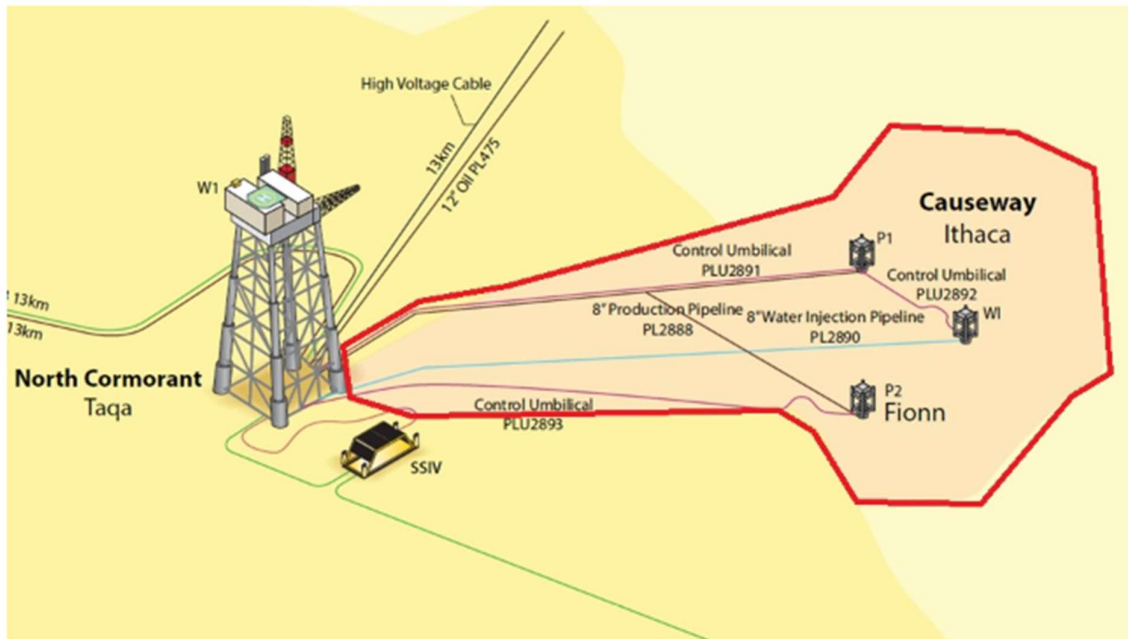


Decommissioning Programmes

Draft






Causeway & Fionn Fields

Subsea Installations and Associated Pipelines

Document Control

Approvals

| Document ID | | CFI-LLA-IT-DE-PRO-0001 | |
|-------------|------------|------------------------------------------------------------------------------------|----------------------------|
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Revision Control

| Revision No. | Reference | Changes/Comments | Issue Date |
|--------------|------------------------|-----------------------------------------|------------|
| 0 | First Draft | - | 23.12.2020 |
| 1 | Second Draft | General Revision Incorporating Comments | 25.06.2021 |
| 2 | Third Draft | General Revision Incorporating Comments | 20.09.2021 |
| 3 | Fourth Draft | Minor Revision Incorporating Comments | 13.10.2021 |
| 4 | Draft for Consultation | Minor Revision Incorporating Comments | 17.11.2021 |
| | | | |
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1. Table of Terms and Abbreviations

| Terms and Abbreviations | Explanation |
|-------------------------|------------------------------------------------------------------|
| CA | Comparative Assessment |
| COP | Cessation of Production |
| CSV | Construction Support Vessel |
| DCR | Design and Construction Regulations 1996 |
| DSV | Diving Support Vessel |
| EHC | Electro/Hydraulic/Control Umbilical |
| GMS | Global Marine Systems Limited |
| HSE | Health and Safety Executive |
| IPR | Interim Pipeline Regime |
| LAT | Lowest Astronomical Tide |
| LIS | Left in Situ |
| LSA | Low Specific Activity |
| LTOBM | Low Toxicity Oil Based Mud |
| MODU | Mobile Offshore Drilling Unit |
| MPA | Marine Protected Areas |
| NCP | North Cormorant Platform |
| NFFO | National Federation of Fishermen's Organisations |
| NIFPO | Northern Ireland Fish Producer's Organisation |
| NORM | Naturally Occurring Radioactive Material |
| NUI | Normally Unattended Installation |
| OGA | Oil and Gas Authority |
| OGUK | Oil & Gas United Kingdom |
| OPRED | Offshore Petroleum Regulator for Environment and Decommissioning |
| OSPAR | Oslo and Paris Convention |

| Terms & Abbreviations | Explanation |
|-----------------------|--------------------------------------|
| OIW | Oil in Water |
| "P and A" | Plug and Abandon |
| PETS | Portal Environmental Tracking System |
| PMT | Project Management Team |
| PON | Petroleum Operations Notice |
| PWA | Pipeline Works Authorisation |
| SFF | Scottish Fishermen's Federation |
| SAC | Special Areas of Conservation |
| SCI | Site of Community Importance |
| SPA | Special Protection Areas |
| te | Tonne |
| UKCS | United Kingdom Continental Shelf |
| WBM | Water Based Mud |
| WPS | Wellhead Protection Structure |

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1. EXECUTIVE SUMMARY

1.1 Combined Decommissioning Programmes

This document contains four decommissioning programmes for each set of associated notices served under Section 29 of the Petroleum Act 1998. The Decommissioning Programmes are for:

- 2 Causeway Field Installation
- 4 Causeway Field Pipelines
- 2 Fionn Field Installation
- 2 Fionn Field Pipelines

1.2 Requirement for Decommissioning Programmes

In conjunction with public, stakeholder and regulatory consultation, the decommissioning programmes are submitted in compliance with national and international regulations and OPRED guidelines. The schedule outlined in this document shows decommissioning starting with flushing of the pipelines in 2023 with completion of the works by 2027, after removal of the subsea infrastructure.

Installations:

In accordance with the Petroleum Act 1998, the Section 29 notice holders of the Causeway and Fionn Field installations (see Table 1.4.2) are applying to the Department for Business, Energy and Industrial Strategy to obtain approval for decommissioning the installations detailed in Section 2.1 and 2.2 of this programme (See also Section 8 - Partner Letters of Support).

Pipelines:

In accordance with the Petroleum Act 1998, the Section 29 notice holders of the Causeway and Fionn pipelines (see Table 1.4.4) are applying to the Department for Business, Energy and Industrial Strategy to obtain approval for decommissioning the pipelines detailed in Section 2.3 of this programme. (See also Section 8 – Partner Letters of Support).

1.3 Introduction

The **Causeway** field is located in the UKCS Northern North Sea within Block 211/23d. The field is approximately 500km NNE of Aberdeen and approximately 185km from Lerwick in a water depth of 161m. The field was first discovered by well 211/22-3 drilled in 1983.

The facilities comprise a Production Pipeline, a Control Umbilical and a Water Injection Pipeline connected to one producing (P1) and one water injecting well (W1) which are tied back to TAQA's North Cormorant platform.

The **Fionn** field is located within Block 211/22a. Fionn was discovered in 2007 as part of the Causeway field appraisal programme. Discovery well, 211/22a-6, Figure 1.6.2, established that the Central fault panel of the Causeway area on the Osprey ridge was a separate oil accumulation and it was agreed with the Department of Energy and Climate Change that it should be developed as a separate field, subsequently re-named as Fionn.

Fionn facilities comprise a production pipeline tied into the Causeway pipeline via a “Tee” and one Control Umbilical both supporting a single production well (P2). The Control Umbilical is also tied into North Cormorant.

Separate Cessation of Production notifications for both Causeway and Fionn were submitted on 21st December 2018 and approved on the 15th January 2019, by the Oil & Gas Authority.

Follow public, stakeholder and regulatory consultation the decommissioning programmes will be submitted, without derogation and in full compliance with OPRED guidelines. The decommissioning programmes explain the principles of the removal activities and are supported by an environmental impact assessment. The decommissioning programmes for the pipelines, risers and umbilical are supported by a comparative assessment.

1.4 Overview of Installations/Pipelines Being Decommissioned

1.4.1 Installations

| Table 1.4.1a: CAUSEWAY Installations Being Decommissioned | | | |
|-----------------------------------------------------------|--------------------------------------------------|---------------------------|------------------------------------|
| Field: | Causeway | Production Type (Oil/Gas) | Oil |
| Water Depth (m) | 161m | UKCS block | 211/23d |
| Subsea Installations | | Number of Wells | |
| Number | Type | Platform | Subsea |
| 1 | Production Xmas Tree c/w Debris Cap incl. of WPS | 0 | 1 x Producer |
| 1 | WI Xmas Tree c/w Debris Cap incl. of WPS | 0 | 1 x Water Injection |
| 2 | Appraisal Wells | 0 | 2 x E&A Suspended |
| Drill Cuttings piles | | Distance to median | Distance from nearest UK coastline |
| Number of Piles | Total Estimated volume (m ³) | km | km |
| 4 | 642 m ³ | 20 | 124 |

Table 1.4.1b: FIONN Installations Being Decommissioned

| | | | |
|-----------------------------|-----------------------------------------------------|--------------------------------------|-----------------------------------------------|
| Field: | Fionn | Production Type (Oil/Gas) | Oil |
| Water Depth (m) | 161m | UKCS block | 211/22a |
| Subsea Installations | | Number of Wells | |
| Number | Type | Platform | Subsea |
| 1 | Production Xmas Tree c/w Debris Cap incl. of WPS | 0 | 1 x Producer |
| 1 | Appraisal Well | 0 | 1 x E&A Suspended |
| Drill Cuttings piles | | Distance to median | Distance from nearest UK coastline |
| Number of Piles | Total Estimated volume (m³) | km | km |
| 2 | 385 m ³ | 20 | 124 |

Table 1.4.2a: CAUSEWAY Installations Section 29 Notice Holders Details

| Section 29 Notice Holders | Registration Number | Equity Interest (%) | Notes |
|----------------------------------|----------------------------|----------------------------|--------------|
| ITHACA ENERGY (UK) LIMITED | SC272009 | 14% | |
| Ithaca Alpha (N.I.) Limited | NI073431 | 30% | |
| Ithaca Gamma Limited | 05929104 | 10.5% | |
| Ithaca Epsilon Limited | 05979869 | 10% | |
| Ithaca Petroleum Limited | 05223667 | 0% | |
| NEO Energy (ZNI) Limited | NI029409 | 35.5% | |
| NEO Energy (ZPL) Limited | 08818762 | 0% | |

| Table 1.4.2b: FIONN Installations Section 29 Notice Holders Details | | | |
|---------------------------------------------------------------------|---------------------|---------------------|-------|
| Section 29 Notice Holders | Registration Number | Equity Interest (%) | Notes |
| ITHACA ENERGY (UK) LIMITED | SC272009 | 49.5% | |
| Ithaca Alpha (N.I.) Limited | NI073431 | 30% | |
| Ithaca Gamma Limited | 05929104 | 10.5% | |
| Ithaca Epsilon Limited | 05979869 | 10% | |
| Ithaca Petroleum Limited | 05223667 | 0% | |

1.4.2 Pipelines

| Table 1.4.3a: CAUSEWAY Pipelines Being Decommissioned | | |
|-------------------------------------------------------|-----|--------------------|
| Number of Pipelines / Umbilical's | 2/2 | (See Table 2.3.1a) |
| Pipeline Structures | 1 | (See Table 2.3.3a) |

| Table 1.4.3b: FIONN Pipelines Being Decommissioned | | |
|----------------------------------------------------|-----|--------------------|
| Number of Pipelines / Umbilical's | 1/1 | (See Table 2.3.1b) |
| Pipeline Structures | 1 | (See Table 2.3.3b) |

| Table 1.4.4a: CAUSEWAY Pipelines Section 29 Notice Holders Details | | | |
|--------------------------------------------------------------------|---------------------|---------------------|-------|
| Section 29 Notice Holders | Registration Number | Equity Interest (%) | Notes |
| Ithaca Energy (UK) Limited | SC272009 | 14% | |
| Ithaca Alpha (NI) Limited | NI073431 | 30% | |
| Ithaca Gamma Limited | 05929104 | 10.5% | |
| Ithaca Epsilon Limited | 05979869 | 10% | |
| NEO Energy (ZNI) Limited | NI029409 | 35.5% | |
| NEO Energy (ZPL) Limited | 08818762 | 0% | |

Table 1.4.4b: FIONN Pipelines Section 29 Notice Holders Details

| Section 29 Notice Holders | Registration Number | Equity Interest (%) | Notes |
|----------------------------|---------------------|---------------------|-------|
| Ithaca Energy (UK) Limited | SC272009 | 49.5% | |
| Ithaca Alpha (NI) Limited | NI073431 | 30% | |
| Ithaca Gamma Limited | 05929104 | 10.5% | |
| Ithaca Epsilon Limited | 05979869 | 10% | |
| NEO Energy (ZPL) Limited | 08818762 | 0% | |

1.5 Summary of Proposed Decommissioning Programmes

Table 1.5.1a: CAUSEWAY Summary of Decommissioning Programmes

| Selected Option | Reason for Selection | Proposed Decommissioning Solution ¹ |
|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Topsides | | |
| n/a | n/a | n/a |
| 2. Jacket | | |
| n/a | n/a | n/a |
| 3. Subsea Installations | | |
| Complete removal for recycling. | To remove Xmas trees and covers to leave a clear seabed. Complies with OSPAR requirements | The Production and WI Xmas Tree and Debris Covers will be removed by the drill rig and transported onshore for recycling. |
| 4. Pipelines, Flowlines & Umbilical | | |
| Pipelines and Umbilicals will remain in-situ. All exposed ends / tie-in spools will be completely removed and returned onshore for recycling. | Complies with OSPAR requirements and OPRED guidelines and maximises recycling of materials | The Production Pipeline and 2xUmbilicals shall be flushed to acceptable cleanliness levels ¹ with fluid either down the wells or back to North Cormorant. The water injection line does not need flushing since it contains only filtered seawater. Pipelines & Umbilicals will be disconnected, and the cut ends buried > 1m; all spools will be removed by DSV or CSV and returned onshore for recycling. It is intended that the concrete protection mattresses will also be recovered to shore, however in the event of practical difficulties OPRED will be consulted and the comparative assessment resubmitted. |
| 5. Pipeline Structures | | |
| Complete removal for recycling | To remove purge spool to leave a clear seabed. Complies with OSPAR requirements | The purge spool on the Production Pipeline will be removed along with the associated spools/pipeline ends and brought to shore for recycling. |
| 6. Wells | | |

| Table 1.5.1a: CAUSEWAY Summary of Decommissioning Programmes | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Selected Option | Reason for Selection | Proposed Decommissioning Solution ¹ |
| Abandon Wells in accordance with "Oil and Gas UK" guidelines on Well Decommissioning – Issue 6 – June 2018". | Complies with HSE and OGA guidelines | Wells will be plugged and abandoned using a drill rig/ship. A PON5, Marine Licence and PETS will also be submitted to OPRED and OGA for approval to abandon the wells ¹ . |
| 7. Drill Cuttings | | |
| Leave in place to degrade naturally | Drill cuttings are below the OSPAR 2005/6 threshold | Historic cuttings piles from the Causeway P1 and WI1 well are present, and with the bottom currents being relatively weak, natural dispersion of cuttings is expected to be slow. Cuttings from well top-hole sections (26"), drilled with seawater sweeps/water-based muds, and discharged to sea, followed by cementing of the conductor. All cuttings from lower sections (17½", 12¼") drilled with low toxicity oil-based muds (LTOBM) returned to shore and no cuttings containing LTOBM present. The historic cuttings will be left undisturbed on the seabed. |
| 8. Interdependencies | | |
| Causeway ties into North Cormorant and will be removed first. Fionn will be removed in the same campaign. | | |
| Ithaca will maintain close discussions with TAQA regarding scheduling of North Cormorant decommissioning to align both flushing and removing scopes with the aim of maximising efficiencies. | | |

| Table 1.5.1b: FIONN Summary of Decommissioning Programmes | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Selected Option | Reason for Selection | Proposed Decommissioning Solution ¹ |
| 1. Topsides | | |
| n/a | n/a | n/a |
| 2. Jacket | | |
| n/a | n/a | n/a |
| 3. Subsea Installations | | |
| Complete removal for recycling. | To remove all seabed structures and leave a clear seabed. Complies with OSPAR requirements | The Xmas Tree and Debris Cover will be removed by the drill rig and transported onshore for recycling. |
| 4. Pipelines, Flowlines & Umbilical | | |
| Pipelines and Umbilicals will remain in-situ. All exposed ends / tie-in spools will be completely removed and returned onshore for recycling. | Complies with OSPAR requirements and OPRED guidelines and maximises recycling of materials | The Production Pipeline and Umbilical shall be flushed to acceptable cleanliness levels ¹ with fluids either down the well or back to North Cormorant. Pipelines & Umbilicals will be disconnected, and the cut ends buried > 1m; all spools will be removed by DSV or CSV and returned onshore for recycling. It is intended that the concrete protection mattresses will also be recovered to shore, however in the event of practical difficulties OPRED will be consulted and the comparative assessment resubmitted. |

| Table 1.5.1b: FIONN Summary of Decommissioning Programmes | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Selected Option | Reason for Selection | Proposed Decommissioning Solution ¹ |
| 5. Pipelines Structures | | |
| Complete removal for recycling. | To remove all pipeline structures and leave a clear seabed. Complies with OSPAR requirements | The valve skid structure including protection frame is to be disconnected and completely removed either by DSV / CSV and transported onshore for recycling. |
| 6. Wells | | |
| Abandon Wells in accordance with "Oil and Gas UK" guidelines on Well Decommissioning – Issue 6 – June 2018". | Complies with HSE and OGA guidelines | Wells will be plugged and abandoned using a drill rig/ship. A PON5, Marine Licence and PETS will also be submitted to OPRED and OGA for approval to abandon the wells ¹ . |
| 7. Drill Cuttings | | |
| Leave in place to degrade naturally | Drill cuttings are below the OSPAR 2005/6 threshold | Historic cuttings piles from the Causeway P1 and W11 well are present, and with the bottom currents being relatively weak, natural dispersion of cuttings is expected to be slow. Cuttings from well top-hole sections (26"), drilled with seawater sweeps/water-based muds, and discharged to sea, followed by cementing of the conductor. All cuttings from lower sections (17½", 12¼") drilled with low toxicity oil-based muds (LTOBM) returned to shore and no cuttings containing LTOBM present. The historic cuttings will be left undisturbed on the seabed. |
| 8. Interdependencies | | |
| Fionn is tied into North Cormorant and Causeway. Causeway will be removed in the same campaign. | | |
| Ithaca will maintain close discussions with TAQA regarding scheduling of North Cormorant decommissioning to align both flushing and removing scopes with the aim of maximising efficiencies. | | |

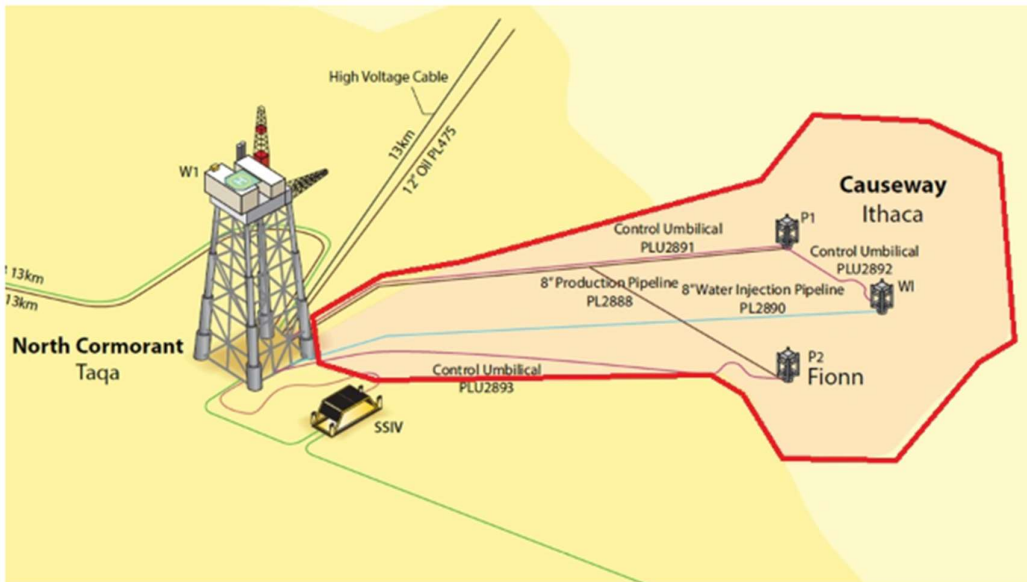
Note: 1. Various permits and consents will be required for the decommissioning activities, e.g. chemical permits. These will be applied for in due course and at the appropriate time, with approvals sought prior to the commencement of any offshore decommissioning activity.

1.6 Field Location Including Field Layout and Adjacent Facilities

Figure 1.6.1: Causeway & Fionn Location in UKCS



Figure 1.6.2: Causeway & Fionn Field Location



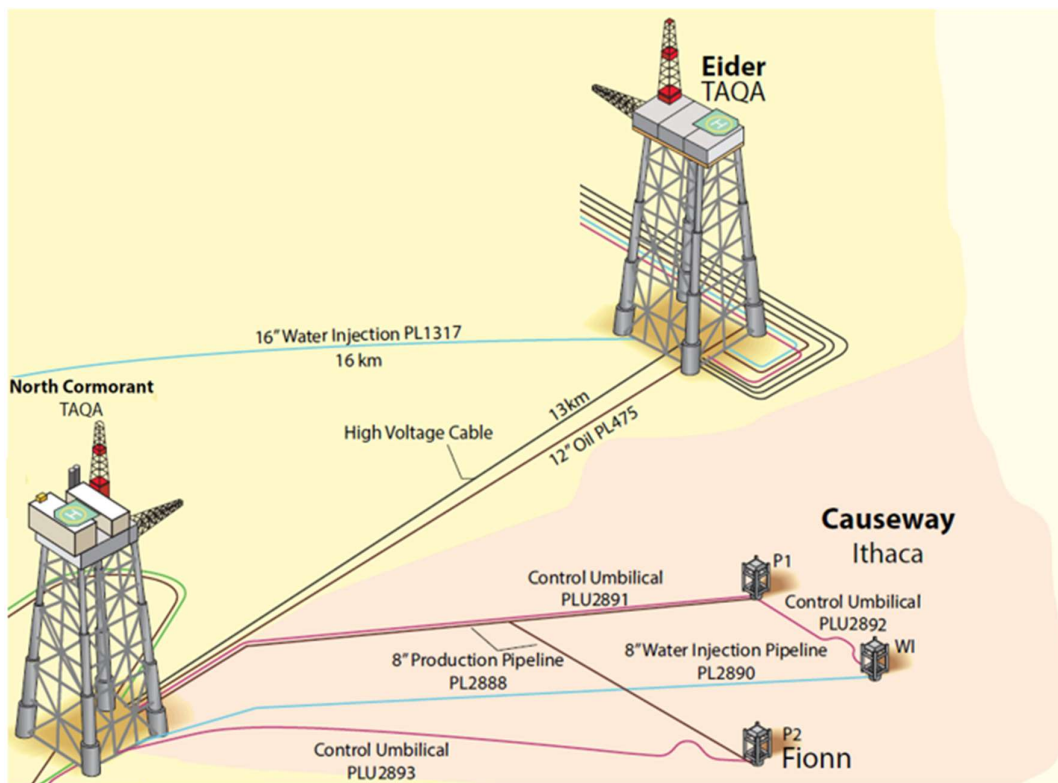
Note, this DP relates only to the items encircled

| Table 1.6.1 Adjacent Facilities | | | | | |
|---------------------------------|-----------------|----------------------|--------------------|---------------------------------------|----------------------------------------------------------------|
| Operator | Name | Type | Distance/Direction | Information | Status |
| TAQA Bratani Limited | North Cormorant | Fixed Steel Platform | 16km East | Manned production / drilling facility | Operational Note: Taqa have submitted a DP for NCP Topsides |
| TAQA Bratani Limited | Eider | Fixed Steel Platform | 17km North East | Manned production / drilling facility | Operational |

Impacts of Decommissioning Proposals

The decommissioning activities are being planned such that they will not affect adjacent facilities; the pipelines/umbilicals will be decommissioned in situ, leaving the crossings over the 24" Magnus to Ninian oil line intact, and all works carried out within the North Cormorant 500m zone will be in accordance with a permit to work. The Eider platform/infrastructure is outwith the area where decommissioning activities will be carried out. The supporting environmental appraisal will consider potential significant impacts of decommissioning activities, including cumulative impacts in the context of other industry activities in the area.

Figure 1.6.3: Adjacent Facilities



1.7 Industrial Implications

The work to decommission the Causeway and Fionn Field installations and pipelines will be completed using the most effective combination of Diving Support Vessel (DSV) & Construction Support Vessel (CSV). Well plug and abandonment operations will be completed using a semi-submersible drilling rig.

Flushing of pipelines and umbilicals will be undertaken in conjunction with TAQA and using Ithaca's existing framework contracts. It is Ithaca's intention to competitively tender the P&A activities and decommissioning of the subsea installations and stabilisation features. Ithaca will also seek to combine Causeway & Fionn decommissioning activities with other development or decommissioning works should the opportunity be available. Ithaca will keep dialogue with TAQA open with the aim of maximising any synergies in scope. The decommissioning schedule contains contingency to provide flexibility within the programmes.

2. Description of Items to be Decommissioned

2.1 Installations: Surface Facilities

n/a

2.2 Subsea Installations: including Stabilisation Features

| Table 2.2.1a: CAUSEWAY Subsea Installations and Stabilisation Features | | | | | |
|------------------------------------------------------------------------|--------|------------------------------|-----------------------|-----------------------------|----------------------------------------------------|
| Subsea installations including Stabilisation Features | Number | Size/Weight (te) | Location | | Comments/Status |
| Wells | 4 | See section 2.4 | See section 2.4 | | See section 2.4 |
| Structures - Xmas Tree c/w Debris Cap incl. of WPS | 1 | 2.4x2.4x2.0m 50.0t in air | WGS84, Decimal | 61.274849°N 1.430533°E | Situated over Production Well 211/23d-17Z [P1] |
| | | | WGS84, Decimal Minute | 61° 16.491'N 1° 25.832'E | |
| | 1 | 2.4x2.4x1.5m 44.3t in air | WGS84, Decimal | 61.262430°N 1.425697°E | Situated over Water Injection Well 211/23d-18 [W1] |
| | | | WGS84, Decimal Minute | 61° 15.746'N 1° 25.542'E | |

| Table 2.2.1b: FIONN Subsea Installations and Stabilisation Features | | | | | |
|---------------------------------------------------------------------|--------|------------------------------|-----------------------|-----------------------------|-----------------------------------------------|
| Subsea installations including Stabilisation Features | Number | Size/Weight (te) | Location | | Comments/Status |
| Wells | 2 | See section 2.4 | See section 2.4 | | See section 2.4 |
| Structures - Xmas Tree c/w Debris Cap incl. of WPS | 1 | 2.4x2.4x2.0m 50.0t in air | WGS84, Decimal | 61.240633° N 1.367671° E | Situated over Production Well 211/22a-6Z [P2] |
| | | | WGS84, Decimal Minute | 61° 14.438'N 1° 22.060'E | |

2.3 Pipelines: Including Stabilisation Features

| Table 2.3.1a: CAUSEWAY Pipeline/Flowline/Umbilical Information | | | | | | | | | |
|----------------------------------------------------------------|---------------------------------|----------------------|----------------------------------|-------------------------------------------------------------------|----------------------------|----------------------------------------------------------------------------------|----------------------------------|--------------------|-----------------------------|
| Description | Pipeline Number (as per PWA) | Diameter (inches) | Length (km) | Description of Component Parts | Product Conveyed | From – To End Points | Burial Status | Pipeline Status | Current Content |
| Production Pipeline P1 | PL2888 | 8" | 15.554 plus 440m riser and spool | 8" Rigid Production Pipeline with flexible riser and tie-in spool | Production Fluid | P1 Well Pipeline Tie-In To North Cormorant Production Pipeline Tie-in | Trenched and Buried | Operational | Production Fluid* |
| W1 Water Injection Pipeline | PL2890 | 8" | 14.950 plus 440m riser and spool | Rigid Pipeline | Water | North Cormorant Water Injection Pipeline Tie-In To W1 Well Pipeline Tie-In | Open Trench for Natural Backfill | Operational | Water* |
| P1 Control Umbilical | PLU2891 | 5" | 15.830 | Multi Core Flexible Umbilical | Hydraulic oil/ Methanol | North Cormorant To P1 Well | Open Trench for Natural Backfill | Operational | Hydraulic oil/ Methanol* |
| W1 Control Umbilical | PLU2892 | 3.5" | 1.490 | Multi Core Flexible Umbilical | Hydraulic oil/ Methanol | P1 Well To Well W1 | Open Trench for Natural Backfill | Operational | Hydraulic oil/ Methanol* |

Note: * denotes lines will be flushed and cleaned and contents left with treated seawater

Table 2.3.1b: FIONN Pipeline/Flowline/Umbilical Information

| Description | Pipeline Number (as per PWA) | Diameter (inches) | Length (km) | Description of Component Parts | Product Conveyed | From – To End Points | Burial Status | Pipeline Status | Current Content |
|------------------------|---------------------------------|----------------------|----------------|-----------------------------------|----------------------------|-------------------------------------------------------------|----------------------------------|--------------------|-----------------------------|
| Production Pipeline P2 | PL2889 | 8" | 2.847 | Rigid Pipeline | Production Fluid | P2 Well Pipeline Tie-In To Valve Skid Pipeline Tie-In | Trenched and Buried | Operational | Production Fluid* |
| P2 Control Umbilical | PLU2893 | 5" | 11.850 | Multi Core Flexible Umbilical | Hydraulic oil/ Methanol | North Cormorant To P2 Well | Open Trench for Natural Backfill | Operational | Hydraulic oil/ Methanol* |

Note: * denotes lines will be flushed and cleaned and contents left with treated seawater

Table 2.3.2a: CAUSEWAY Subsea Pipeline Stabilisation Features

| Stabilisation Feature | Total Number | Weight (Te) | Locations | Exposed/Buried/Condition |
|-----------------------|--------------|-------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Concrete mattresses | 261 | 1,195 | At pipeline ends and crossings | All mattresses will be recovered unless buried by rock placement <ul style="list-style-type: none"> • 21 Mattresses are buried under rock and will be decommissioned in situ • 24 Mattresses in Trench Transitions and to be assessed individually for decommissioning in situ or recovery. For any mattresses that can't be recovered, Ithaca will discuss the practicalities and reach agreement with OPRED • 216 Mattresses laid on the seabed for recovery |
| Grout bags | n/a | n/a | No as-built records of grout bags. | n/a |

Table 2.3.2a: CAUSEWAY Subsea Pipeline Stabilisation Features

| Stabilisation Feature | Total Number | Weight (Te) | Locations | Exposed/Buried/Condition | |
|-----------------------|-----------------------------|-------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Sand bags | 360 | 9 | At North Cormorant Platform | Estimated number of exposed sand bags. It is intended that the sand bags will be recovered to shore, however in the event of practical difficulties OPRED will be consulted and agreement reached. | |
| Deposited Rock | 1 | 30939 | Along Pipeline P1 | 9010t at Various locations for general stabilisation, burying of "Tee" and cover for Umbilical PLU2891 | |
| | | | Along Pipeline W1 | 4719t total | |
| | | | P1 Production | 8667t at Magnus Crossing (centre) for P1 Production & Umbilical | |
| | | | WGS84, Decimal | | 61.271306°N 1.399389°E |
| | | | WGS84, Decimal Minute | | 61° 16.278'N 1° 23.963'E |
| | | | Umbilical | | |
| | | | WGS84, Decimal | | 61.271556°N 1.399250°E |
| | | | WGS84, Decimal Minute | | 61° 16.293'N 1° 23.955'E |
| | | | WGS84, Decimal | | 61.260361°N 1.399222° E |
| WGS84, Decimal Minute | 61° 15.622'N 1° 23.953'E | | | | |
| | | | 5258t at Magnus Crossing (centre) for W1 Water Injection line crossing 5258 | | |

Table 2.3.2a: CAUSEWAY Subsea Pipeline Stabilisation Features

| Stabilisation Feature | Total Number | Weight (Te) | Locations | Exposed/Buried/Condition |
|-----------------------|--------------|-------------|---------------------------------------------------------|--------------------------------------------------------------|
| | | | WGS84, Decimal 61.257056°N 1.359528°E | 3285t for W1 Water Injection crossing P2 Production (centre) |
| | | | WGS84, Decimal Minute 61° 15.423'N 1° 21.572'E | |

Table 2.3.2b: FIONN Subsea Pipeline Stabilisation Features

| Stabilisation Feature | Total Number | Weight (Te) | Locations | Exposed/Buried/Condition |
|-----------------------|--------------|-------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Concrete mattresses | 179 | 721 | At pipeline ends and crossings | <p>All mattresses will be recovered unless buried by rock placement</p> <ul style="list-style-type: none"> • 2 Mattresses are buried under rock and will be decommissioned in situ • 22 Mattresses in Trench Transitions and to be assessed individually for abandon in situ or recovery. For any mattresses that can't be recovered, Ithaca will discuss the practicalities and reach agreement with OPRED • 155 Mattresses laid on the seabed for recovery |
| Grout bags | n/a | n/a | No as-built records of grout bags. | n/a |
| Sand bags | 120 | 3 | At North Cormorant Platform | Estimated number of exposed sand bags. It is intended that the sand bags will be recovered to shore, however in the event of practical difficulties OPRED will be consulted and agreement reached. |

Table 2.3.2b: FIONN Subsea Pipeline Stabilisation Features

| Stabilisation Feature | Total Number | Weight (Te) | Locations | Exposed/Buried/Condition |
|-----------------------|--------------|-------------|--------------------|-----------------------------------------------------|
| Deposited Rock | 1 | 1034 | Along Pipeline P2 | 737t at Various locations for general stabilisation |
| | | | Along P2 Umbilical | 297t Rectifying loss of trench depth |

Total Rock Deposited = 31,973t

Table 2.3.3a: CAUSEWAY Subsea Pipeline Structures

| Structure | Total Number | Description | Locations | Conditions | |
|----------------------------------|--------------|------------------------|----------------|----------------------------|--------------------------------------------|
| Purge Spool c/w protection Frame | 1 | 2m x 1m 0.3t in Air | WGS84, Decimal | 61.241322°N 1.148556°E | Installed on Seabed To be fully removed |
| | | | WGS84, Minute | 61° 14.479'N 1° 8.913'E | |

Table 2.3.3b: FIONN Subsea Pipeline Structures

| Structure | Total Number | Description | Locations | Conditions | |
|---------------------------------|--------------|-----------------------|----------------|-----------------------------|------------------------------------------------------------------------------------|
| Valve Skid c/w protection cover | 1 | 6m x 2m 36t in Air | WGS84, Decimal | 61.265854°N 1.355156°E | P2 tie in to P1 - Installed on Seabed adjacent to rock berm To be fully removed |
| | | | WGS84, Minute | 61° 15.951'N 1° 21.309'E | |

2.4 Wells

| Table 2.4.1a: CAUSEWAY Well Information | | | |
|-----------------------------------------|--------------------|---------------|------------------|
| Platform Wells | Designation | Status | Category of Well |
| n/a | n/a | n/a | n/a |
| Subsea Wells | Designation | Status | Category of Well |
| 211/23d-17Z | P1 Oil Production | Shut-In | SS 3-3-3 |
| 211/23d-18 | W1 Water Injection | Shut-In | SS 3-3-3 |
| 211/22a-8 | Appraisal | Abandoned Ph1 | SS 0-1-1 |
| 211/22a-9 | Appraisal | Abandoned Ph1 | SS 3-3-3 |

| Table 2.4.1b: FIONN Well Information | | | |
|--------------------------------------|-------------------|---------------|------------------|
| Platform Wells | Designation | Status | Category of Well |
| n/a | n/a | n/a | n/a |
| Subsea Wells | Designation | Status | Category of Well |
| 211/22a-6Z | P2 Oil Production | Shut-In | SS 3-3-3 |
| 211/22a-7A | Appraisal | Abandoned Ph1 | SS 3-3-3 |

Category of well is aligned with OGUK Guidelines for the Suspension or Abandonment of Wells, Issue 6 June 2018

2.5 Drill Cuttings

(See Section 3.7 for further information)

Historic cuttings piles from both Causeway and Fionn are present and since the bottom currents in the area relatively weak, the natural dispersion of cuttings is expected to be slow. Any historic cuttings will be left undisturbed on the seabed.

| Table 2.5a: CAUSEWAY Drill Cuttings Pile(s) Information | | |
|---------------------------------------------------------|-------------------------------|------------------------------------------------|
| Location of Pile Centre | Seabed Area (m ²) | Estimated volume of Cuttings (m ³) |
| P1 | 1256 | 278 |
| W1 | 676 | 122 |
| Appraisal Well 22a-8 | 676 | 122 |
| Appraisal Well 22a-9 | 669 | 120 |

| Table 2.5b: FIONN Drill Cuttings Pile(s) Information | | |
|------------------------------------------------------|-------------------------------|------------------------------------------------|
| Location of Pile Centre | Seabed Area (m ²) | Estimated volume of Cuttings (m ³) |
| P2 | 1109 | 203 |
| Appraisal Well 22a-7A | 934 | 182 |

The drilling of the Causeway and Fionn development wells was between 2006 and 2008 and thus, under PARCOM Decision 92/2 on the Use of Oil-Based Muds, the discharge of OBM cuttings was not permitted. OBM cuttings from the Causeway and Fionn development wells were retained on the rig and returned to shore for treatment and disposal. As a consequence, only water based mud cuttings were discharged to sea, and under OSPAR 2006/5 Stage 1 screening “Where water-based drilling fluids were used and no other discharges have contaminated the cuttings pile, no further investigation is necessary.” The cuttings present at Causeway-Fionn are therefore considered compliant and do not breach the thresholds in the OSPAR Recommendation 2006/5 guidelines and therefore the intention is to follow the recommendation and leave the cuttings piles undisturbed and to degrade naturally.

2.6 Inventory Estimates

| Table 2.6.1a: CAUSEWAY Subsea Installation Inventory | | |
|------------------------------------------------------|-----------------------------|-----------|
| Item | Description | Mass (te) |
| Metals | Steel (All Grades) | 365.5 |
| | Non Ferrous | 8.3 |
| Concrete / Grout | Mattresses | 0 |
| Hazardous | NORM / Residual Fluids | 0 |
| Non-Hazardous | Sand bags | 0 |
| Plastics | Rubbers, Polymers, Coatings | 0 |
| Total | | 373.8 |

| Table 2.6.1b: FIONN Subsea Installation Inventory | | |
|---------------------------------------------------|-----------------------------|-----------|
| Item | Description | Mass (te) |
| Metals | Steel (All Grades) | 153.6 |
| | Non Ferrous | 6.2 |
| Concrete / Grout | Mattresses | 0 |
| Hazardous | NORM / Residual Fluids | 0 |
| Non-Hazardous | Sand bags | 0 |
| Plastics | Rubbers, Polymers, Coatings | 0 |
| Total | | 159.8 |

| Table 2.6.2a: CAUSEWAY Pipelines Inventory | | |
|--------------------------------------------|-----------------------------|----------------|
| Item | Description | Mass (te) |
| Metals | Steel (All Grades) | 2940.6 |
| | Non Ferrous | 62.0 |
| Concrete / Grout | Mattresses | 1283.3 |
| Rock Placement | Rock | 30939 |
| Hazardous | NORM / Residual Fluids | 0 |
| Non-Hazardous | Sandbags | 12.0 |
| Plastics | Rubbers, Polymers, Coatings | 707.5 |
| | Total | 35944.4 |

| Table 2.6.2b: FIONN Pipelines Inventory | | |
|-----------------------------------------|-----------------------------|---------------|
| Item | Description | Mass (te) |
| Metals | Steel (All Grades) | 477.1 |
| | Non Ferrous | 45.9 |
| Concrete / Grout | Mattresses | 633.9 |
| Rock Placement | Rock | 1034.0 |
| Hazardous | NORM / Residual Fluids | 0 |
| Non-Hazardous | Sandbags | 0 |
| Plastics | Rubbers, Polymers, Coatings | 188.7 |
| | Total | 2379.6 |

3.0 Removal and Disposal Methods

Potential for re-use of the Causeway / Fionn has been reviewed and has been discounted due to the specific & bespoke nature of the spools and structures / trees.

Wastes generated during decommissioning will be segregated and recorded by type and transported onshore to licenced waste contractors. Steel and other recyclable metals are estimated to account for the greatest proportion of the materials inventory that will be returned onshore.

In line with the waste hierarchy, the re-use of an installation (or parts thereof) is first in the order of preferred decommissioning options considered.

3.1 Topsides Decommissioning Overview

N/A

3.2 Jacket Decommissioning Overview

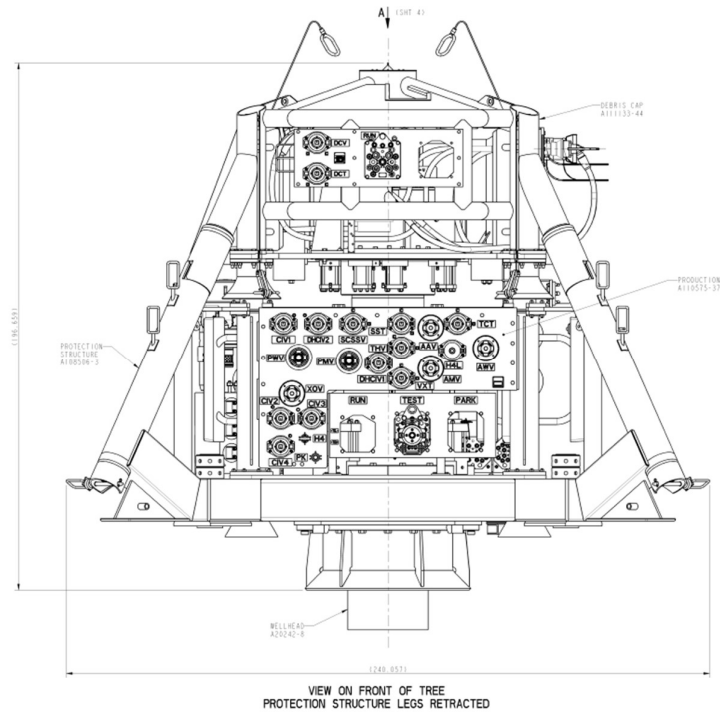
N/A

3.3 Installations: Subsea and Stabilisation Features

| Table 3.3.1a: CAUSEWAY Installations: Subsea and Stabilisation Features | | | |
|-------------------------------------------------------------------------|--------|---------------|-----------------------------------------|
| Subsea installations and stabilisation features | Number | Option | Disposal Route (if applicable) |
| Wellhead Structures | 2 | Full recovery | Return to shore for re-use or recycling |

| Table 3.3.1b: FOINN Installations: Subsea and Stabilisation Features | | | |
|----------------------------------------------------------------------|--------|---------------|-----------------------------------------|
| Subsea installations and stabilisation features | Number | Option | Disposal Route (if applicable) |
| Wellhead Structures | 1 | Full recovery | Return to shore for re-use or recycling |

Figure 3.3.1: Typical Wellhead c/w Debris Cap



| Table 3.3.2a: CAUSEWAY Pipeline Structures | | | |
|-------------------------------------------------|--------|---------------|-----------------------------------------|
| Subsea installations and stabilisation features | Number | Option | Disposal Route (if applicable) |
| Purge Spool c/w protection Frame | 1 | Full recovery | Return to shore for re-use or recycling |

| Table 3.3.2b: FIONN Installations: Pipeline Structures | | | |
|--------------------------------------------------------|--------|---------------|-----------------------------------------|
| Subsea installations and stabilisation features | Number | Option | Disposal Route (if applicable) |
| Valve Skid c/w protection cover | 1 | Full recovery | Return to shore for re-use or recycling |

Figure 3.3.2: Causeway Purge Spool

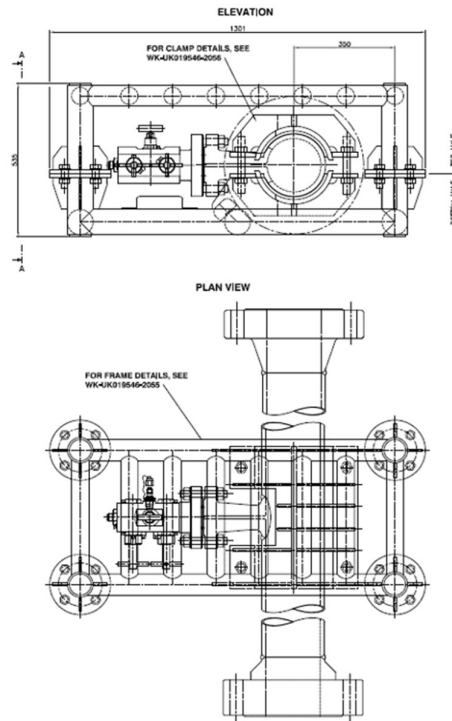
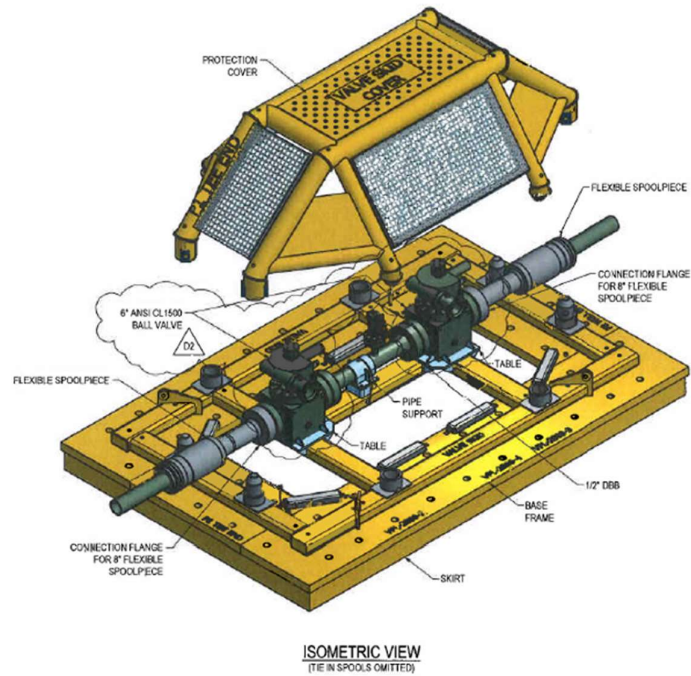


Figure 3.3.3: Fionn Valve Skid c/w Protection Structure



3.4 Pipelines

Decommissioning Options:

- Option A (A): Complete removal by reverse reel, including sections under rock. Rock cover also removed.
- Sub-Option A1 (A1): Complete removal by cut and lift, including sections under rock. Rock cover also removed
- Option B (B): Partial removal of by reverse reel - sections currently under rock, along with the rock cover, decommissioned in situ
- Option C (C): Partial removal by cut and lift - sections currently under rock, along with the rock cover, decommissioned in situ
- Option D (D): Decommission in situ of all sections, including sections under existing rock and the existing rock cover, cut ends lowered to below 0.6m with remedial mechanical backfill where required.
- Option E (E): Decommission in situ of all sections, including sections under existing rock and the existing rock cover, cut ends covered with new rock cover
- Umbilical Option A (UA): Complete removal by reverse reel, including sections under rock. Rock cover also removed
- Umbilical Sub-Option A1 (UA1): Complete removal by reverse reel – applicable to PLU2892 only (no rock present on line)
- Umbilical Option B (UB): Partial removal by reverse reel, sections currently under rock and existing rock cover decommissioned in situ
- Umbilical Option C (UC): Decommission in situ of all sections, including sections under existing rock, and the existing rock cover. Cut ends lowered to below 0.6m with remedial mechanical backfilled where required
- Umbilical Option D (UD): Decommission in situ of all sections, including sections under existing rock, and the existing rock cover. Cut ends covered with new rock cover

| Table 3.4.1: Pipeline or Pipeline Groups Decommissioning Options | | | |
|------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------|------------------------------------|
| Pipeline or Group (as per PWA) | Condition of line/group (Surface laid/Trenched/Buried/ Spanning) | Whole or part of pipeline/group | Decommissioning Options considered |
| PL2888 | Trenched and buried (mechanical backfill). | Whole | A, A1, B, C, D, E |
| PL2889 | Trenched and buried (mechanical backfill). | Whole | A, A1, B, C, D, E |
| PL2890 | Trenched to below seabed level (natural backfill where present). | Whole | A, A1, B, C, D, E |

| | | | |
|---------|------------------------------------------------------------------|-------|----------------|
| PLU2891 | Trenched to below seabed level (natural backfill where present). | Whole | UA, UB, UC, UD |
| PLU2892 | Trenched to below seabed level (natural backfill where present). | Whole | UA1, UC, UD |
| PLU2893 | Trenched to below seabed level (natural backfill where present). | Whole | UA, UB, UC, UD |

Comparative Assessment Method:

Ithaca developed a framework for conducting a Comparative Assessment using qualitative and quantitative data, to evaluate the alternative decommissioning options outlined in table 3.4.1. This framework draws from OSPAR 98/3 and OPRED’s Decommissioning guidance. A methodology and scoring system was used to assess the relative performance of each of the potential decommissioning options for the production pipeline, water injection pipeline and the umbilicals, with results presented Comparative Assessment Report (Matrix in Appendix C and discussion within Section 6).

Initially, all decommissioning options were considered at a screening meeting. From this initial review, the option to “Leave in situ” with no additional work was not considered feasible since the disconnection at the Causeway and Fionn wells and NCP is required; disconnection at NCP is also required for the future decommissioning of this installation by TAQA. Another option that was initially identified but not taken forward was the removal of the umbilical lines (PLU2891, PLU2892 and PLU2893) by cut and lift, as discussed in the CA report.

The assessment workshop objectives were to assess the technical feasibility and risk of major operations failure for all identified decommissioning options taken forward for the associated pipelines and umbilicals.

The list in 3.4 above contains the options considered during the multidisciplinary assessment workshop consisting of experienced in house and external participants.

Outcome of Comparative Assessment:

Following the above exercise, the table below catalogues the preferred options for the decommissioning of the pipelines and umbilicals.

| Table 3.4.2: Outcomes of Comparative Assessment | | |
|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pipeline Group | Recommended Option | Justification |
| PL2888 (~16km, 8" production pipeline) PL2889 (~3km, 8" production pipeline) PL2890 | Option E: Decommission <i>in situ</i> of all buried/trenched sections, sections under existing rock and rock, seabed surface sections lowered to below 0.6m with remedial mechanical backfilled where required | Leaving the infrastructure <i>in situ</i> clearly indicates significantly lower risks in terms of: <ul style="list-style-type: none"> • Safety of personnel • Seabed disturbance (taking into consideration new rock use) • Greenhouse gas emissions • Technical feasibility • Cost |

Table 3.4.2: Outcomes of Comparative Assessment

| | | |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(~16km, 8" water injection pipeline)</p> | | <p>Although residual risk and residual liability for these options are higher, these are reduced further by the lines being covered (PL2888 and PL2889) or trenched (PL2890) to at least 0.6m for the majority of their lengths, the level of fishing effort in the area and that fishing has occurred throughout the area, without incident for the life of the development</p> |
| <p>PLU2891 (~16km umbilical) PLU2893 (~12km umbilical)</p> | <p>Umbilical Option D: Decommission <i>in situ</i> of all trenched sections, sections under existing rock and rock, seabed surface sections lowered to below 0.6m with remedial mechanical backfilled where required</p> | <p>Leaving the infrastructure <i>in situ</i> clearly indicates significantly lower risks in terms of:</p> <ul style="list-style-type: none"> • Safety of personnel • Seabed disturbance • Greenhouse gas emissions • Technical feasibility • Cost <p>Although residual risk and residual liability for these are higher, these are reduced further by the lines being trenched to at least 0.6m for the majority of their lengths, the level of fishing effort in the area and that fishing has occurred throughout the area, without incident for the life of the development</p> |
| <p>PLU2892 (~1.5km umbilical)</p> | <p>Umbilical Sub-Option A1: Complete removal by reverse reel, including all seabed surface sections, and trenched sections (no rock present on line)</p> | <p>Short line (~1.5km), trenched at installation, not mechanically backfilled, no rock protection applied. Complete removal by reverse reel results in a higher risk to personnel off and onshore due to vessel time and quantity of material being handled, however, low technical feasibility score (routine activity, high confidence), seabed disturbance anticipated to be low/moderate (no or very little deburial expected), low cost, and removal of residual risk to fishing/other users and lower residual liability make this the preferred option.</p> |

3.5 Pipeline Stabilisation Features

| Table 3.5.1a: CAUSEWAY Pipeline Stabilisation Features | | | |
|--------------------------------------------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| Stabilisation features | Number | Option | Disposal Route |
| Concrete mattresses | 261 | <p>21 Mattresses are buried under rock (e.g. at crossings) and will be decommissioned in situ.</p> <p>24 Mattresses in Trench Transitions and to be assessed individually for abandon in situ or recovery. For any mattresses that can't be recovered, Ithaca will discuss the practicalities and reach agreement with OPRED.</p> <p>216 Mattresses are laid on the seabed. It is intended that the mattresses are recovered to shore, however in the event of practical difficulties OPRED will be consulted and an agreement reached.</p> | Recover onshore for re-use or recycling. |
| Sand bags | 360 | Full recovery. It is intended that the sand bags be recovered to shore, however in the event of practical difficulties OPRED will be consulted and a comparative assessment submitted. | Recover onshore for disposal or recycling. |
| Deposited Rock | 30,939t | Leave in situ | N/A |

Table 3.5.1b: FIONN Pipeline Stabilisation Features

| Stabilisation features | Number | Option | Disposal Route |
|------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| Concrete mattresses | 179 | <p>2 Mattresses are buried under rock and will be decommissioned in situ</p> <p>22 Mattresses in Trench Transitions and to be assessed individually for abandon in situ or recovery. For any mattresses that can't be recovered, Ithaca will discuss the practicalities and reach agreement with OPRED.</p> <p>155 Mattresses are laid on the seabed. It is intended that the mattresses are recovered to shore, however in the event of practical difficulties OPRED will be consulted and an agreement reached.</p> | Recover onshore for re-use or recycling. |
| Sand bags | 120 | Full recovery. It is intended that the sand bags be recovered to shore, however in the event of practical difficulties OPRED will be consulted and a comparative assessment submitted. | Recover onshore for disposal or recycling. |
| Deposited Rock | 1,034t | Leave in situ | n/a |

3.6 Wells

| Table 3.6: Well Plug and Abandonment |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The Causeway Field consists of one subsea production well and one water injection well. There are also 2 abandoned E&A wells.</p> |
| <p>The Fionn Field consists of one subsea production well. There is 1 abandoned E&A well.</p> |
| <p>The wells will be plugged and abandoned in accordance with Oil & Gas UK guidelines on Well Decommissioning – Issue 6 – June 2018. A PON5/Portal Environmental Tracking System (PETS)/Marine Licence application will be submitted in support of any such work that is to be carried out.</p> |

3.7 Drill Cuttings

| Table 3.7: Drill Cuttings Decommissioning Options | | | | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|---------|----------------------|---------------------|---------------------|---|
| How many drill cuttings piles are present? | | | | | | | 6 |
| Tick options examined: <input type="checkbox"/> Remove and re-inject <input checked="" type="checkbox"/> Leave in place <input type="checkbox"/> Cover <input type="checkbox"/> Relocate on seabed Remove and treat onshore <input type="checkbox"/> Remove and treat offshore <input type="checkbox"/> Other | | | | | | | |
| Review of Pile Characteristics | P1 | W1 | P2 | EA 211/22a- 7A | EA 211/22a- 8 | EA 211/22a- 9 | |
| How has the cuttings pile been screened? | Desktop | Desktop | Desktop | Desktop | Desktop | Desktop | |
| Dates of sampling (if applicable) | N/A | N/A | N/A | N/A | N/A | N/A | |
| Sampling to be included in pre-decommissioning survey? | N/A | N/A | N/A | N/A | N/A | N/A | |
| Does it fall below both OSPAR thresholds? | Y | Y | Y | Y | Y | Y | |
| Will the drill cuttings pile have to be displaced to remove the jacket? | N/A | N/A | N/A | N/A | N/A | N/A | |
| What quantity (m ³) would have to be displaced/removed? | N/A | N/A | N/A | N/A | N/A | N/A | |
| Will the drill cuttings pile have to be displaced to remove any pipelines? | N | N | N | N | N | N | |
| What quantity (m ³) would have to be displaced/removed? | N/A | N/A | N/A | N/A | N/A | N/A | |
| Have you carried out a Comparative Assessment of options for the Cuttings Pile? | N | N | N | N | N | N | |

Only water based mud cuttings were discharged to sea from the drilling of the Causeway and Fionn wells, and under OSPAR 2006/5 Stage 1 screening “Where water-based drilling fluids were used and no other discharges have contaminated the cuttings pile, no further investigation is necessary.” The cuttings present at Causeway-Fionn are therefore considered compliant and do not breach the thresholds in the OSPAR Recommendation 2006/5 guidelines and therefore no comparative assessment was required.

3.8 Waste Streams

| Table 3.8.1: Waste Stream Management Methods | |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Waste Stream | Removal and Disposal Method |
| Bulk liquids | Subsea system including pipelines, valve skid and risers will be flushed with sea water. The displaced fluids will either be sent to North Cormorant facilities or disposed of to a donor well. |
| Marine growth | Minimal marine growth present. Any marine growth that is removed offshore will be disposed of according to guidelines, otherwise residual marine fouling will be removed onshore to appropriately licenced sites and disposed of according to guidelines, company policies and under the appropriate permit. |
| NORM/LSA Scale | There is no specific record of NORM from Causeway or Fionn at North Cormorant, although North Cormorant has presence of NORM. NORM/Benzene checks will continue as part of the removal, clean-up/disposal process and any NORM encountered will be dealt with and disposed of in accordance with guidelines. |
| Asbestos | None present Any asbestos that is present will be contained and taken onshore for disposal in accordance with regulations and under appropriate permits. |
| Other hazardous wastes | Will be recovered onshore to appropriately licenced sites and disposed of according to guidelines, company policies and under the appropriate permit. |
| Onshore Dismantling sites | Only appropriately licenced sites will be considered as part of the selection process in addition the facility chosen must demonstrate proven track record of waste stream management throughout the deconstruction process. They will also be required to demonstrate their ability to deliver innovative recycling options. |

| Table 3.8.2: Inventory Disposition | | | | |
|------------------------------------|--------|-------------------------|--------------------------|----------------------|
| Inventory | Region | Total Inventory Tonnage | Planned Tonnage to shore | Planned Left in Situ |
| CAUSEWAY Installations | UK | 373.8 | 373.8 | 0 |
| CAUSEWAY Pipelines | UK | 35944.3* | 1460.4 | 34484.2* |
| FIONN Installation | UK | 159.8 | 159.8 | 0 |
| FIONN Pipelines | UK | 2379.6* | 705.0 | 1674.6* |

*Includes Deposited Rock Te

Due to the nature of the fields, reuse is unlikely.

All recovered material will be transported onshore for re-use recycling or disposal. It is not possible to predict the exact quantity of materials that will be re-used as this will depend entirely on market conditions. The figures in Table 3.8.2 are best case.

| Table 3.8.3: Re-use, Recycle & Disposal Aspirations for Material Recovered Onshore | | | | |
|------------------------------------------------------------------------------------|--------------------|--------|---------|----------|
| Inventory | Region | Re-use | Recycle | Disposal |
| CAUSEWAY Installations | UK (373.8 Tonnes) | 0 | 373.8 | 0 |
| CAUSEWAY Pipelines | UK (1460.1 Tonnes) | 0 | 165.1 | 1295.3* |
| FIONN Installation | UK (159.8 Tonnes) | 0 | 159.8 | 0 |
| FIONN Pipelines | UK (705.0 Tonnes) | 0 | 71.1 | 633.9* |

*Includes Mattresses although, subject to assessment and classification, alternatives for recycling will be sought

Please refer to the Causeway-Fionn Environmental Appraisal for further detail (Document Reference: CFI-LLA-IT-DE-RE-0002)

4.0 Environmental Appraisal Overview

The following sections are summarised from the Causeway-Fionn Decommissioning Environmental Appraisal, Document No: CFI-LLA-IT-DE-RE-0002.

4.1 Environmental Sensitivities (Summary) Potential Environmental Impacts and their Management

| Table 4.1: Environmental Sensitivities | |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Environmental Receptor | Main Features |
| Conservation interests | <p>None of the Causeway-Fionn field facilities are located within (or close to) a Special Area of Conservation (SAC) established under the Habitats Directive or Special Protection Area (SPA) under the Birds Directive. The nearest SPA is ca. 124km away, and the nearest SAC is 86km away; the nearest Nature Conservation Marine Protection Area (established under the Marine (Scotland) Act 2010 in Scottish territorial waters) is located ca. 108km away.</p> <p>The pre-decommissioning survey identified sea pens <i>Pennatula phosphorea</i> and <i>Virgularia sp</i>, mounds and burrows and that the presence of the OSPAR listed threatened and/or declining habitat “sea pens and burrowing megafauna communities” was considered likely to occur within the survey area. However, based on sediment type and surface features, the consideration is that the habitat is not present.</p> |
| Seabed | <p>Relatively flat seabed though shoals slightly to the west; water depths across the area range from a minimum of 148m at the Fionn well location (P2) and maximum of 160m at the tie in at NCP. Depressions are noted on the seabed across the area which are generally minor, isolated features with a low surface expression (most <0.5m), which are sometimes associated with higher reflectivity (i.e. indicating areas of coarser sediment) and boulders; no evidence of shallow gas or gas release that would attribute these to pockmark features. The EUNIS habitat classification records the seabed sediments predominantly deep circalittoral sand across the majority of the area, the decommissioning baseline survey identifies transitional zone of muddy, slightly gravelly sand, with varying densities of cobbles present, either side of the rock placement.</p> <p>A semi-submersible will be used to plug and abandon the wells (P1, P2 and WI1, with three rig moves required). A DSV may be used to plug and abandon the 3 x subsea appraisal wells, however, as contingency, the assessment includes the use of a semi-submersible rig for these wells too. Seabed disturbance will result from rig use, infrastructure and umbilical removal, but this is considered temporary, with recovery expected.</p> |
| Fisheries | <p>Blocks 211/23 and 211/22 are all located in ICES rectangle 51F1 and fishing effort in the area is focused on demersal species; 2019 saw an increase in landings of pelagic species compared to that seen in 2018 and 2017, both of which had low or mainly disclosive catches. Saithe, cod, ling and haddock account for the majority of the landings. The rig will be positioned in/close by to the existing 500m safety zones at P1, P2 and WI1, from which vessels are already excluded; the anchors will extend outside these zones, however, rig moves and anchor locations will be notified through the normal notification process. No additional exclusion to fisheries will result from well plug and abandonment operations. Vessels for the subsea scope of work will be on location for relatively short durations, and</p> |

Table 4.1: Environmental Sensitivities

| <p>primarily work will be carried out within existing safety zones (i.e. disconnection at wells). Once decommissioning activities have been completed, safety zones will no longer apply. Vessel movements and rig siting will be notified through normal channels and fisheries liaising will continue through the project.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Environmental Receptor | Main Features | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fish | <p>The area overlaps reported spawning grounds of Norway pout, saithe, haddock, cod and whiting (see below for timing) and also supports known nursery grounds for blue whiting, spurdog, European hake, haddock, Norway pout, herring, ling, mackerel, anglerfish and whiting. Well plug & abandonment activities will use a relatively small number and variety of chemicals; discharge of these is not likely to significantly affect fish spawning/nursery grounds. Majority of fish species spawn over wide areas. While it is recognised that vessel and other continuous noise may influence several aspects of fish behaviour, including inducing avoidance and altering swimming speed, direction and schooling behaviour, there is no evidence of mortality or potential mortal injury to fish from ship noise. Given the source level characteristics and the context of similar contributions to the ambient anthropogenic noise spectrum of the area over several decades (i.e. the oil and gas associated installations, vessels and rigs movements in and around the area), no injury or significant behavioural disturbance to fish populations is anticipated</p> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <thead> <tr style="background-color: #0070C0; color: white;"> <th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th><th></th> </tr> </thead> <tbody> <tr> <td style="background-color: #0070C0; color: white;">3</td><td style="background-color: #0070C0; color: white;">5</td><td style="background-color: #0070C0; color: white;">5</td><td style="background-color: #0070C0; color: white;">5</td><td style="background-color: #ADD8E6;">2</td><td style="background-color: #ADD8E6;">1</td><td style="background-color: #ADD8E6;">0</td><td style="background-color: #ADD8E6;">0</td><td style="background-color: #ADD8E6;">0</td><td style="background-color: #ADD8E6;">0</td><td style="background-color: #ADD8E6;">0</td><td style="background-color: #ADD8E6;">0</td><td></td> </tr> </tbody> </table> <p>Key: 1 = 1 species spawning, 2 = 2 species spawning, 3= 3 species spawning</p> | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | | 3 | 5 | 5 | 5 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | | | | | | | | | | | | | | | | |
| 3 | 5 | 5 | 5 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | |
| Marine Mammals | <p>Harbour porpoise are frequently sighted throughout the central North Sea area and are likely to be the most abundant species in this area too; while present throughout the year, peak numbers are generally recorded from June to October. White-beaked dolphins, are encountered regularly in coastal and offshore waters of the central and northern North Sea, although sightings are less common at latitudes above that of Shetland; while they can be sighted throughout the year, most frequent sightings are from July to October. Minke whales are also present, appearing to move south into the North Sea at the beginning of May and remaining until October. Several other species have been sighted in offshore waters of the northern North Sea, such as killer whale, bottlenose dolphin and beaked whales, but infrequently and/or in small numbers only. The area is distant from seal breeding colonies and haul-out sites; models based on tagging data suggest very low densities of both grey and harbour seal in the area.</p> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <thead> <tr style="background-color: #0070C0; color: white;"> <th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th><th></th> </tr> </thead> <tbody> <tr> <td style="background-color: #ADD8E6;"></td><td style="background-color: #ADD8E6;"></td><td style="background-color: #ADD8E6;"></td><td style="background-color: #ADD8E6;"></td><td style="background-color: #ADD8E6;"></td><td style="background-color: #0070C0;"></td><td style="background-color: #0070C0;"></td><td style="background-color: #0070C0;"></td><td style="background-color: #0070C0;"></td><td style="background-color: #0070C0;"></td><td style="background-color: #ADD8E6;"></td><td style="background-color: #ADD8E6;"></td><td></td> </tr> </tbody> </table> <p>Key: Darker colour reflects months when marine mammals most frequently observed</p> | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | | | | | | | | | | | | | | |
| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 4.1: Environmental Sensitivities

| Environmental Receptor | Main Features | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|-----|--|---|---|---|---|---|---|---|---|---|---|---|---|--------|---|---|---|---|---|---|---|---|---|---|---|---|--------|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| Onshore Communities | <p>The impact of the disposal of waste from the decommissioning activities on onshore communities would be slightly beneficial as it will contribute to job continuation. However, this is expected to be small as the site used will be an existing site and the volume of waste returned is relatively small.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Birds | <p>The area may be considered to be of low importance for seabirds in the context of the North Sea as a whole – this is related to the distance from breeding colonies (Causeway-Fionn is >124km from shore) and the availability of prey species (e.g. inshore areas around Shetland are of much greater importance, with only a few species breeding at colonies in Shetland with mean maximum foraging ranges exceeding 100km, e.g. northern gannet, northern fulmar, black-legged kittiwake). Species present vary seasonally and being far offshore, the birds present in the area are likely to be (predominately) those transiting through the area during migration, post breeding dispersion from colonies.</p> <p>The Seabird Oil Sensitivity Index (SOSI) has been developed based on previous indices and with method refining. Where there is no data coverage the JNCC guidance is used to reduce the extent of coverage gaps (these are shown in red). Where these could not be reduced, these are shown with N and highlighted Yellow. For the Blocks of interest, seabird sensitivity is low, for those months with data, with the exception of Dec for Block 211/23 where sensitivity is high and Sept and Dec for Block 211/22 which is moderate.</p> <table border="1" data-bbox="472 1077 1424 1224"> <thead> <tr> <th>Jan</th> <th>Feb</th> <th>Mar</th> <th>Apr</th> <th>May</th> <th>Jun</th> <th>Jul</th> <th>Aug</th> <th>Sep</th> <th>Oct</th> <th>Nov</th> <th>Dec</th> <th></th> </tr> </thead> <tbody> <tr> <td>5</td> <td>5</td> <td>5</td> <td>5</td> <td>N</td> <td>5</td> <td>5</td> <td>5</td> <td>5</td> <td>5</td> <td>5</td> <td>5</td> <td>211/21</td> </tr> <tr> <td>5</td> <td>5</td> <td>5</td> <td>5</td> <td>N</td> <td>5</td> <td>5</td> <td>5</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> <td>211/22</td> </tr> <tr> <td>5</td> <td>5</td> <td>5</td> <td>5</td> <td>N</td> <td>5</td> <td>5</td> <td>5</td> <td>5</td> <td>5</td> <td>3</td> <td>3</td> <td>211/23</td> </tr> </tbody> </table> <p>Key 1=Extremely High. 2= Very High. 3=High. 4= Medium; 5=Low N = No data (Webb et al 2016). Note, where there is no coverage, these are highlighted yellow, if they have numbers marked in red, either Step 1 (adjacent months) or 2 (adjacent blocks) from the JNCC guidance *has been used to help reduce the extent of coverage gaps (JNCC 2017).</p> | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | | 5 | 5 | 5 | 5 | N | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 211/21 | 5 | 5 | 5 | 5 | N | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 211/22 | 5 | 5 | 5 | 5 | N | 5 | 5 | 5 | 5 | 5 | 3 | 3 | 211/23 |
| Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 5 | 5 | 5 | N | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 211/21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 5 | 5 | 5 | N | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 211/22 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 5 | 5 | 5 | N | 5 | 5 | 5 | 5 | 5 | 3 | 3 | 211/23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Other Users of the Sea | <p>Fishing effort is discussed under fisheries above.</p> <p>The area is within a wider mature oil and gas province, with considerable infrastructure in adjacent Blocks and the wider area. Shipping density is low, with these predominantly associated with vessels servicing the oil and gas industry. There are no Ministry of Defence exercise areas, dredging areas, or marine disposal sites in the vicinity and there are no telecommunication cables within the Blocks. There are no designated protected wrecks in the Causeway-Fionn area. Well plug & abandonment activities will be carried out, with the rig positioned in/close by to the existing 500m safety zones. Once decommissioning activities complete, safety zones will no longer apply. A vessel traffic survey will be carried out to support consent to locate applications</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 4.1: Environmental Sensitivities (cont.)

| Environmental Receptor | Main Features |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Atmosphere | Emissions will be generated from fuel combustion on the various vessels involved in the decommissioning, and primarily comprise carbon dioxide (CO ₂), carbon monoxide (CO), oxides of nitrogen (NO _x), sulphur dioxide (SO ₂), methane (CH ₄) and volatile organic compounds (VOCs). Although minor, emissions will contribute both to localised and short-term increases in atmospheric pollutants, and to global atmospheric GHG concentrations. In the context of wider UK emissions these effects are considered to be negligible, and there will be a minor positive benefit from the return of recyclable materials to shore which will have a future use and offset the extraction and transport of primary raw materials. Overall effects are considered to be negligible and temporary. |

Fugro (2020). Causeway-Field and Fionn Field Pre-decommissioning; Volume 2, Environmental Baseline Survey Report. Document number: CFI-LLA-DE-RE-0002 Rev 02

*JNCC (2017). Using the Seabird Oil Sensitivity Index to inform contingency planning (updated guidance to reduce data coverage gaps).
<http://jncc.defra.gov.uk/PDF/Using%20the%20SOSI%20to%20inform%20contingency%20planning%202017.pdf>

Webb A, Elgie M, Irwin C, Pollock C & Barton C (2016). Sensitivity of offshore seabird concentrations to oil pollution around the United Kingdom. Report to Oil and Gas UK, 102pp.

4.2 Potential Environmental Impacts and their Management

Environmental Impact Assessment Summary:

An ENVID was conducted where the decommissioning activities were systematically considered for their potential interactions with the environment and in the context of legislative and policy requirements. Following the ENVID, the EA took both qualitative and quantitative approaches to the identification of the likely magnitude of effects, as appropriate and then further assessed those impacts identified as potentially significant. Impacts that were screened out as considered minor included: drill rig movement (tow in/out); physical presence of the rig/vessels (for well plug and abandonment and subsea campaign); discharges to sea; underwater noise (rig and vessel noise only, there is no planned use of explosives and all noise sources will be of a non-pulsed/continuous nature); surface lighting and presence and degradation of material left in situ. Considerations for screening these out are detailed in the supporting EA. The potentially significant impacts and their management are described below.

After assessment of these impacts and the application of operational controls, or mitigation as required, the conclusion of the EA is that the Causeway-Fionn decommissioning activities will not result in a significant impact on the marine environment, or other users of the marine environment.

Table 4.2: Environmental Impact Management

| Activity | Main Impacts | Management |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Topside removal | N/A | N/A |
| Jacket(s)/Floating Facility Removal | N/A | N/A |
| Subsea Installation(s) Removal | Seabed disturbance will result in direct physical effects on benthic communities (i.e. mortality) as a result of physical trauma, smothering by re-suspended sediments. Disturbance limited to the benthic fauna colonising the hard surfaces of material to be lifted, and immediately around the subsea structures. | Causeway-Fionn is not located within, or near any designated sites and therefore, none of the decommissioning activities are expected to have any impact on any designated site in the wider area. The dominant fraction in the sediment is sand (>80%) and from the pre-decommissioning survey information, there is no evidence of large burrows or ejecta mounds, a characteristic of 'sea-pen and burrowing megafauna communities', the habitat 'sea-pen and burrowing megafauna communities' is not considered present. |
| Decommissioning Pipelines | Seabed disturbance will result in direct physical effects on benthic communities (i.e. mortality) as a result of physical trauma, smothering by excavated and re- | The spatial extent of disturbance for decommissioning Causeway-Fionn pipelines is limited to a relatively small area, as the majority of the pipelines are being decommissioned in situ. Causeway-Fionn is not located within or near any |

| | | |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | suspended sediments. Disturbance limited to the benthic fauna along the recovered umbilical route, and buried pipeline ends for those decommissioned in situ. | designated sites and the habitat 'sea-pen and burrowing megafauna communities' is not considered present. |
| Decommissioning Stabilisation Features | Seabed disturbance will result in direct physical effects on benthic communities (i.e. mortality) as a result of physical trauma, smothering by excavated and re-suspended sediments. Disturbance limited to the benthic fauna colonising the hard surfaces of the protective material to be recovered. | The spatial extent of disturbance for decommissioning stabilisation features is limited to relatively small, localised areas where protective material is being recovered (rock and mattresses covered by the rock are to be decommissioned in situ, leaving any benthic fauna which have colonised these areas, undisturbed) Causeway-Fionn is not located within or near any designated sites and the habitat 'sea-pen and burrowing megafauna communities' is not considered present. |
| Decommissioning Drill Cuttings | N/A | N/A |

5.0 Interested Party Consultations

Consultations Summary:

During the public consultation period, copies of the Decommissioning Programmes and supporting documents will be forwarded to the following Statutory Consultees:

1. The National Federation of Fishermen's Organisations (NFFO);
2. The Scottish Fisherman's Federation (SFF)
3. The Northern Ireland Fish Producers Organisation (NIFPO)
4. Global marine systems Limited (GMS).

Meetings and telephone calls have been held with the above to advise of progress and to provide more detail of the proposals.

Copies of the Decommissioning Programmes and supporting documents will be available for viewing at Ithaca's office at Hill of Rubislaw, Aberdeen, AB15 6XL, United Kingdom.

A public notice will be published in the Press & Journal and the Telegraph. Please refer to Appendix A for a copy of the public notice. The public notice gives instructions for representations to be made in writing.

| Table 5.1 Summary of Stakeholder Comments | | |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Who | Comment | Response |
| Informal Consultations | | |
| Partners | NEO (Partner in Causeway) issued draft Decommissioning Programme & Comparative Assessment in Dec 2020 | No comments received to date. |
| JNCC | Presented outcome of CA and proposed decommissioning methodology during virtual meeting | Positive feedback from initial informal consultation, noted that sea pens and burrows were identified during pre-decommissioning survey and that this should be included in the environmental assessment and would appreciate details of how CA options assessed. No further comments at that time. |
| OPRED (Environmental Management Team & Offshore Environmental Inspectorate) | Presented outcome of CA and proposed decommissioning methodology during virtual meeting. | Positive feedback from initial informal consultation, no comments received at that time. |
| Scottish Fishermen's Federation | Presented outcome of CA and proposed decommissioning methodology during virtual meeting | Positive feedback from initial informal consultation. SFF advised that UK and non-UK vessels utilise the area and the presence of existing hard substrate throughout the area was also confirmed; the main vessels operating there are the larger boats, with larger gear designed to account for this. No further comments at this time. |
| Statutory Consultations | | |
| Scottish Fishermen's Federation | | |
| National Federation of Fishermen's Organisations | | |
| Northern Irish Fish Producers Organisation | | |
| Global Marine Systems Ltd | | |
| Public | | |

6.0 Programme Management

6.1 Project Management and Verification

A Project Management team will be appointed to manage suitable sub-contractors for the removal of the subsea installations and pipelines. Standard procedures for operational control and hazard identification and management will be used. The Management team will monitor and track the process of permits and consents and the consultations required as part of this process. Any changes in detail to the offshore removal programme will be discussed and agreed with OPRED.

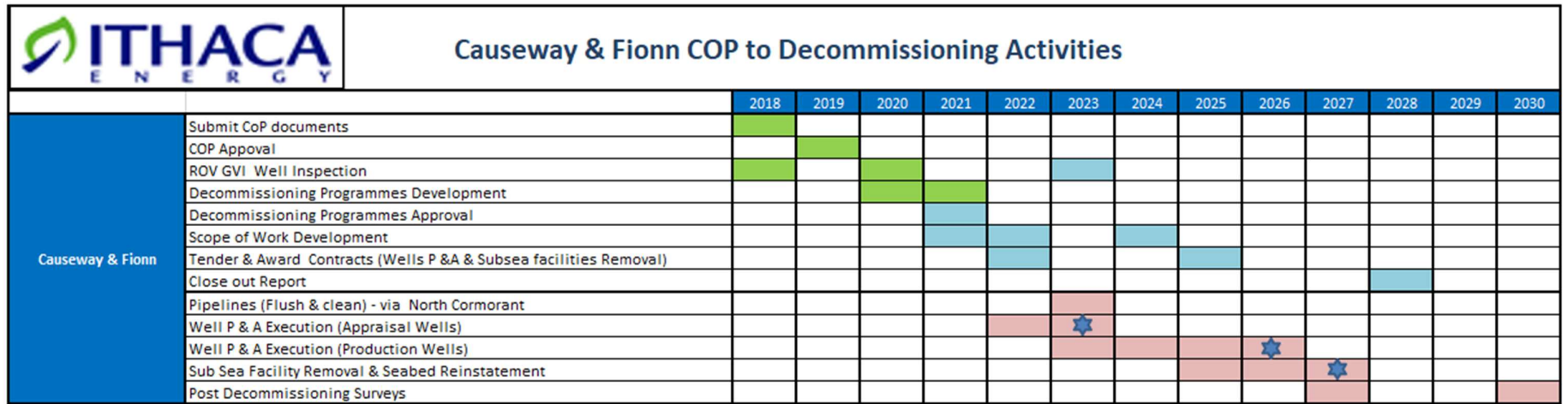
6.2 Post-Decommissioning Debris Clearance and Verification

A post decommissioning site survey will be carried out around the 500m radius of the respective Wells and the approaches to the North Cormorant platform, the latter of these to be carried out in consultation with TAQA and along a (minimum) 100m (50m either side) corridor along the pipeline/umbilical routes. The initial survey approach will be to use ROV/cameras to validate no potential hazards are present after decommissioning activities have been completed. If alternative methods are required, i.e. an over-trawlability survey, this will be discussed with the Regulator.

Any seabed debris related to offshore oil and gas activities will be recovered for onshore disposal or recycling in line with existing disposal methods. This will be followed by a statement of clearance to all relevant governmental departments and non- governmental organisations.

6.3 Schedule

Figure 6.1: Gant Chart of Project Plan



6.4 Costs

| Table 6.4: – Provisional Decommissioning Programmes Costs | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Item | Estimated Cost (£m) |
| Topsides and jacket Preparation & Removal | N/A |
| Pipelines Decommissioning | Submitted separately to OPRED |
| Subsea Installations and Stabilisation Features removal | |
| Well Abandonment | Submitted separately to OPRED |
| Continuing Liability – Future Pipeline and Environmental Survey Requirements NB: Any further post decommissioning surveys will be discussed and agreed with OPRED. | Submitted separately to OPRED |
| TOTAL | |

6.5 Close Out

In accordance with the OPRED Guidelines, a close out report will be submitted to OPRED explaining any variations from the Decommissioning Programmes within 12 months of the completion of the offshore decommissioning scope, including debris removal, independent verification of seabed clearance and the first post-decommissioning environmental survey.

6.6 Post-Decommissioning Monitoring and Evaluation

A post decommissioning environmental seabed survey, centred on the 500m safety zones at the Well locations, and the approaches to North Cormorant, in consultation with TAQA and along the pipeline routes, will be conducted when the decommissioning activity has been concluded. The survey will focus on chemical and physical disturbances resulting from the decommissioning activities and be compared with the pre-decommissioning survey. Results of this survey will be available once the work is complete, with a copy forwarded to OPRED. After the surveys have been sent to OPRED and reviewed, a suitable risk based monitoring programme, taking into consideration the depth of burial/trenching of pipeline material left in place, data from pre and post decommissioning surveys, along with historic data, and potential fisheries impact, will be agreed by both parties.

6.7 Management of Residual Liability

A full statement on legacy and liability management will be provided in the close out report.

7.0 Supporting Documents

| Table 7.1 Supporting Documents | |
|--------------------------------|-------------------------|
| Document Number | Title |
| CFI-LLA-IT-DE-RE-0001 | Comparative Assessment |
| CFI-LLA-IT-DE-RE-0002 | Environmental Appraisal |

8.0 Partner Letters of Support

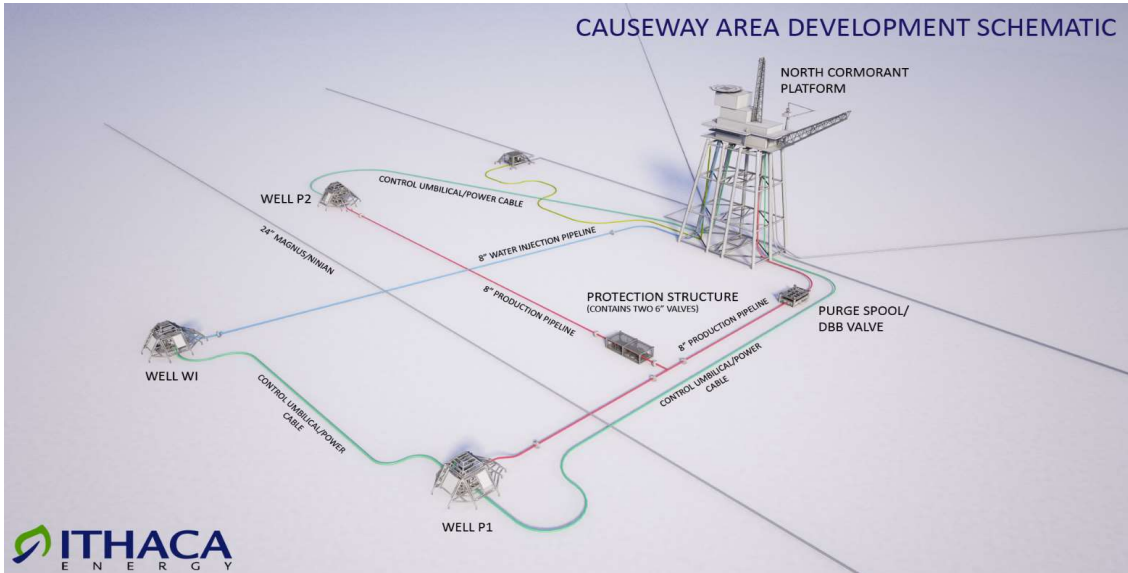
See Appendix C

- Note: This will be included after completion of external consultation process.

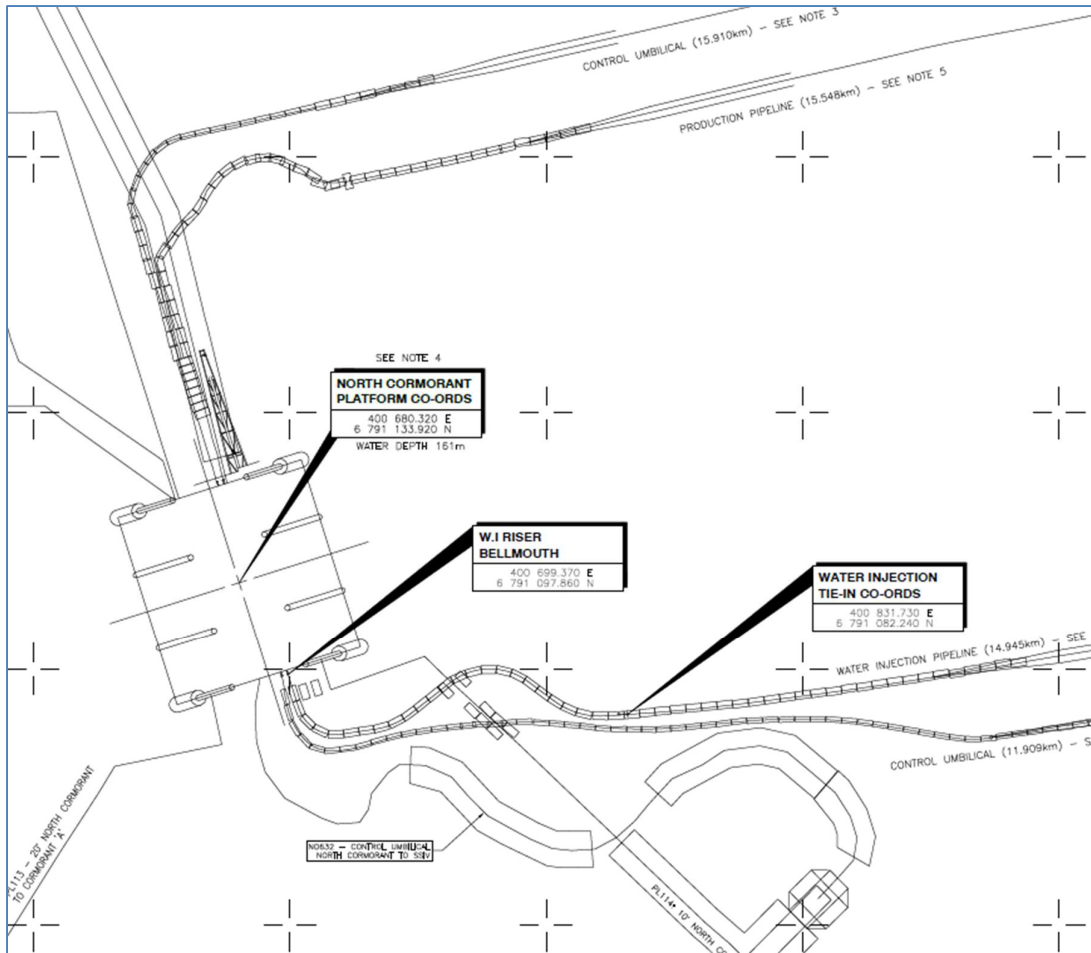
Appendix A; Public Notice

Copies of Public Notices will be appended once published

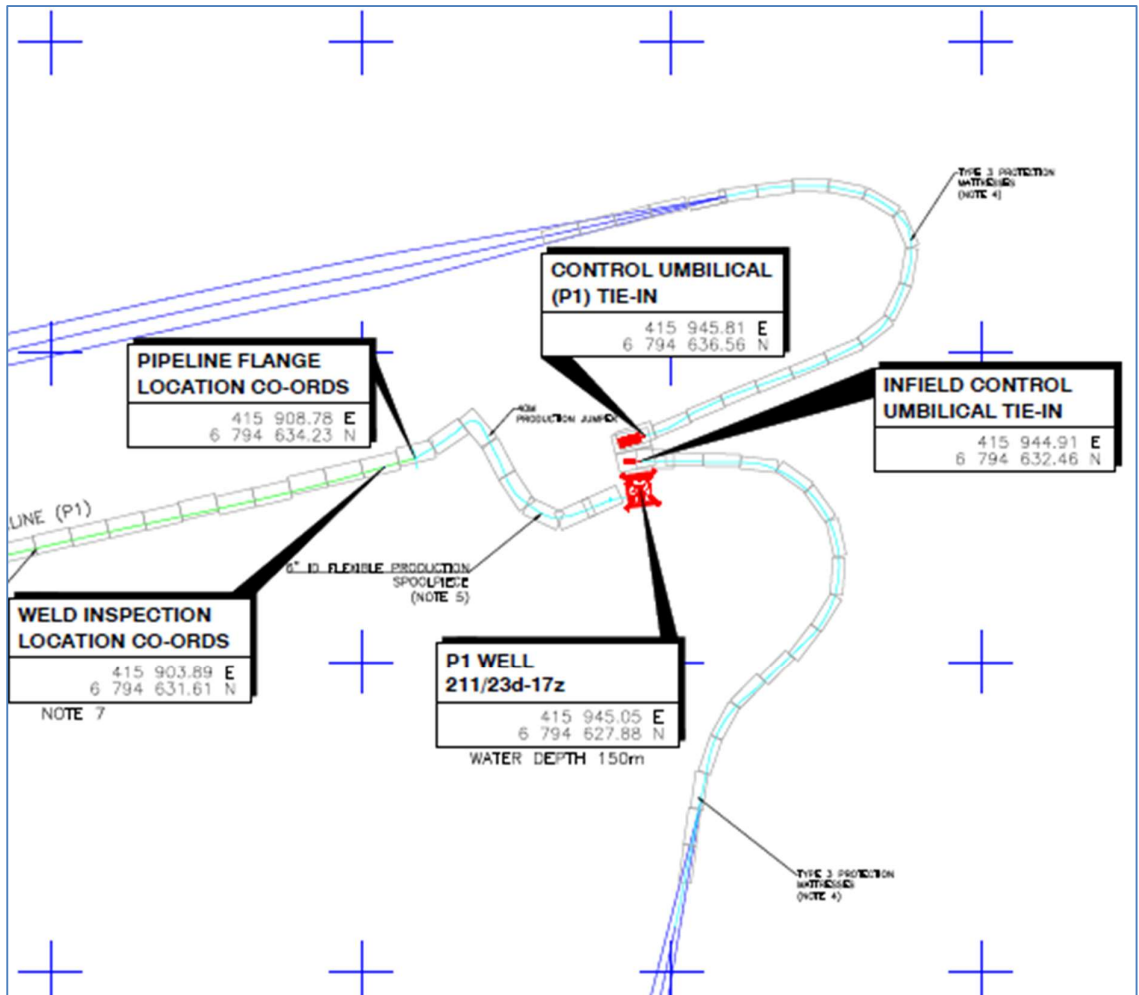
Appendix B; CFI Overall Subsea Layout



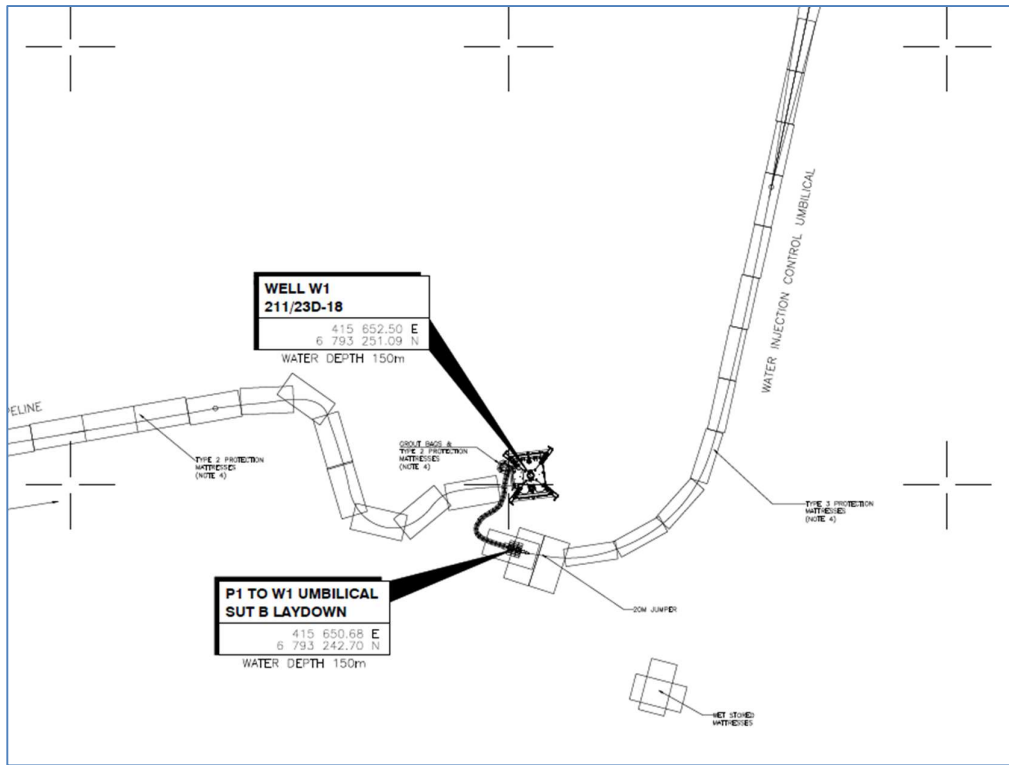
Appendix B; North Cormorant Pipeline Approaches and Stabilisation Features



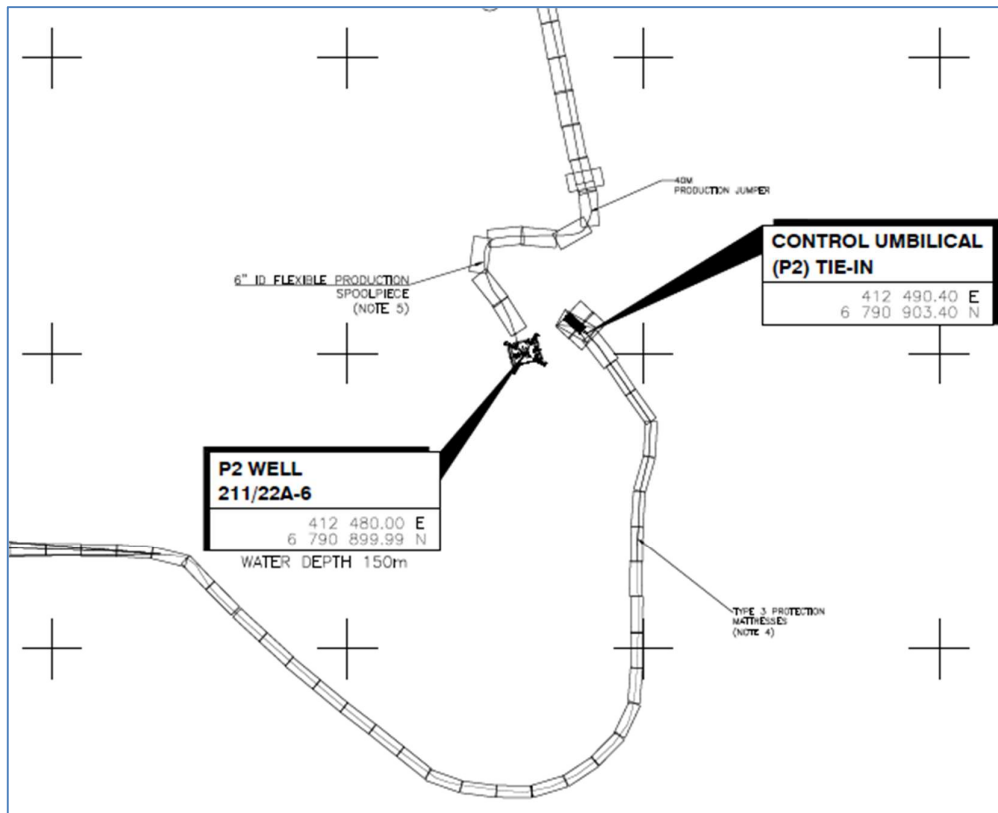
Appendix B; Causeway P1 Well, Pipeline Approaches and Stabilisation Features



Appendix B; CAUSEWAY WI Well, Pipeline Approaches and Stabilisation Features



Appendix B; FIONN P2 Well, Pipeline Approaches and Stabilisation Features



Appendix C; Partners Letters of Support

Copies of Partner Letters will be appended once received