-relationships between environmental topics) to interact, spatially and temporally, to create inter-related effects on a receptor.

10.12.1.2 Inter-related effects are assessed within **Volume 4, Chapter 5: Inter-related Effects, of the PEIR**.

10.13 Summary

10.13.1 Summary of effects

10.13.1.1 This chapter has assessed the potential impacts on IOSU from the construction, O&M and decommissioning phases of the MHPGC Project. **Table 10.32** presents a summary of impacts and confirms the residual effects.

Scottish waters

10.13.1.2 Overall, it is concluded that there will be no significant effects arising from the MHPGC Project on IOSU during the construction, O&M or decommissioning phases in Scottish waters.

English waters

10.13.1.3 Overall, it is concluded that there will be no significant effects arising from the MHPGC Project on IOSU during the construction, O&M or decommissioning phases in English waters.

10.13.2 Summary of secondary mitigation and monitoring

10.13.2.1 No additional mitigation beyond embedded mitigation is considered to be required. **Table 10.32** presents a summary of the secondary mitigation and monitoring proposed.

Table 10.32: Summary of potential impacts and residual effects

Potential Impact		Sensitivity of Receptor	Magnitude of Impact	Significance of Effect	Additional Mitigation Measures	Residual Effect
Construction phase						
Impact on marine disposal sites	English waters	Medium	Low adverse	Minor	No additional mitigation (beyond the commitments outlined in **Table 10.18**), is considered to be required	Minor adverse (not significant)
Increased SCC and associated deposition	Scottish waters	Low	Low adverse	Negligible		Negligible adverse (not significant)
	English waters	Low	Low adverse	Negligible		
Displacement of recreational activities	Scottish waters	Medium	Negligible adverse	Negligible to Minor		Negligible to Minor adverse (not significant)
	English waters	Medium	Low adverse	Minor		
Impacts/restrictions to early development cables/pipelines lines	Scottish waters	Medium	Low adverse	Minor		Minor adverse (not significant)
	English waters	Medium	Low adverse	Minor		
Disruption to military training	English waters	Low	Low adverse	Negligible to Minor		Negligible to Minor adverse (not significant)
O&M phase						
Impact on marine disposal sites	English waters	Medium	Low adverse	Minor	No additional mitigation (beyond the commitments outlined in **Table 10.18**), is considered to be required	Minor adverse (not significant)
Increased SCC and associated deposition	Scottish waters	Low	Negligible adverse	Negligible		Negligible adverse (not significant)
	English waters	Low	Negligible adverse	Negligible		
Displacement of recreational activities	Scottish waters	Low to Medium	Negligible adverse	Negligible to Minor		Negligible to Minor adverse (not significant)
	English waters	Medium	Negligible adverse	Negligible		
Impacts/restrictions to early development cables/pipelines lines	Scottish waters	Medium	Low adverse	Minor		Minor adverse (not significant)
	English waters	Medium	Low adverse	Minor		
Disruption to military training	English waters	Low	Low adverse	Negligible to Minor		Negligible to Minor adverse (not significant)
Decommissioning phase						
The effects of decommissioning activities in both Scottish and English waters are anticipated to be similar to those experienced during construction, resulting in a **minor** significance for all receptor groups, which is considered not significant in EIA terms.						

10.14 References

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