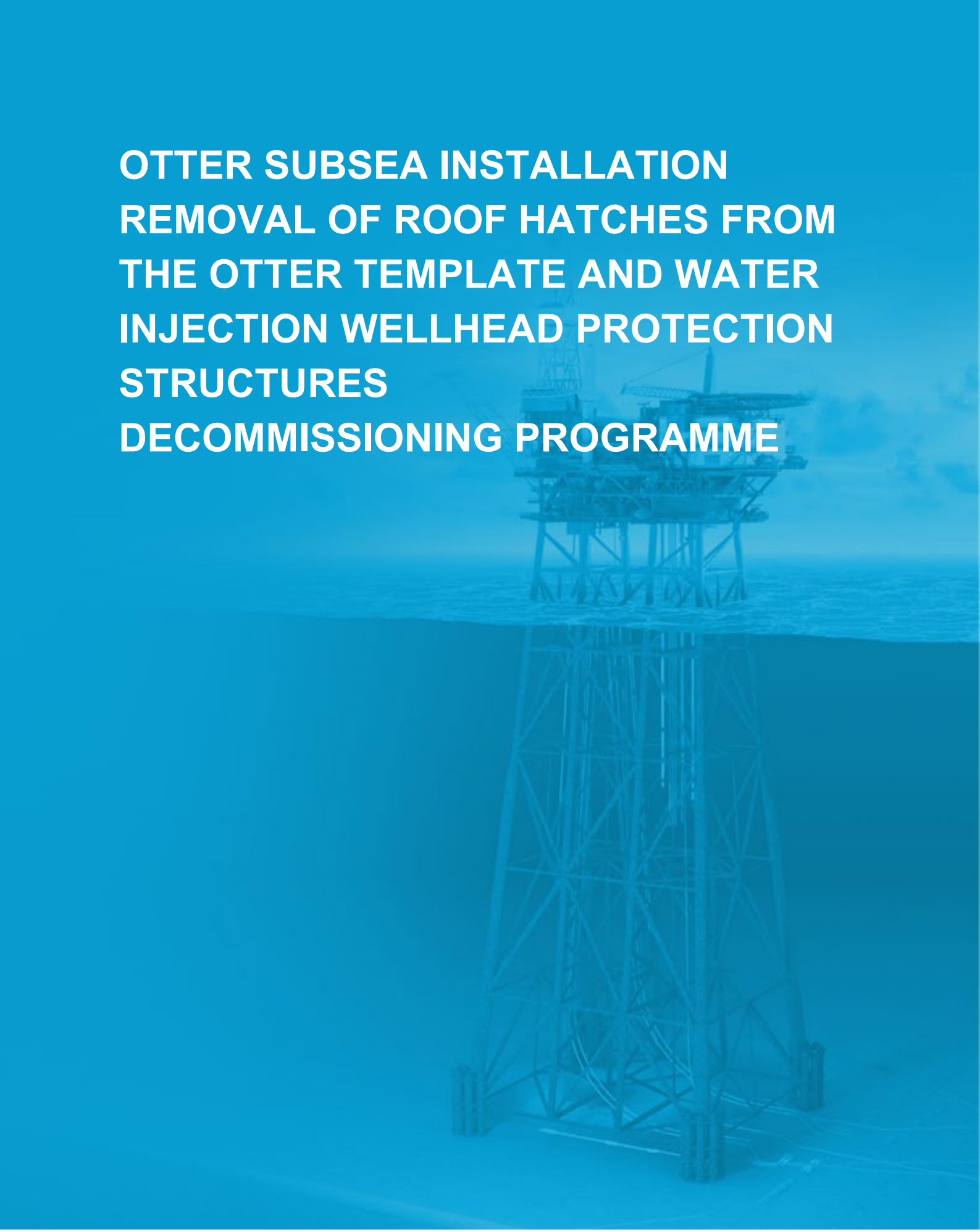
OTTER SUBSEA INSTALLATION REMOVAL OF ROOF HATCHES FROM THE OTTER TEMPLATE AND WATER INJECTION WELLHEAD PROTECTION STRUCTURES DECOMMISSIONING PROGRAMME



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Approvals

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Distribution List

Name	Company
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TABLE OF CONTENTS

TABLE OF FIGURES

TABLE OF TABLES

ABBREVIATIONS

Abbreviation	Explanation
CA	Comparative Assessment
CO_2	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
CoP	Cessation of Production
DP	Decommissioning Programme
DSV	Dive Support Vessel
EIA	Environmental Impact Assessment
HSE	Health and Safety Executive
km	Kilometres
km^2	Square kilometres
m	metres
m^2	Square metres
m^3	Cubic metres
m/s	Metres per second
NMPi	National Marine Plan interactive
NNS	Northern North Sea
NORM	Naturally Occurring Radioactive Material
NSTA	North Sea Transition Authority
ODU	Offshore Decommissioning Unit
OEUK	Offshore Energies UK
OPEX	Operational Expenditure
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSPAR	Oslo and Paris Conventions
P&A	Plug and Abandon
PMF	Priority Marine Feature
SAC	Special Area of Conservation
SNH	Scottish National Heritage
SONAR	Sound Navigation and Ranging
TAQA	TAQA Bratani Limited
Te	Tonnes
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
UKHO	United Kingdom Hydrographic Office
WBS	Work Breakdown Structure

1 Executive Summary

1.1 Decommissioning Programme

This document contains a single Decommissioning Programme (DP) for notices under Section 29 of the Petroleum Act 1998 covering the removal of roof hatches from the Otter template protection structure and the Otter water injection wellhead protection structure.
The activities covered under this programme comprise removal of 9 protection structure hatches, 7 from the template protection structure and 2 from the water injection wellhead protection structure (Figure 1-4, Figure 1-5 and Figure 1-6) to provide access to facilitate pipeline disconnection and to enable plugging and abandonment of the wells located beneath the Otter template protection structure (wells P1, P2, P3, & I1), and water injection wellhead protection structure (well I2).

The remaining Otter field infrastructure, which is listed on the Section 29 Notices, will be subject to a separate future DP. The removal of the items identified within the current DP will be performed so that it does not preclude any future decommissioning work in the field.

1.2 Requirement for Decommissioning Programme

1.2.1 Installation:

In accordance with the Petroleum Act 1998, as amended, TAQA, as operator of the Otter subsea field, and on behalf of the Section 29 Notice Holders (see Table 1-2), is applying to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to obtain approval for decommissioning the Otter subsea installations, specifically the Otter protection structures' hatches, as detailed in Section 2.1 of this document. (See also Section 8 – Section 29 Holders' Letters of Support).

In conjunction with stakeholder and regulatory consultation the Decommissioning Programme is submitted in compliance with national and international regulations, and OPRED guidance [1].

The estimated schedule outlined for the decommissioning project spans a 3 month period, commencing in July 2024.

1.3 Introduction

The Otter Field infrastructure is located in UKCS Blocks 210/15a, 210/20d and 211/16, 120 km to the north-east of the Shetland Islands, in a water depth of approximately 182 m. The field is produced via the North Cormorant Platform, which is located in UKCS Block 211/21a approximately 32.5km to the south southeast of the Otter field and onwards through the Brent Pipeline System to the Sullom Voe Terminal in Shetland.

The Otter protection structures lie approximately 21km north of the Eider platform in the Northern North Sea in UKCS Block 210/15a. The structures protect the Otter wells and manifold skid from fishing gear impacts and dropped objects. The template protection structure is not directly connected to the template or its supports, and the water injection wellhead protection structure is not directly connected to the wellhead.

The top of the template protection structure consists of seven hatches for individual access to the four well slots and the manifold located on the Otter template. With the exception of the central hatch, the

hatches are hinged on the port and starboard top chord members and supported on the centre hatch. The centre hatch gives access to the manifold and is hinged on a beam supported by the top chord members. The centre hatch can only be opened if all other hatches are already open. The top of the water injection wellhead protection structure consists of two hatches, hinged on the starboard top chord and supported on the opposite port chord.

1.3.1 Reason for Decommissioning

Otter is due to cease production early June 2024. Cessation of production will be followed by a pipeline flushing campaign, a subsea pipeline disconnection project and ultimately Plugging and Abandonment (P&A) of the wells.

Hatch removal is required to facilitate pipeline disconnection work and to provide equipment access for P & A of the Otter wells. Hatch opening and removal is an involved operation that will require the use of divers. It is preferable in terms of operational efficiency, use of resources, and minimising risk to divers, to remove the hatches during the first mobilisation to Otter.

Following stakeholder and regulatory consultation, the Decommissioning Programme is submitted without derogation and in full compliance with OPRED Guidance [1].

1.4 Overview of Facilities Being Decommissioned

1.4.1 Installations

Table 1-1: Installations Being Decommissioned

Field(s)	Otter	**Production Type**	Oil
Water Depth	182 m	**UKCS Block**	210/15a, 210/20d, 210/20c, 211/16a, 211/16b
Distance to Median	38 km	**Distance to UK Coastline**	120.2 km

Otter Protection Structures Hatch Types		
Number	**Type**	**Total Weight in Air (Te)**
2	Template Protection Structure Hatch Type 1A (wells I1, P3)	7.2 (3.6 Te each)
2	Template Protection Structure Hatch Type 1M (wells P1, P2)	7.2 (3.6 Te each)
2	Template Protection Structure Hatch Type 2 (P&S)	4.2 (2.1 Te each)
1	Template Protection Structure Hatch Type 3 (centre)	8.1
2	Water Injection Wellhead Protection Structure Hatches (I2)	7.2 (3.6 Te each)

Table 1-2: Installation Section 29 Notice Holders		
Company	**Registration Number**	**Equity Interest (%) Unit Area**
TAQA Bratani Limited	05975475	80.996%
TAQA Bratani LNS Limited	06230540	19.004%
Dana Petroleum (BVUK) Limited	03337437	0
Fina Exploration Limited	00808167	0
Fina Petroleum Development Limited	00740632	0

1.5 Summary of Proposed Decommissioning Programme

The selected decommissioning option for the Otter protection structures' hatches is shown in Table 1-3 below.

Table 1-3: Summary of Decommissioning Programme	
Proposed Decommissioning Solution	**Reason For Selection**
Otter Protection Structures' Hatches	
Full Removal: All recovered materials, i.e. hatches, will be transported to shore for re-use, recycling, or disposal.	To facilitate pipeline disconnection, to enable P&A of Otter wells, and in compliance with OSPAR Decision 98/3 and regulatory requirements.
Drill Cuttings	
There are no drill cuttings in the scope of this decommissioning programme.	
Interdependencies	
The scope of this decommissioning programme is limited to Otter protection structures' hatches removal and recovery. This is required to facilitate pipeline disconnection and to enable P&A of the Otter wells. The other components of the Otter subsea installation will be the subjects of a separate decommissioning programme.	

1.6 Field Locations Including Field Layouts and Adjacent Facilities

The location of the Otter field within the UKCS is shown in
Figure 1-1. The facilities adjacent to Otter are shown in
Figure 1-2 and listed in Table 1-4. Figure 1-3 shows the Otter facilities layout and Figure 1-4:, Figure 1-5: and Figure 1-6 show the template protection structure and water injection wellhead protection structure and hatches in more detail.

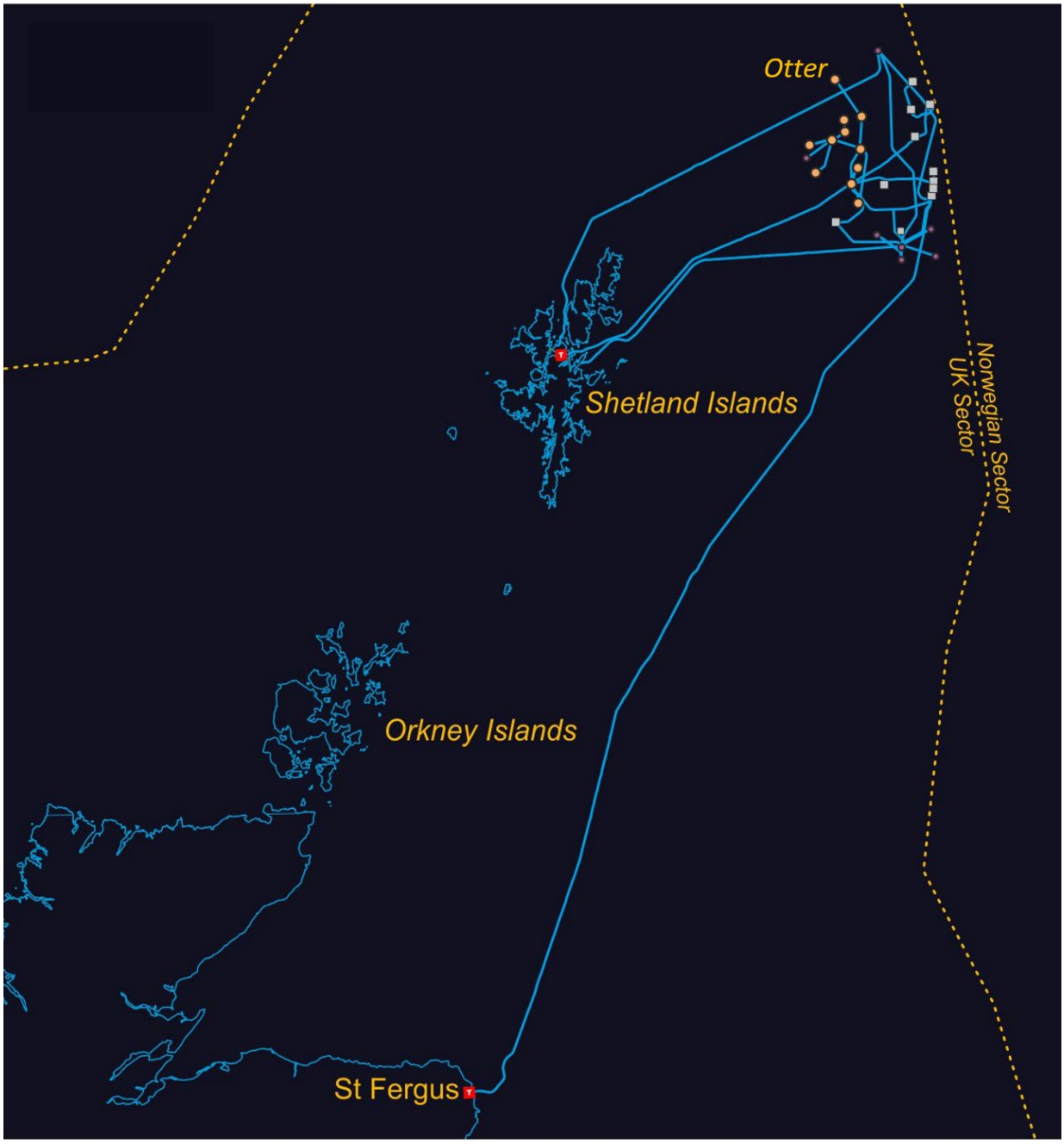

Figure 1-1: Otter Field Location within the UKCS

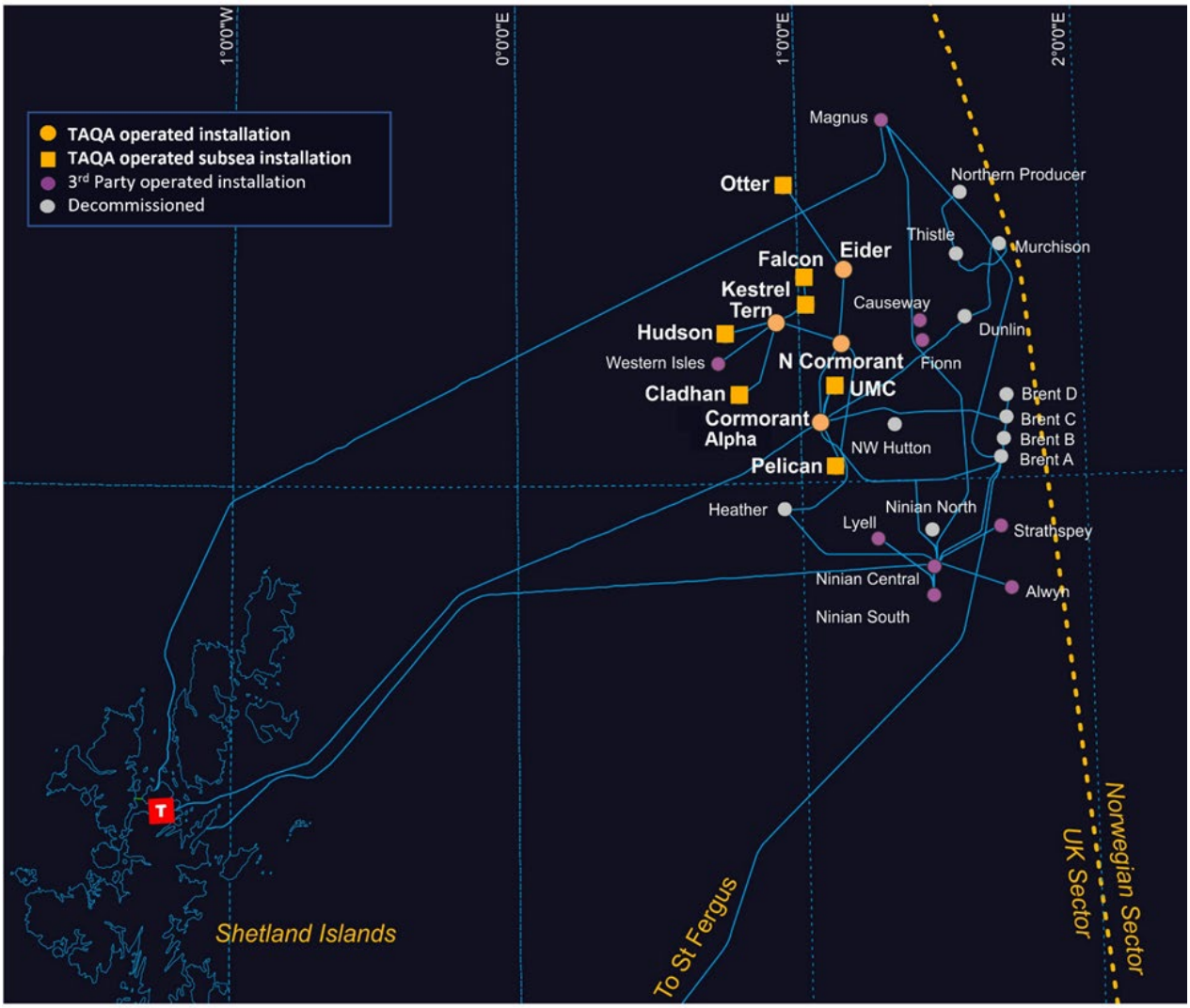

Figure 1-2: Otter Adjacent Facilities Layout

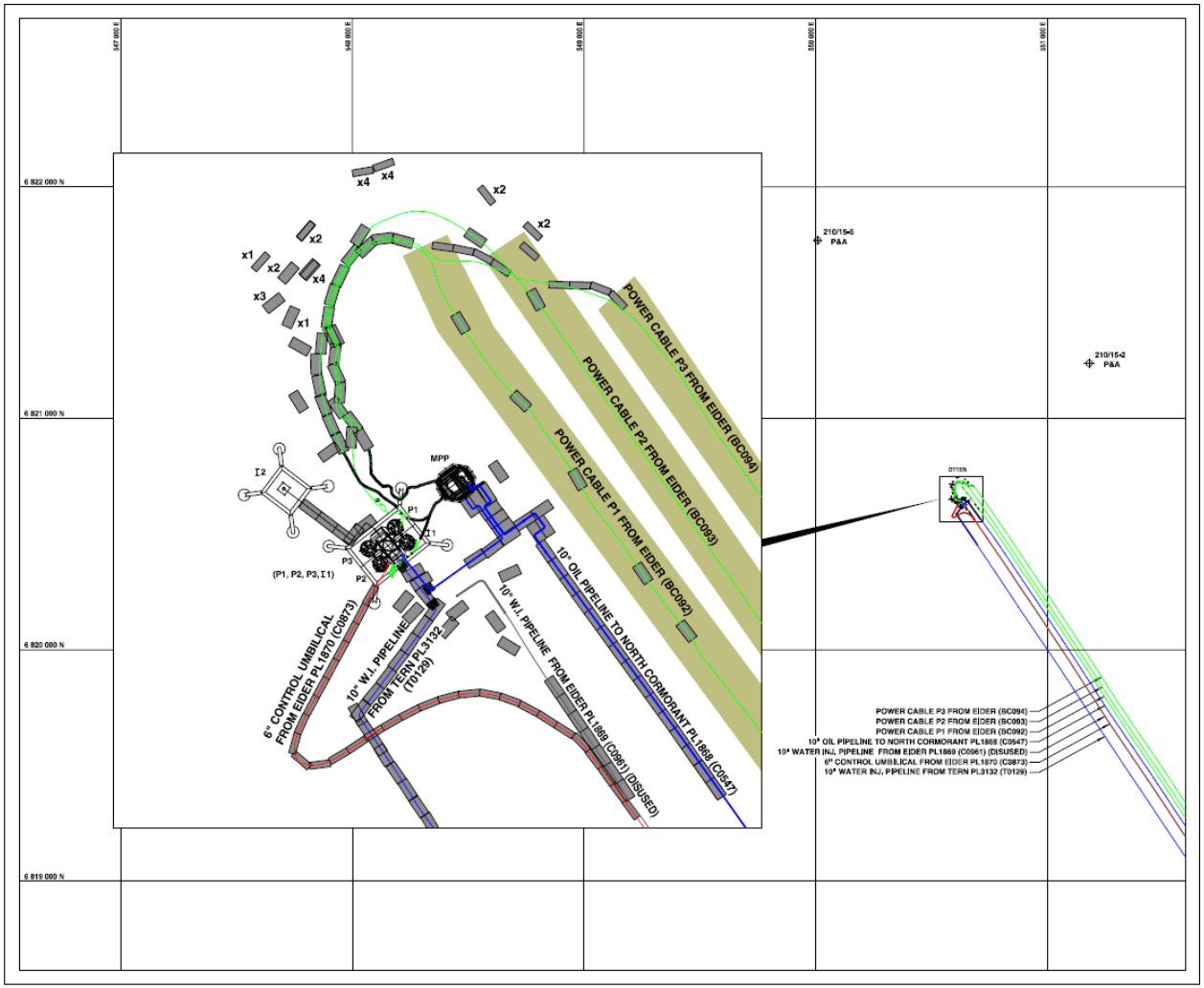

Figure 1-3: Otter Facilities Layout

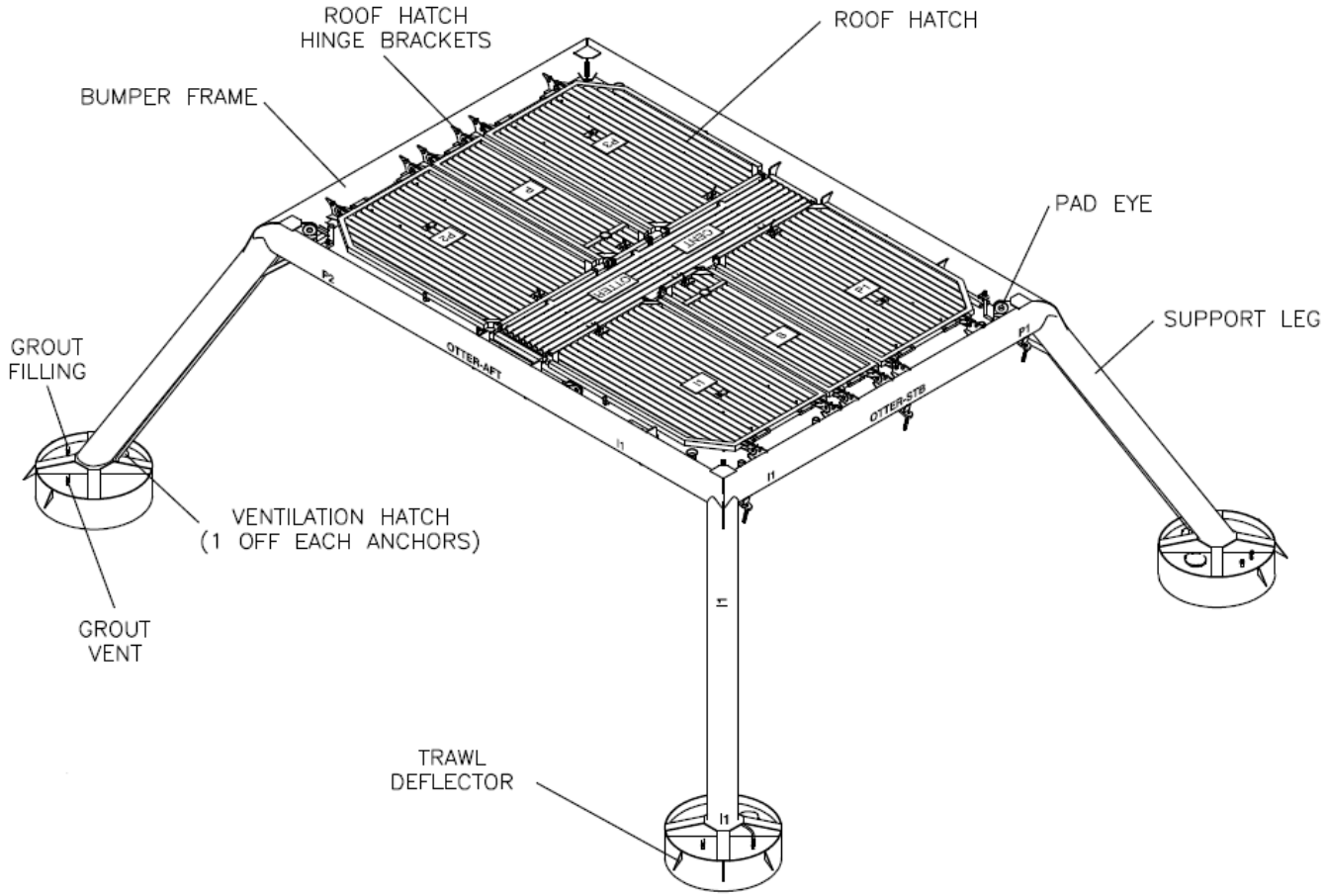

Figure 1-4: Overview of Otter Template Protection Structure

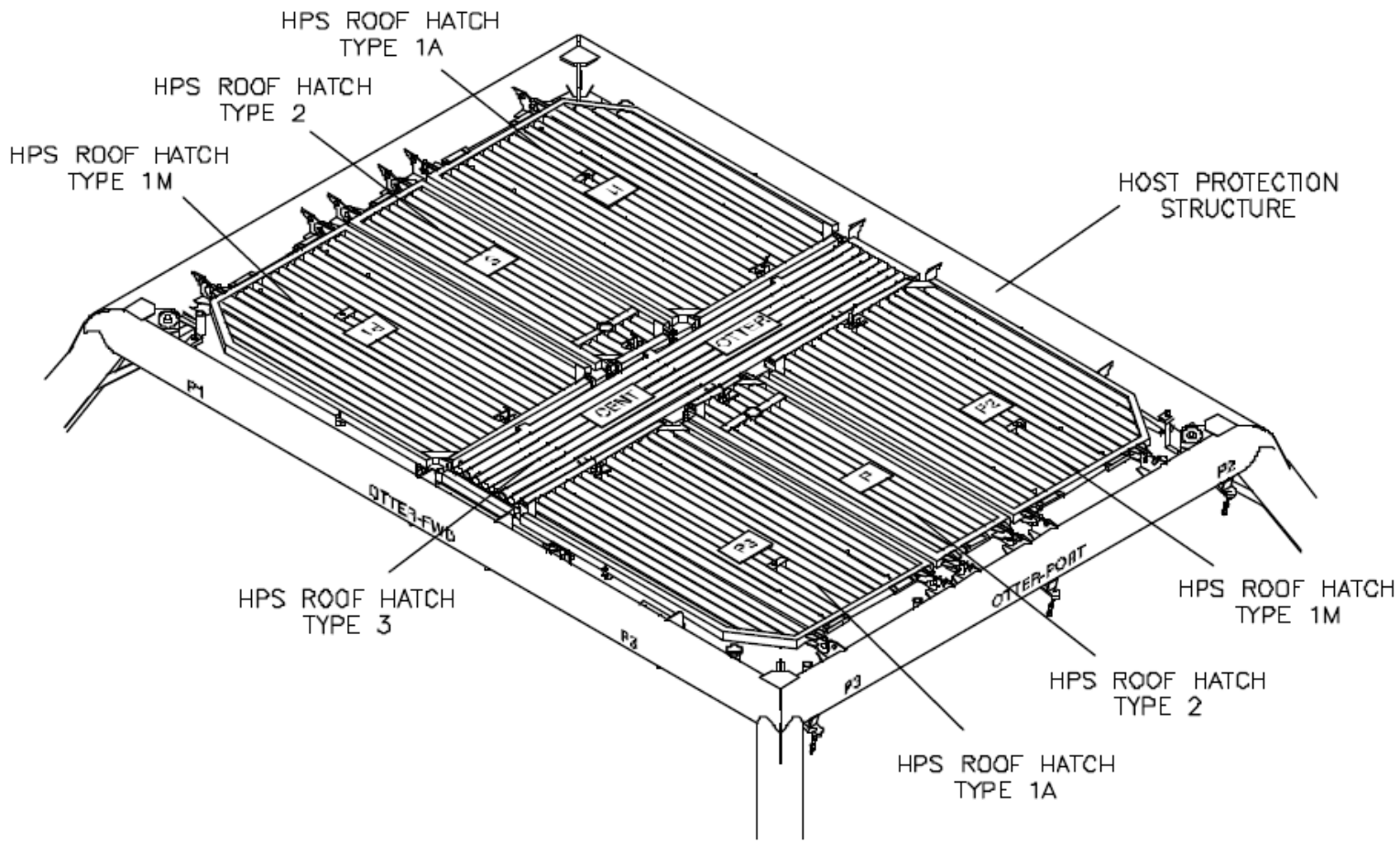

Figure 1-5: Otter Template Protection Structure Hatch Types

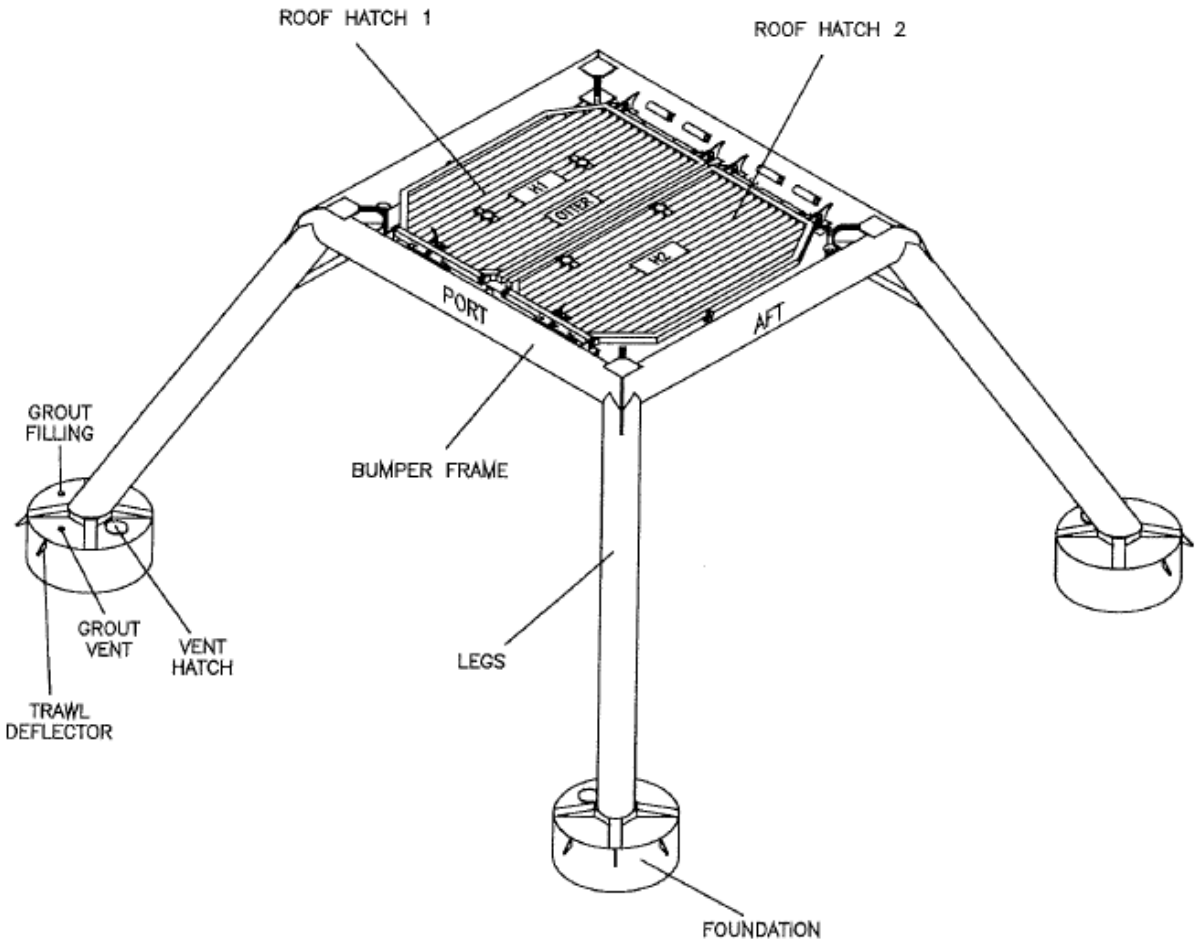

Figure 1-6: Water Injection Wellhead Protection Structure Hatches

Table 1-4: Adjacent Facilities					
Operator	**Name**	**Type**	**Distance/ Direction from Otter**	**Information**	**Status**
TAQA Bratani	Eider	Platform	21 km Southeast	Oil and Gas Development	Non-Operational
TAQA Bratani	Tern	Platform	26.9 km South	Oil and Gas Development	Non-Operational
TAQA Bratani	North Cormorant	Platform	32.5 km South-southeast	Oil and Gas Development	Operational
EnQuest Heather	Magnus PL1762	Pipeline crossing	6.9 km Southeast	Otter pipelines crossing over	Operational Pipeline
Impacts of Decommissioning Proposals					
TAQA has been, and will continue to be, in contact with operators and owners of adjacent facilities. There are no known interactions between the adjacent facilities and the proposed decommissioning programme. The removal of the Otter protection structures' hatches is to facilitate the disconnection, and P&A of the Otter wells (P1, P2, P3, I1, and I2). The removal of the hatches will be managed as part of the execution of Otter Field decommissioning. The removal of the hatches will be performed in a way that does not prejudice any further decommissioning work in the field. Any activities associated with decommissioning the wider Otter subsea field installations and pipelines will be dealt with within a separate DP.					

1.7 Industrial Implications

TAQA is developing the decommissioning contract and procurement strategy for this work, on behalf of the Section 29 Notice Holders. TAQA envisages that this strategy may include using incumbent contractors for recurring items / services covered by Master Services Agreements held by TAQA.

Notwithstanding, TAQA has, and will continue to

- Publish Otter decommissioning project information, including the project schedule, on the TAQA decommissioning website.
- Publish project information and contact details on the NSTA Pathfinder website.
- Engage with the NSTA and the decommissioning supply chain on any relevant issues relating to the Otter decommissioning programme and schedule.
- Where appropriate use the First Point Assessment Limited FPAL / SEQual database as the sources for establishing tender lists for supply chain items.

2 Description of Items to be Decommissioned.

2.1 Subsea Installations

Key information regarding the Otter protection structures' hatches is presented in Table 2-1.

Table 2-1: Subsea Installations

Item	Number	Size (m) [LxWxH]	Weight in Air (Te)	Location		Comments / Status
Template Protection Structure Hatches						
Hatch Type 1A (I1, P3)	2	8.0 x 5.1 x 0.3	7.2	WGS84 Decimal	61.5141° N 00.9496° E	Hatches for wells I1 & P3
Hatch Type 1M (P1, P2)	2	8.0 x 5.1 x 0.3	7.2			Hatches for wells P1 & P2
Hatch Type 2 (P&S)	2	8.0 x 2.1 x 0.5	4.2	WGS84 Decimal Minute	61°30'50.56" N 00°56'57.77" E	Port & Starboard Hatches
Hatch Type 3 (centre)	1	4.2 x 12.3 x 0.9	8.1			Centre Hatch for Otter manifold skid
Water Injection Wellhead Protection Structure Hatches						
W.I. wellhead protection structure hatch	2	4.5 x 8 x 0.5	7.2	WGS84 Decimal	61.5142" N 00.9489" E	W.I. wellhead Hatches
				WGS84 Decimal Minute	61°30'51.15" N 00°56'56.11" E	

2.2 Drill Cuttings Piles

There are no drill cuttings piles associated with the Otter protection structures' hatches.

2.3 Inventory Estimates

An estimate of the material inventories for Otter protection structures' hatches is presented in Table 2-2 and in Figure 2-1.

Table 2-2: Otter Subsea Installations (Protection Structures' Hatches) Inventory

Material	Weight (Te)	% of Total
Ferrous metals (all grades)	33.6	> 98
Non-ferrous metals (aluminium alloys)	0.3	< 1
Concrete	0	0
Hazardous – including NORM and residual fluids	0	0
Other Non-Hazardous – Marine Growth	0.3	< 1
Total	34.2	100

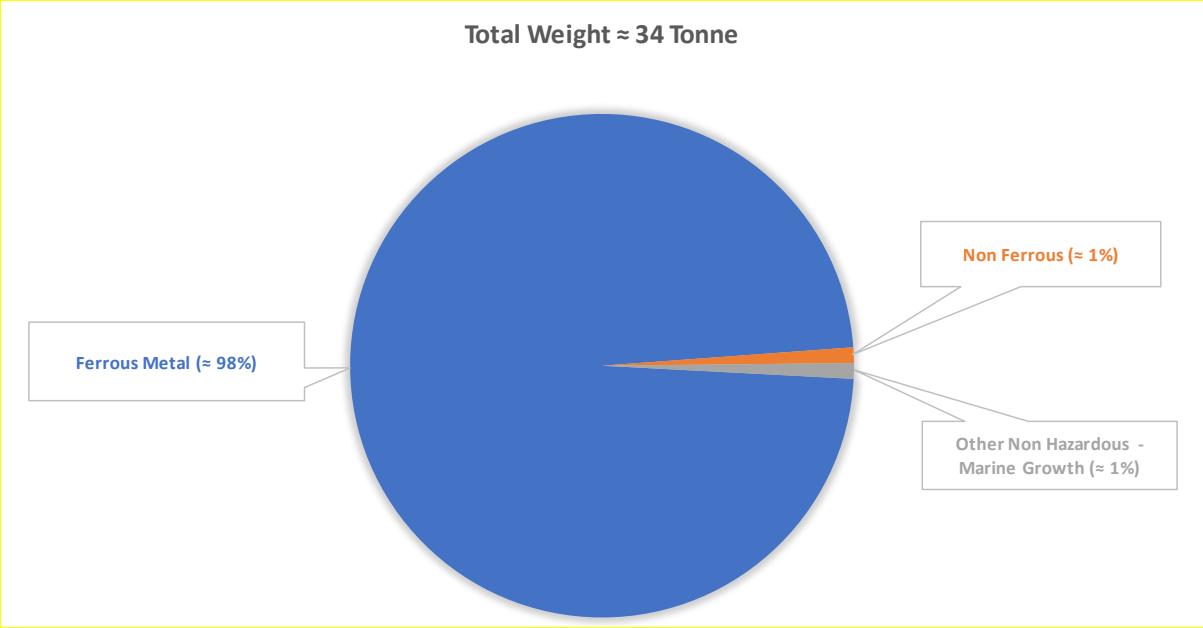

Figure 2-1: Subsea Installations Inventory

3 Removal and Disposal Methods

Recovered material will be landed onshore in 2024. TAQA will ensure the principles of the waste hierarchy will be met in the handling the Otter protection structures' hatches to maximize reuse and recycling of materials.

TAQA has an Active Waste Management Plan in place for the 2024 NNS Subsea Disconnections and Otter structures' hatches removal projects. The AWMP identifies and quantifies the waste materials resulting from the decommissioning activities defined in this DP and the available disposal options. The AWMP details the disposal route for the hatches and their constituent materials.

The hatches will be returned to shore for dismantling and sorting before being transferred to suitably licenced waste facilities. Materials management options will take account of the waste hierarchy. Since avoidance and reduction of waste are not relevant to the Otter protection structures' hatches, it is the intent that, where possible, materials and equipment will be re-used or recycled.

The recovered Otter hatches will be processed by Augean, TAQA's operational waste management contractor. Augean is proposing to use John Lawrie Metals to process scrap metals. Notwithstanding, suitable competent, licenced, waste facilities will be used to process the waste arising from Otter hatch removal.

3.1 Subsea Installations and Stabilisation Features

The options considered for the disposal of the Otter protection structures' hatches, and the selected disposal route are listed in Table 3-1.

Table 3-1: Subsea Installations and Stabilisation Features

Installation / Feature	No.	Option	Disposal Route
Hatches	9	Full recovery	Return to shore for reuse or recycling or other waste treatment as appropriate.

3.2 Waste Streams

Table 3-2: Materials and Waste Streams

Materials	Removal and Disposal Method
Bulk Liquids	N/A
Marine Growth	Some marine growth on the Otter protection structures' hatches may be removed offshore during removal and recovery. As part of infrastructure disposal operations remaining marine growth will be removed and disposed of in accordance with guidelines.
NORM	N/A
Asbestos	N/A

Table 3-2: Materials and Waste Streams	
Other Hazardous Materials	N/A
Onshore Dismantling Sites	The recovered hatches will be managed by TAQA's incumbent waste contractor, Augean. Augean and the associated subcontractors will use appropriately licenced dismantling, treatment, recycling, and disposal sites. The Active Waste Management Plan will follow the "reduce, reuse, recycle" paradigm. Since avoidance and reduction of waste are not relevant to the Otter protection structures' hatches, it is the intent that, where possible, materials will be re-used or recycled.

Table 3-3: Inventory Disposition

	Total Inventory Tonnage (Te)	Planned Tonnage to Shore (Te)	Planned Tonnage Left in Situ (Te)
Subsea Installations	33.9	33.9	0

Total inventory weights noted are approximate and include all the Otter protection structures' hatches. It is TAQA's intention to maximise re-use or recycling of recovered inventory.

4 Environmental Appraisal Overview

4.1 Environmental Sensitivities

The environmental sensitivities in the vicinity of the Otter template protection structure and water injection wellhead protection structure are summarised in Table 4-1 The impacts of decommissioning operations on these sensitivities are listed in Table 4-2.

Table 4-1: Environmental Sensitivities

Receptor	Main Feature
Conservation Interests	There are no Nature Conservation Marine Protected areas (NCMPAs), Special Areas of Conservation (SACs) or Special Protection areas (SPAs) within 40 km of the Otter template protection structure and water injection wellhead protection structure. The closest protected site is the Pobie Bank Reef SAC, approximately 96 km west of the structures. With regards to free-swimming species, ling, anglerfish, and cod were observed within the Otter decommissioning area. Ling, anglerfish, and cod are Priority Marine Feature (PMF) species. Additionally, cod is an OSPAR listed threatened and/or declining species. Numerous small and large seabed depressions were identified during the Benthic Solutions [3] Otter Field surveys, which may be classified as 'Submarine structures made by leaking gases' (Annex I Habitat). The lack of Methane-Derived Authigenic Carbonate (MDAC) present in pockmarks identified indicates that Annex I 'Submarine structures caused by leaking gases' is not present [3]. Ocean quahog are listed on the OSPAR list of threatened and/or declining species and habitats and are designated as a PMF. No Ocean quahogs were observed in the vicinity of the structures [3][4]. According to the PMF distribution maps provided in Tyler-Walters et al [5] the seabed in UKCS Block 210/15 is within a wider area of 'subtidal sand and gravels'. 'Subtidal sands and gravels' also support internationally important commercial fisheries e.g., scallops, flatfish, sandeels, and are important nursery grounds for juvenile commercial fish species such as sandeels, flatfish, bass, skates, rays, and sharks [3]. However, the distribution of this feature is relatively wide in the North Sea [6]. The habitat 'Seapen and burrowing megafauna communities' is also on the OSPAR list of threatened and/or declining habitats and species and is a PMF. Seapen burrows are present across the immediate area at low densities. Frequent burrow density, considered as the OSPAR 'Seapen and Burrowing Megafauna Communities' habitat was identified at a sampling station approximately 10 km southeast of the Otter manifold [3][4].

Table 4-1: Environmental Sensitivities	
Receptor	**Main Feature**
Seabed	The water depth across the Otter Field ranges from 180.7 – 191.8 m below Lowest Astronomical Tide (LAT). The seabed deepens very gently towards the northwest with a gradient of <12º throughout. To the south of the structures, the mean wave height ranges from 2.11 - 2.40 m whilst in the north it ranges from 2.41 - 3.30 m and wave energy is classified as 'low'. The direction of residual water movement in this area is generally to the south or east and the mean residual current through the decommissioning area is approximately 0.05 to 0.1 m/s. The physical seabed characteristics recorded from survey work show a high degree of uniformity across area surrounding the Otter template and satellite water injection well. Sediments in the vicinity of the Otter template and satellite water injection well comprise silty, shelly sand with occasional pebbles and cobbles. Numerous small and a few large yet shallow (<1 m deep) depressions were visible across the wider area. Under the European Nature Information System (EUNIS) habitat classification, the most widespread seabed type around the Otter template and satellite water injection well is predicted to be MD52 "Atlantic offshore circalittoral sand" with areas of MD62 "Atlantic offshore circalittoral mud" and MD32: Atlantic offshore circalittoral coarse sediment. This habitat type falls within the broad PMF habitat "offshore sands and gravels". Visible fauna was mostly sparse in areas predominantly characterised by sand but increased in areas around boulders with visible fauna including Crustacea (hermit crabs and squat lobsters), Echinoderms (urchin and starfish), Cnidaria (anemones), Porifera and Bryozoa [3][4]. There are no drill cuttings piles associated with the Otter template protection structure and water injection wellhead protection structure. Hydrocarbon analyses of sediments from the Otter template and satellite water injection well area revealed concentrations largely representative of fine sandy sediments of the NNS. The recorded Total Hydrocarbon Concentration (THC) also fell below 50µg g-1 value, that represents the threshold above which hydrocarbons are expected to have a "significant environmental impact" [3][4].
Fish	The Otter template protection structure and water injection wellhead protection structure are located within spawning grounds for haddock, Norway pout, saith and whiting. All species have a low or undetermined spawning intensity. The area also is a potential nursery ground for anglerfish, blue whiting, European hake, herring, ling, mackerel, spurdog, whiting and Norway pout. Blue whiting is the only species with a high intensity nursery ground in the area while other species have a lower nursery intensity.
Fisheries and Shipping	The Otter template and satellite water injection well are located in International Council for the Exploration of the Sea (ICES) rectangle 52F0. This region is primarily targeted for demersal species, with a negligible contribution from shell fisheries. Fishing effort is dominated by trawl fishing gears. Even with the hatches removed, the Otter Xmas trees and wellheads still have the same degree of protection as the other TAQA NNS subsea wells, including the presence of the 500 m safety zone. Additionally, the downhole safety valves on the Otter wells are closed and tested, therefore in the unlikely event that the Xmas trees or wellheads suffered damage, hydrocarbon release from these wells is extremely improbable. Annual fishery landings by weight and value are considered low for demersal and pelagic fisheries in comparison to other areas of the North Sea. Shipping density in this area of the North Sea is very low or low, with a localised increase in vessel activity due to the presence of offshore oil and gas operational and maintenance vessels. The decommissioning activity will also be taking place within an existing 500m safety exclusion zone where vessels other than oil and gas vessels are not permitted. Any impact on fishing or shipping is therefore discounted.

Table 4-1: Environmental Sensitivities	
Receptor	**Main Feature**
Marine Mammals	Harbour porpoise, Atlantic white-sided dolphin, minke whale and beaked whale are the most abundant species recorded in UKCS Block 210/15 around the Otter template and satellite water injection well. The harbour porpoise is by far the most frequently recorded cetacean, which is reflective of these being the most abundant and widely distributed cetaceans in the North Sea. Both grey and harbour seal densities are known to be low in UKCS Block 210/15. The average number of both grey and harbour seals in the vicinity of the area is predicted to be low, between 0-1 per 25 km².
Birds	In the Northern North Sea (NNS) the most numerous species present are likely to be northern fulmar, black-legged kittiwake, and common guillemot. UKCS Block 210/15 is located within or in the vicinity of a wider area of aggregation for northern fulmar, northern gannet, European storm petrel, Arctic skua, great skua, black-legged kittiwake, herring gull, Arctic tern, guillemot, razorbill, and Atlantic puffin during their breeding season. Overall, seabird sensitivity to oil pollution in the region of the Otter subsea structures is considered low (score of 5) throughout most of the year except for winter months. The Seabird Oil Sensitivity Index (SOSI) value is medium (score of 4) for November through to February inclusive in Block 210/15.
Onshore Communities	Waste generated during decommissioning will be brought to shore and will be managed in line with TAQA's Waste Management Strategy and the Waste Hierarchy, as part of the project Active Waste Management Plan, using approved waste contractors and in liaison with the relevant Regulators. Preventing waste is ultimately the best option, achieved through reducing consumption and using resources more efficiently. However, this is followed by re-use and recycling of goods. If all re-use opportunities have been taken by TAQA, the next preferable option is for recycling of materials.
Other Users of the sea	Block 210/15 is not a Block of interest to the Ministry of Defence (MoD) [7]. There are no planned or operating telecommunication cables in close vicinity (< 40 km) of the Otter template and satellite water injection well. The nearest telecom cable is the Cantat 3 Faroese, located 77 km east northeast of the structures [8]. There are no 'non-dangerous wrecks' within close vicinity of the structures, as identified by the UK Hydrographic Office (UKHO). There are four non-dangerous wrecks located between 30 and 40 km from the Otter template and satellite water injection well [9]. There are no planned or operating renewable energy sites in close vicinity (<40 km) of the Otter Field. The closest renewable energy site is Tidal farm, Bluemull Sound, located 137 km west southwest from Otter manifold.
Atmosphere	Emissions to the atmosphere will result from offshore vessel transportation and onshore recycling of materials.

4.2 Potential Environmental Impacts and their Management

Environmental Impact Assessment (EIA) methods for the wider Otter Field have been used as a basis to consider the potential for significant environmental effects as a result of the specific decommissioning activities described within this DP. The appraisal only identifies potential environmental impacts from the decommissioning activities to be:

- Seabed disturbance impacts
- Atmospheric impacts

Table 4-2 details the potential environmental impacts and the management and mitigation measures that will be put in place to reduce the potential for environmental effects.

Table 4-2: Environmental Impacts and Management

Activity	Main impacts	Impact quantification and context	EIA Rationale	Management
Removal of hatches on Otter Protection Structures	Seabed disturbance impacts from removal of subsea installations and potential temporary wet storage* *Note that as a primary removal approach, the hatches will be placed on existing mattresses in the first instance and therefore seabed disturbance may be a non-issue.	Dimensions of Otter Template Protection Structure Hatches: 13 m x 19 m Direct impact = **247 m²** Indirect impact **= 494 m²** Dimensions of Otter Water Injection Wellhead Protection Structure Hatches: 10 m x 9 m Direct impact =**90 m²** Indirect impact **= 180 m²** **Total direct impact: 337 m²** **Total indirect impact: 674 m²** **Overall Footprint*: 1,011 m²** *Note that the footprint incorporates the dimensions of the hatches where they may be placed directly on the seabed and any indirect impact from sediment mobilisation. As a conservative estimate, the area of indirect disturbance has been assumed to be double the area of direct disturbance. This represents an absolute worst-case scenario given that the hatches will most likely be placed temporarily on existing mattresses.	Decommissioning disturbance may cause mortality, due to injuries arising from the crushing of benthic and epibenthic fauna which are sedentary or unable to move quickly. Mobile fauna and sediment burrows may also be disturbed. In terms of protected species and habitats, ocean quahogs and 'Submarine structures caused by leaking gases' were not identified in the vicinity of the Otter subsea structures. Seapens may be found sporadically throughout the wider area (Approximately 10 km away [3]). Given the small scale and temporary nature of the impact and the extent of seapen habitat across the North Sea the recovery of seapens and burrowing megafauna would be swift. Overall, based on the extremely localised and temporary nature of the disturbance, the proposed decommissioning activities will have an impact of negligible consequence (i.e. not significant) for seabed receptors.	• In the first instance, the hatches will be laid on existing mattresses, thereby avoiding any seabed disturbance. • Activity will be undertaken within the existing 500 m safety exclusion zone. • Vessels undertaking the decommissioning works would be dynamically positioned vessels with no direct interaction between vessel and seabed. • All activities which may lead to seabed disturbance will be planned, managed, and implemented in such a way that disturbance is minimised. • Activities will be risk assessed and permitted under a Marine Licence. • Clear seabed verification following wider Otter Field decommissioning activity will ensure there is no residual risk to other sea users. Non-intrusive verification techniques will be considered in the first instance and in agreement with OPRED and fishing bodies.

Table 4-2: Environmental Impacts and Management

Activity	Main impacts	Impact quantification and context	EIA Rationale	Management
Vessel activity and removal to shore	Carbon Dioxide equivalent (CO_2e) atmospheric emissions: Vessel activity 3 days Dive Support Vessel (DSV)): **196 Te CO_2e** Recycling of 34 Te steel: **55 Te CO_2e** Total CO2e emissions: **251 Te CO_2e**	Vessel activity 3 days Dive Support Vessel (DSV)): **196 Te CO_2e** Recycling of 33.6 Te steel: **55 Te CO_2e** Total CO2e emissions: **251 Te CO_2e** The cumulative emissions generated by the activities associated with the decommissioning of the Otter hatches are small relative to life-time production. Estimated CO_2e emissions are 251 Te, equating to approximately 0.001% of total UKCS emissions (OEUK, 2023).	Decommissioning emissions are inevitable but direct project emissions are considered to be of a minor magnitude, low consequence and therefore not significant in the context of EIA. TAQA do however acknowledge the potential contribution of greenhouse gas (GHG) emissions to climate change, dedicated to minimising emissions from decommissioning operations, in line with Net Zero targets, regulatory attainment targets and as far as is reasonable for each project. TAQA is committed to working with the supply chain and joint ventures as part of meeting these commitments.	• Vessel management. • Minimal vessel use/ movement. • Vessel sharing where possible. • Engine maintenance. • The Otter structures' hatches will be removed as part of a wider programme of work. This negates the requirement to mobilise a Dive Support Vessel to remove the hatches prior to well P&A, thereby reducing overall vessel activity and consequent impacts.

The EIA process did not identify any significant residual environmental impacts and it is anticipated that any physical, biological, or socio-economic impact during the decommissioning activities will be negligible and very short term.

5 Interested Party Consultations

TAQA consulted a wide range of interested parties during the planning and preparation stages of the Northern North Sea Fields subsea Comparative Assessment (CA) process [2]. This CA included the Otter template protection structure and satellite water injection wellhead protection structure.

The consultees included:

- Scottish Fishermen's Federation (SFF)
- Health and Safety Executive (HSE)
- Joint Nature Conservation Committee (JNCC)
- North Sea Transition Authority (NSTA)
- Scottish Environment Protection Agency (SEPA)
- TAQA International BV
- Shell
- OPRED Offshore Decommissioning Unit (ODU)(Observer)

Workshops and individual consultations with stakeholders were held to describe the CA process, to invite feedback and to understand stakeholders' particular interests regarding the impacts of decommissioning. Following this a CA report [2] was published documenting the findings from the CA process.

Given that the Otter protection structures' hatches covered by this DP form part of Otter subsea infrastructure, the recommendation from the CA [2] pertaining to subsea structures (full removal) has been applied.

This draft DP is still to be considered by the stakeholders. Following completion of the formal Decommissioning Programme consultation process, TAQA will complete Table 5-1with comments received from stakeholders, and the company's responses.

Table 5-1: Summary of Stakeholder Comments

UK		
Stakeholder	**Comment**	**Response**
The National Federation of Fishermen's Organisations (NFFO)		
Scottish Fishermen's Federation (SFF)		
Northern Irish Fish Producers' Organisation (NIFPO)		
Global Marine Systems Limited (GMS)		
Public		

6 Programme Management

6.1 Project Management and Verification

TAQA, on behalf of the Section 29 Notice Holders, has appointed a project management team to manage the planning and execution of this decommissioning programme. The team will ensure that decommissioning is conducted in accordance with TAQA health, environmental and safety management principles, and relevant legislation. TAQA's management principles will govern operational controls, hazard identification and risk management. The work will be coordinated with due regard to interfaces with other operators' oil and gas assets and with other users of the sea.

TAQA will control and manage the progress of all permits, licences, authorisations, notices, consents, and consultations required. Any significant changes to the decommissioning programme will be discussed and agreed with OPRED.

6.2 Post-decommissioning Debris Clearance and Verification

This DP covers removal of the Otter protection structures' hatches. Upon completion, an as-left survey will be carried out. The other Otter structures and equipment will remain in place until final decommissioning. Until the remaining Otter structures are removed, the 500 m safety zone at Otter will remain in place.

Following the wider Otter subsea infrastructure decommissioning (subject to a separate future DP) TAQA will carry out post decommissioning debris surveys and seabed verification, centred around the sites of the Otter facilities. Any oilfield-related seabed debris that is found in this post decommissioning debris survey will be recovered and returned to shore for recycling or appropriate disposal.

Independent verification of the state of the seabed will be obtained by non-intrusive methods, e.g., side-scan SONAR, in the first instance, or trawling within the area around the Otter facilities as appropriate. Following verification, TAQA will issue a statement of clearance to all relevant governmental departments and non-governmental organisations.

The post-decommissioning survey results will be notified to the UK Fisheries Offshore Oil and Gas Legacy Trust Fund Ltd for inclusion in their FishSAFE system, and to the United Kingdom Hydrographic Office for notification and marking on Admiralty charts and notices to mariners.

6.3 Schedule

A proposed schedule for the decommissioning of Otter protection structures' hatches is provided in Figure 6-1 below. The commencement of any execution activities is subject to commercial agreements and contracts. This schedule envisages removal of the Otter protection structures' hatches during July, August, and September 2024.

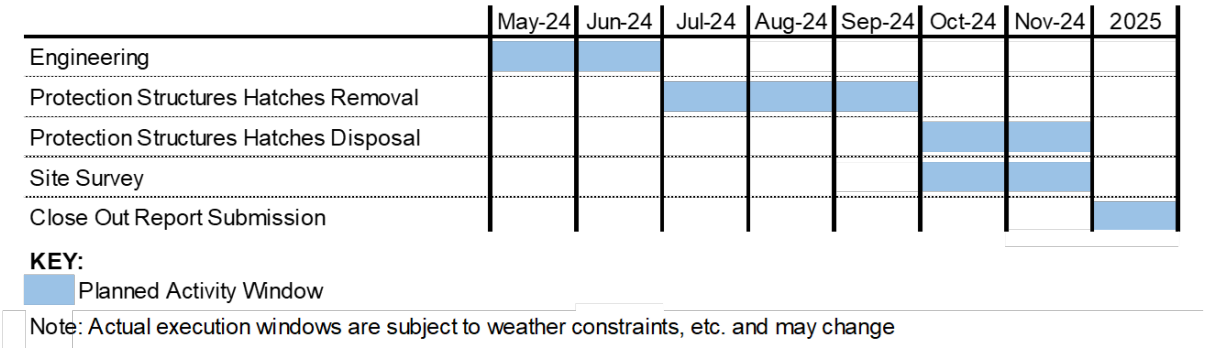

Figure 6-1: Otter Protection Structures' Hatches Decommissioning Schedule

6.4 Costs

The decommissioning programme costs will be provided directly to OPRED in confidence.

Table 6-1: Provisional Decommissioning Costs

Item	Estimated Cost (£m)
WBS 1 – Operator Project Management	Provided to OPRED in confidence
WBS 2 – Post CoP OPEX	
WBS 3 – Well Abandonment	
WBS 4 – Facilities & Pipelines Permanent Isolation & Cleaning	
WBS 5 – Topsides Preparation	
WBS 6 – Topsides Removal	
WBS 7 – Substructure Removal	
WBS 8 – Onshore Recycling	
WBS 9 – Subsea Infrastructure	
WBS 10 – Site Remediation	
WBS 11 – Monitoring	

6.5 Close Out

A close out report will be submitted to OPRED and posted on the TAQA decommissioning website within twelve months of the completion of the scope within this decommissioning programme.

6.6 Post-Decommissioning Monitoring and Evaluations

This DP covers removal of the Otter protection structures' hatches. Post decommissioning surveys will be limited to as-left surveys of the immediate area around the Otter protection structures. These as left survey results will be included in the close out report.

Following the wider Otter subsea infrastructure decommissioning (subject to a separate future DP) TAQA will carry out a post-decommissioning environmental seabed survey, centred around the sites of the Otter facilities.

A copy of the survey results will be forwarded to OPRED. After the survey results have been sent to OPRED and reviewed, a post decommissioning monitoring regime will be agreed between TAQA and OPRED taking account of ongoing liability, the findings of previous surveys, and a risk-based approach to the frequency and scope of subsequent surveys.

7 Supporting Documents

[1] Guidance Notes Decommissioning of Offshore Oil and Gas Installations and Pipelines November 2018, OPRED.

[2] Comparative Assessment Northern North Sea Subsea Assets, Xodus Group, 77IFS-154925-L99-0006-02, Revision A01, December 2021.

[3] Benthic Solutions, 2020. Otter to Eider – Combined Environmental Baseline and Habitat Assessment Survey Report. Document number: 1932_O-E_EBS-HAS

[4] Gardline 2012. UKCS 210/15a Otter Site Survey . March – April 2012. Environmental Baseline Report. Gardline Report Ref 9022.1

[5] Tyler-Walters, H., James, B., Carruthers, M. (eds.), Wilding, C., Durkin, O., Lacey, C., Philpott, E., Adams, L., Chaniotis, P.D., Wilkes, P.T.V., Seeley, R., Neilly, M., Dargie, J. & Crawford-Avis, O.T., 2016. Descriptions of Scottish Priority Marine Features (PMFs). Scottish Natural Heritage Commissioned Report No. 406. Available online at: https://www.nature.scot/doc/naturescot-commissioned-report-406-descriptions-scottish-priority-marine-features-pmfs [Accessed 24/06/2021].

[6] NMPi 2024, Marine Scotland, https://marine.gov.scot/themes/fishing

[7] OGA (Oil and Gas Authority), 2019. Offshore Licensing Round information and resources. Available online at: https://www.nstauthority.co.uk/regulatory-information/licensing-and-consents/licensing/

[8] KIS-ORCA, 2021 Subsea cable map. Available online at: https://kis-orca.org/

[9] UKHO (2020). UK Hydrographic Office: Admiralty Maritime Data Solutions. Wrecks and Obstructions Data Service. Available online at: https://datahub.admiralty.co.uk/portal/apps/webappviewer/index.html?id=777d6d6b07fc4a80922b7e7880ff7152

8 Section 29 Holders' Letters of Support

Letters of Support will be obtained from the Section 29 Holders on final approval of the Decommissioning Programme, in advance of CoP and full field decommissioning, and will be provided within this section of the Programme.

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