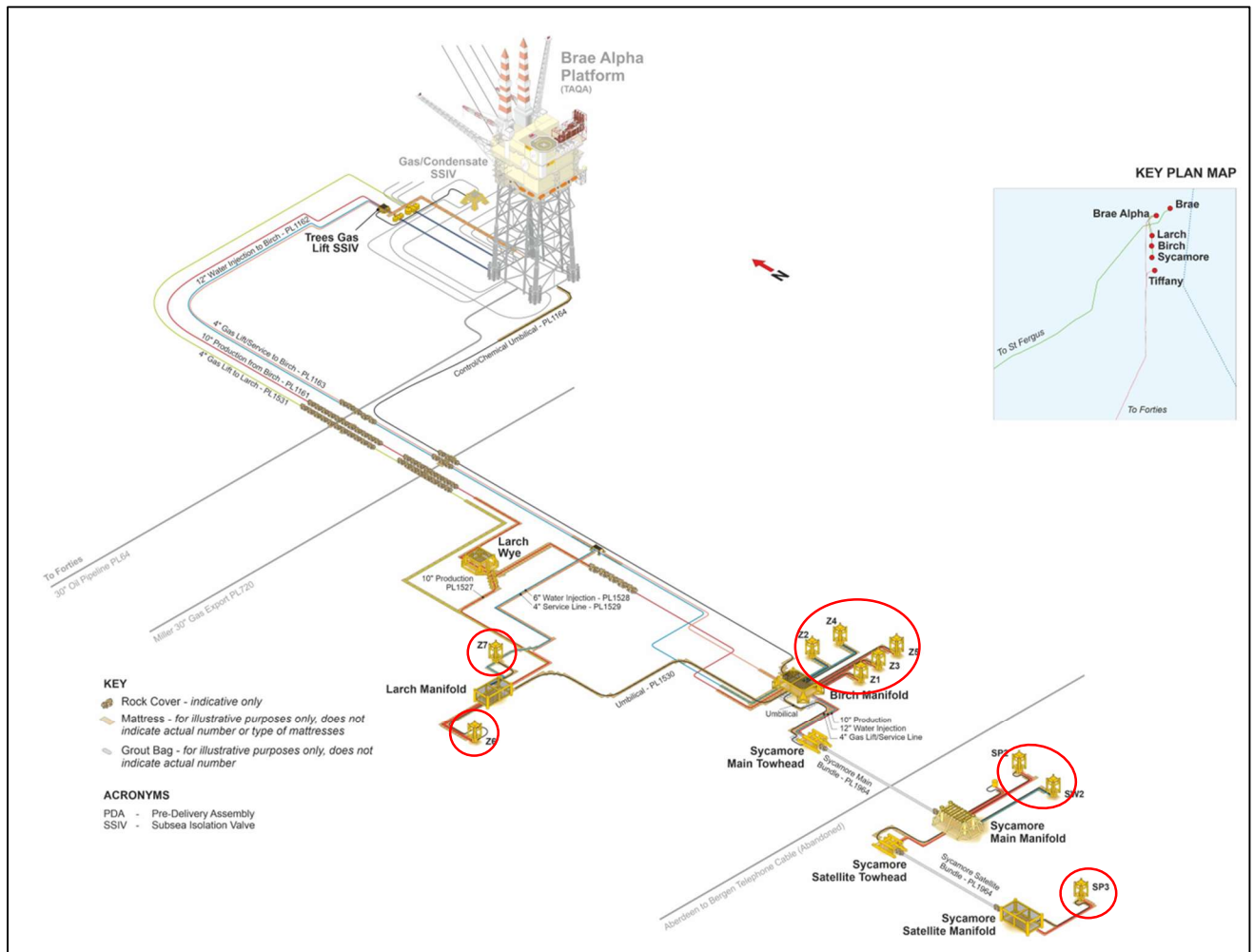


# Trees Protection Cages Decommissioning Programmes (Birch, Larch and Sycamore)



Consultation Draft



## DOCUMENT CONTROL

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<b><u>TABLE OF CONTENTS</u></b>		<b><u>INST</u></b>
<b>1.</b>	<b>Executive Summary ..... 6</b>	
1.1	Installation Decommissioning Programmes..... 6	✓
1.2	Requirement for Decommissioning Programmes ..... 6	✓
1.3	Introduction ..... 6	✓
1.4	Birch Field – Overview ..... 7	✓
1.5	Larch Field – Overview ..... 8	✓
1.6	Sycamore Field – Overview ..... 8	✓
1.7	Summary of Proposed Decommissioning Programmes ..... 9	✓
1.8	Field Locations including Field Layout and Adjacent Facilities ..... 10	✓
1.9	Industrial Implications..... 16	✓
<b>2.</b>	<b>Description of Items to Be Decommissioned ----- 17</b>	
2.1	Birch Field..... 17	✓
2.2	Larch Field ..... 19	✓
2.3	Sycamore Field ..... 21	✓
<b>3.</b>	<b>Removal and Disposal Methods ----- 23</b>	
3.1	Subsea Installations & Stabilisation Features..... 23	✓
3.2	Wells..... 23	✓
3.3	Waste Streams ..... 24	✓
<b>4.</b>	<b>Environmental Appraisal ----- 25</b>	
4.1	Environmental Sensitivities (Summary)..... 25	✓
4.2	Potential Environmental Impacts and their Management..... 26	✓
<b>5.</b>	<b>Interested Party Consultations ----- 28</b>	
5.1	Overview..... 28	✓
5.2	Consultation Summary..... 28	
<b>6.</b>	<b>Programme Management----- 29</b>	✓
6.1	Project Management and Verification..... 29	✓
6.2	Post-Decommissioning Debris Clearance and Verification ..... 29	✓
6.3	Schedule..... 29	✓
6.4	Costs ..... 29	✓
6.5	Close Out..... 30	✓
6.6	Post-Decommissioning Monitoring and Evaluation..... 30	✓
	<b>APPENDIX B Public Notices and Consultee Correspondence----- 31</b>	



## **FIGURES AND TABLES**

Figure 1.8.1: Field Location in UKCS.....	10
Figure 1.8.2: Trees Fields Adjacent Facilities .....	11
Figure 1.8.3: Trees Field Prior to Decommissioning Activity .....	12
Figure 1.8.4: Birch Manifold & Wells (Red Circle = XT with Protection Cage).....	13
Figure 1.8.5: Larch Gas Lift & Production Manifold & Wells (Red Circle = XT with Protection Cage) .....	13
Figure 1.8.6: Sycamore Main Manifold & Wells (Red Circles = XT with Protection Cage).....	14
Figure 1.8.7: Sycamore Satellite Manifold & Wells (Red Circles = XT with Protection Cage).....	14
Figure 2.1.1: Birch Inventory Estimate (Installations).....	18
Figure 2.2.1: Larch Inventory Estimate (Installations) .....	20
Figure 2.3.1: Sycamore Inventory Estimate (Installations).....	22
Figure 6.3.1: Gantt Chart of Project Plan.....	29
Table 1.4.1: Birch Installations Being Decommissioned.....	7
Table 1.4.2: Birch Installations Section 29 Notice Holders Details .....	7
Table 1.5.1: Larch Installations Being Decommissioned.....	8
Table 1.5.2: Larch Installations Section 29 Notice Holders Details .....	8
Table 1.6.1: Sycamore Installations Being Decommissioned.....	8
Table 1.6.2: Sycamore Installations Section 29 Notice Holders Details .....	9
Table 1.7.1: Summary of Decommissioning Programmes .....	9
Table 1.8.1: Adjacent Facilities.....	15
Table 2.1.1: Birch Subsea Installations and Stabilisation Features.....	17
Table 2.1.2: Birch Field Well Information .....	17
Table 2.2.1: Larch Subsea Installations and Stabilisation Features .....	19
Table 2.2.2: Larch Field Well Information .....	19
Table 2.3.1: Sycamore Subsea Installation Features.....	21
Table 2.3.2: Sycamore Field Well Information .....	21
Table 3.1.1: Subsea Installations and Stabilisation Features Decommissioning Options .....	23
Table 3.2.1: Well Decommissioning .....	23
Table 3.3.1: Waste Stream Management Methods.....	24
Table 3.3.2: Trees Fields Inventory Disposition .....	24
Table 3.3.3: Re-use, Recycle & Disposal Aspirations for Recovered Material .....	24
Table 4.1.1: Environmental and Societal Sensitivities.....	25
Table 4.2.1: Environmental Impact Management .....	26
Table 5.1.1: Summary of Stakeholder Comments .....	28



## **TABLE OF TERMS AND ABBREVIATIONS**

<b>ABBREVIATION</b>	<b>EXPLANATION</b>
~	Approximately
Brae A	TAQA Operated Brae Alpha Platform that Birch, Larch & Sycamore are tied-back to
CoP	Cessation of Production
DSV	Diving Support Vessel
FPSO	Floating, Production, Storage, Offloading (Vessel)
GMG	Global Marine Group
HSE	Health and Safety Executive
INST	Ticked if applicable to Installations in the Table of Contents
kg	Kilogramme
km	Kilometre
m	Metre(s)
MAT	Master Application Template
N, S, E, W	North, South, East, West
n/a	Not Applicable
NFFO	National Federation of Fishermen's Organisations
NIFPO	Northern Ireland Fish Producers' Organisation
NORM	Naturally Occurring Radioactive Material
NSTA	North Sea Transition Authority
OEUK	Offshore Energies UK
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSPAR	The Convention for the Protection of the Marine Environment of the North-East Atlantic
PL	Pipeline Identification numbers (UK)
PWA	Pipeline Works Authorisation
SFF	Scottish Fishermen's Federation
SMM	Sycamore Main Manifold
SMT	Sycamore Main Towhead
SP#, SW#, Z#	Production & Water Injection Well Identifier
Spirit Energy	Spirit Energy North Sea Oil Limited
SSIV	Subsea Isolation Valve
SSM	Sycamore Satellite Manifold
SST	Sycamore Satellite Towhead
SUTB	Subsea Umbilical Termination Box
Te	Metric Tonne
TFSW	Trans Frontier Shipment of Waste
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
WGS84	World Geodetic System 1984
WONS	Well Operations Notification System
WHPS	Wellhead Protection Structure
XT	Xmas Tree



## **1. EXECUTIVE SUMMARY**

### **1.1 Installation Decommissioning Programmes**

This document contains three Decommissioning Programmes, one for each set of notices under Section 29 of the Petroleum Act 1998. The Decommissioning Programmes are:

- Integral protection cages associated with 5 x Xmas Trees (XTs) at the Birch field
- Integral protection cages associated with 2 x XTs at the Larch field
- Integral protection cages associated with 3 x XTs at the Sycamore field

Manifolds, satellite manifolds and stabilisation materials associated with Birch, Larch and Sycamore will be covered under a separate Decommissioning Programme. Pipelines associated with Birch and Larch and the two associated pipeline bundles for Sycamore i.e. Sycamore Main Bundle and Sycamore Satellite Bundle will be covered under a separate Decommissioning Programme.

Although decommissioning of the installations is being treated in this document as a standalone project, Spirit Energy North Sea Oil Limited (Spirit Energy) will continue to explore cost saving synergies with other projects.

### **1.2 Requirement for Decommissioning Programmes**

In accordance with the Petroleum Act 1998, Spirit Energy as operator of the Birch, Larch and Sycamore installations/fields, and on behalf of the Section 29 notice holders (see Table 1.4.2, Table 1.5.2 & Table 1.6.2), are applying to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to obtain approval for decommissioning the installations as detailed in Section 2 of this document.

In conjunction with public, stakeholder and regulatory consultation, the Decommissioning Programmes are submitted in compliance with national and international regulations and OPRED Guidance Notes. The schedule outlined in this document is for completion earliest in 2023, as part of the well plug and abandonment programme at the Trees development.

### **1.3 Introduction**

#### **1.3.1 General**

The Trees development is located in UK Central North Sea block 16/12a (Licence P.212), comprising of Birch, Larch, Sycamore Central and Sycamore South – in water depths around 125m. The field is owned and operated by Spirit Energy and is approximately 215km North East of Peterhead. In order to facilitate well decommissioning activity, the integral protection cages associated with the XTs are required to be removed.

Pipelines, bundles, manifold structures and stabilisation materials are not being decommissioned at this time.

This Decommissioning Programme explains the principles of the removal activities and includes an assessment of the key environmental impacts and mitigations (Section 4).



### 1.3.2 Reasons for Decommissioning

CoP took place at Larch on 24<sup>th</sup> January 2023 and at Birch on 15<sup>th</sup> November 2020. Subsea wells associated with Sycamore have ceased production and are in the process of being plugged and abandoned. One platform based well (South Sycamore) located on Tiffany, operated by CNR International (U.K.) Limited will be subject to future decommissioning plans.

The Birch field has had restricted uptime since 2016, largely owing to issues at the Brae Alpha facilities and the low arrival temperature of the producing wells. Work has been carried out to assess the potential of reinstating production from existing wells, as well as drilling additional wells, but no economic opportunities have been identified.

The Sycamore field has been offline since 2012, largely owing to a decline in oil rates. Work has been carried out to assess the potential of reinstating production from existing wells, as well as drilling additional wells, but no economic opportunities have been identified.

The Larch field has had restricted uptime since 2019, largely owing to issues at the Brae Alpha facilities and the low arrival temperature of the producing wells. Work has been carried out to assess the potential of reinstating production from existing wells, as well as drilling additional wells, and separator modifications, however no economic opportunities have been identified.

## 1.4 Birch Field – Overview

### 1.4.1 Birch Field – Installations

Table 1.4.1: Birch Installations Being Decommissioned			
Field(s):	Birch	Production Type	Oil
Water Depth (m)	127.7	UKCS Block	16/12a
Subsea Installation(s)		Number of Wells	
Number	Type	Platform	Subsea
5	XT with integral protection cage	n/a	5
Drill Cuttings Piles <sup>1</sup>		Distance to Median	Distance from nearest UK coastline
Number of Piles	Total Estimated Volume (m <sup>3</sup> )	km	km
1	464	~14km	~209km

Table 1.4.2: Birch Installations Section 29 Notice Holders Details		
Section 29 Notice Holder	Registration Number	Equity Interest (%)
CNR International (U.K.) Limited	00813187	0%
PRIME AEP Limited	00307812	0%
GB Gas Holdings Limited	03186121	0%
Ithaca MA Limited	03947050	0%
Spirit Energy North Sea Oil Limited	SC210361	100%
Suncor Energy UK Limited	00972618	0%

<sup>1</sup> Volume of cuttings pile based upon existing survey data. The drill cuttings pile is not being addressed as part of this decommissioning programme.



## 1.5 Larch Field – Overview

### 1.5.1 Larch Field – Installations

Table 1.5.1: Larch Installations Being Decommissioned			
Field(s):	Larch	Production Type	Oil
Water Depth (m)	126.5	UKCS Block	16/12a
Subsea Installation(s)		Number of Wells	
Number	Type	Platform	Subsea
2	XT with integral protection cage	n/a	2
Drill Cuttings Piles		Distance to Median	Distance from nearest UK coastline
Number of Piles	Total Estimated Volume (m <sup>3</sup> )	km	km
n/a	n/a	n/a	n/a

Table 1.5.2: Larch Installations Section 29 Notice Holders Details		
Section 29 Notice Holder	Registration Number	Equity Interest (%)
CNR International (U.K.) Limited	00813187	0%
PRIME AEP Limited	00307812	0%
GB Gas Holdings Limited	03186121	0%
Ithaca MA Limited	03947050	0%
Spirit Energy North Sea Oil Limited	SC210361	100%
Suncor Energy UK Limited	00972618	0%

## 1.6 Sycamore Field – Overview

### 1.6.1 Sycamore Field – Installations

Table 1.6.1: Sycamore Installations Being Decommissioned			
Field(s):	Sycamore	Production Type	Oil
Water Depth (m)	126.2	UKCS Block	16/12a
Subsea Installation(s)		Number of Wells	
Number	Type	Platform	Subsea
3	3 x XT with integral protection cage	n/a	3
Drill Cuttings Piles <sup>2</sup>		Distance to Median	Distance from nearest UK coastline
Number of Piles	Total Estimated Volume (m <sup>3</sup> )	km	km
1	684	~14km	~209km

<sup>2</sup> Volume of cuttings pile based upon existing survey data. The drill cuttings pile is not being addressed as part of this decommissioning programme.



**Table 1.6.2: Sycamore Installations Section 29 Notice Holders Details**

Section 29 Notice Holder	Registration Number	Equity Interest (%)
GB Gas Holdings Limited	03186121	0%
Spirit Energy North Sea Oil Limited	SC210361	100%

## 1.7 Summary of Proposed Decommissioning Programmes

**Table 1.7.1: Summary of Decommissioning Programmes**

Selected Option	Reason for Selection	Proposed Decommissioning Solution
<b>1. Subsea Installation(s)</b>		
Complete removal and recycling onshore.	Minimises safety risk to offshore and onshore personnel, minimises vessel emissions and seabed disturbance. Snagging hazards are removed and the seabed is clear for all users of the sea. Maximises recycling of materials.	All subsea XTs and protection cages will be completely removed from the seabed and recovered to shore for recycling.
<b>2. Wells</b>		
The wells will be plugged and abandoned to comply with HSE "Offshore Installations and Wells (Design and Construction, etc.) Regulations 1996" and in accordance with the latest edition of OEUK Guidelines for the Abandonment of Wells.	Meets the NSTA and HSE regulatory requirements.	A Master Application Template (MAT) and the supporting Subsidiary Application Template (SAT) will be submitted in support of activities carried out. A PON5 will also be submitted to NSTA for application to abandon the wells. Additionally, planned work will be reviewed by a well examiner then submitted to the HSE for review.
<b>3. Interdependencies</b>		
An assessment of alternative uses has been made for the Birch, Larch and Sycamore XTs and there were no options that were considered economically viable. Due to timescales of decommissioning, separate decommissioning programmes will be submitted for the pipeline infrastructure and stabilisation materials. The drill cuttings will be considered at this time. No third-party infrastructure or pipeline crossings will be impacted as a result of the decommissioning proposals.		



## 1.8 Field Locations including Field Layout and Adjacent Facilities

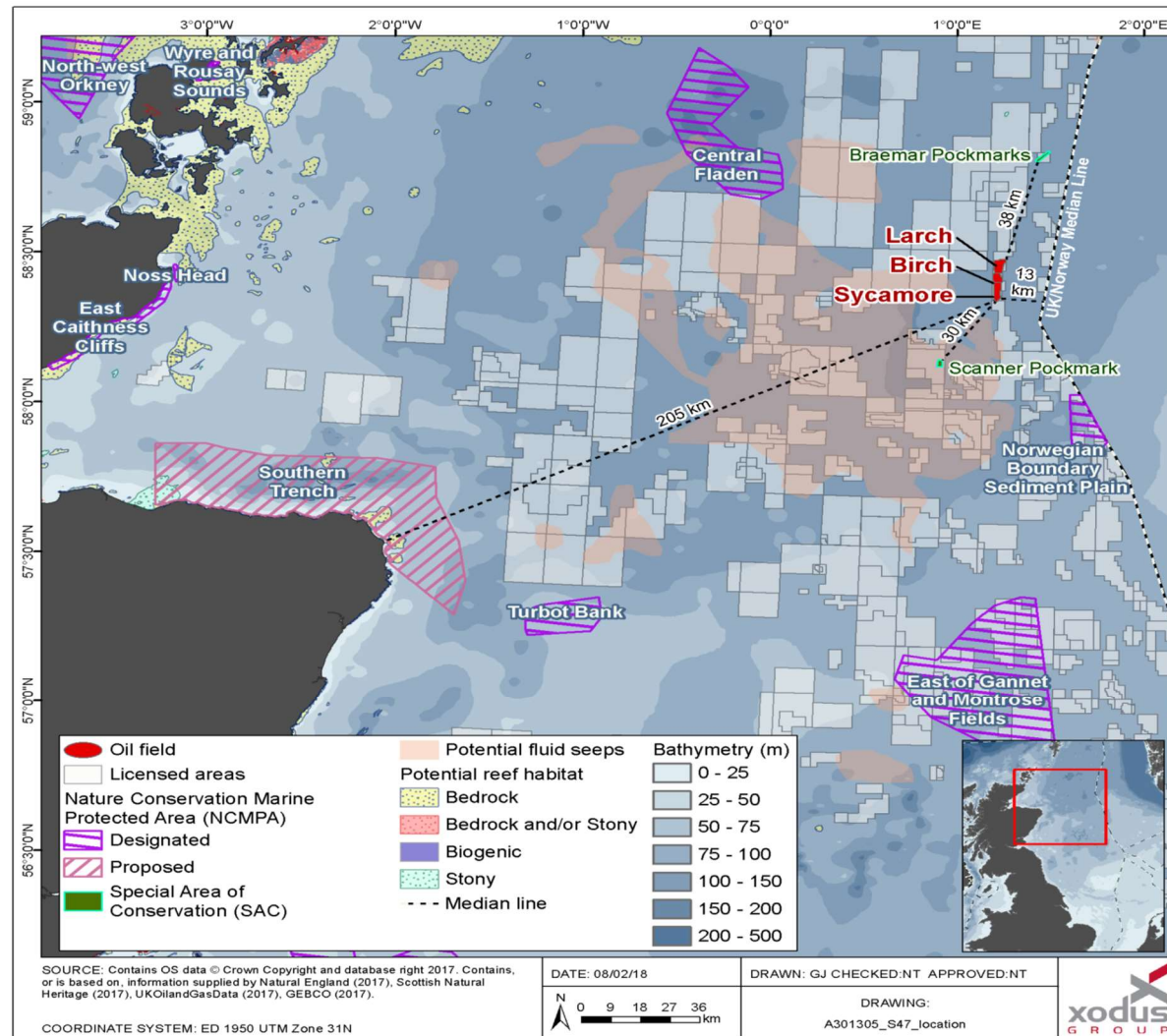


Figure 1.8.1: Field Location in UKCS



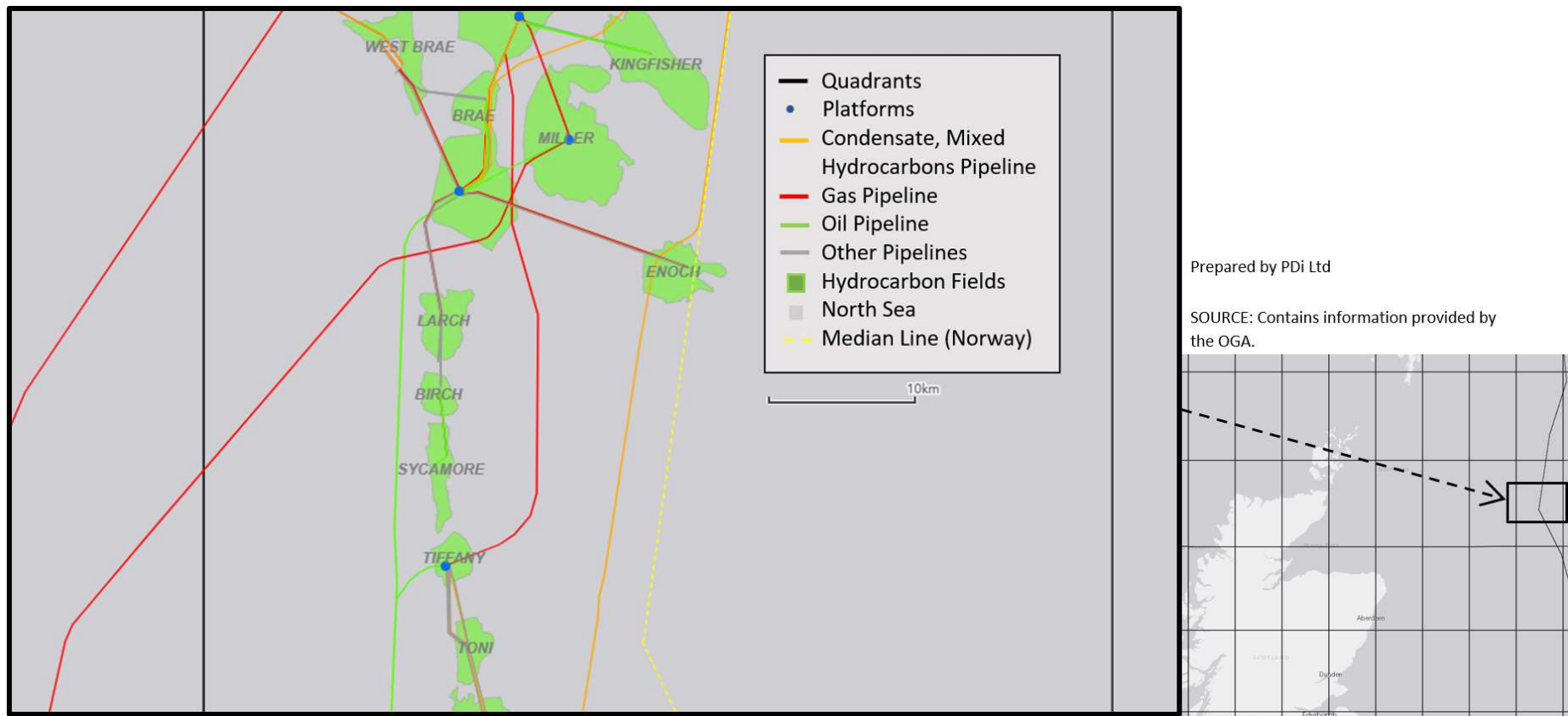


Figure 1.8.2: Trees Fields Adjacent Facilities



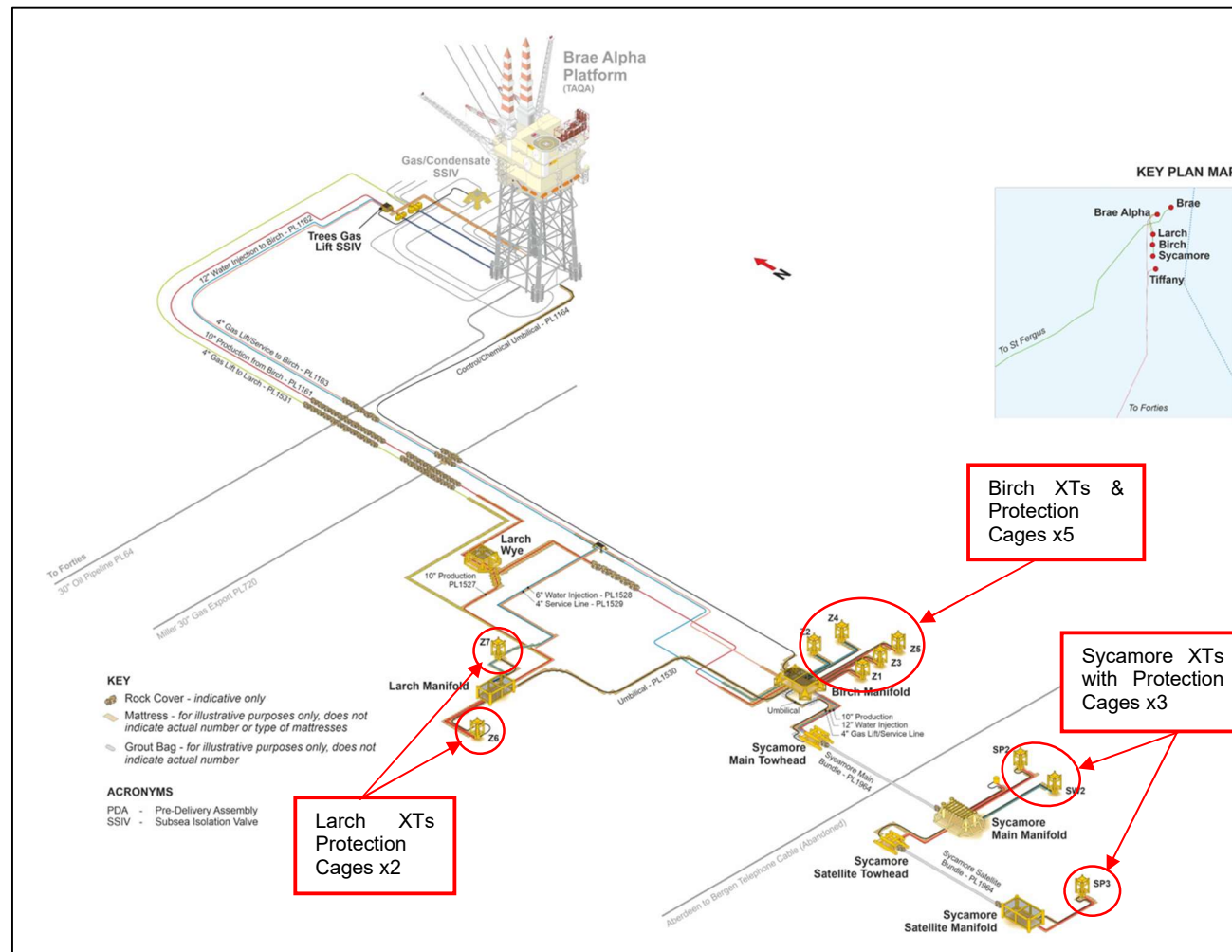


Figure 1.8.3: Trees Field Prior to Decommissioning Activity



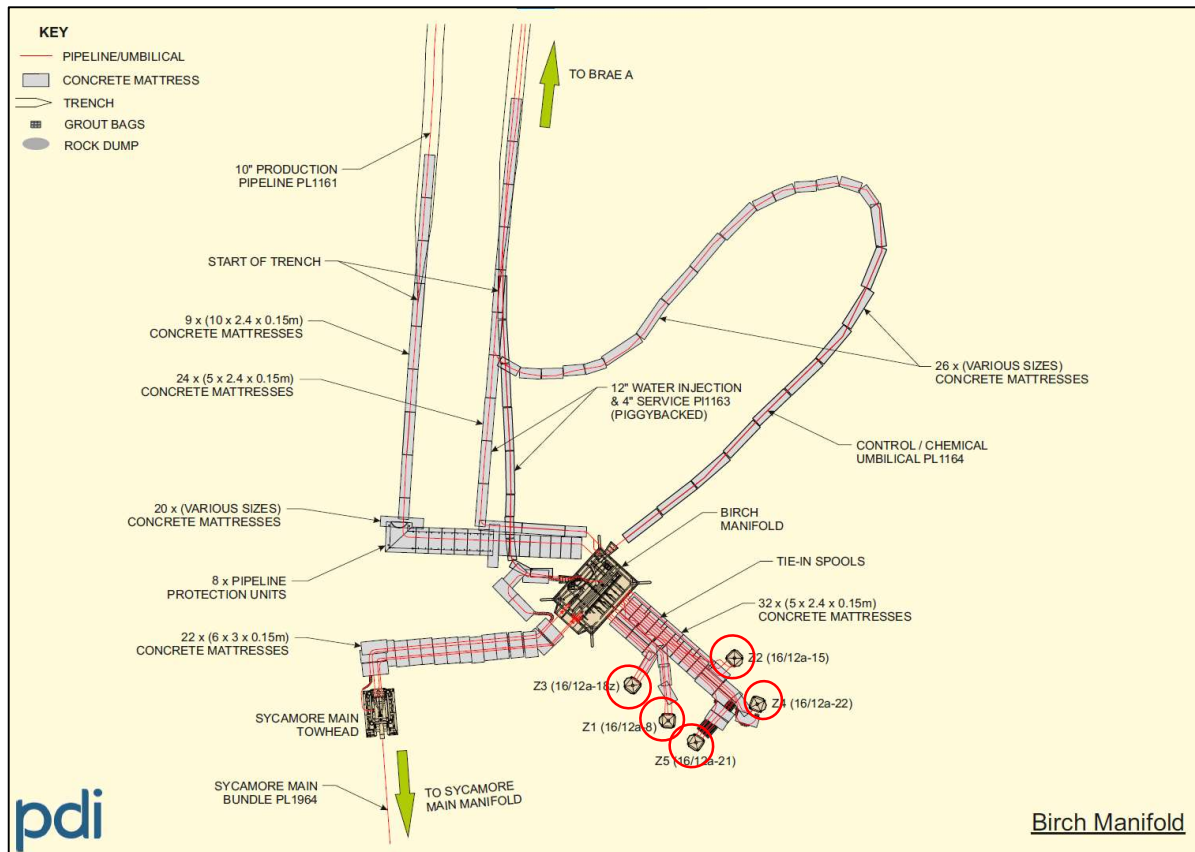


Figure 1.8.4: Birch Manifold & Wells (Red Circle = XT with Protection Cage)

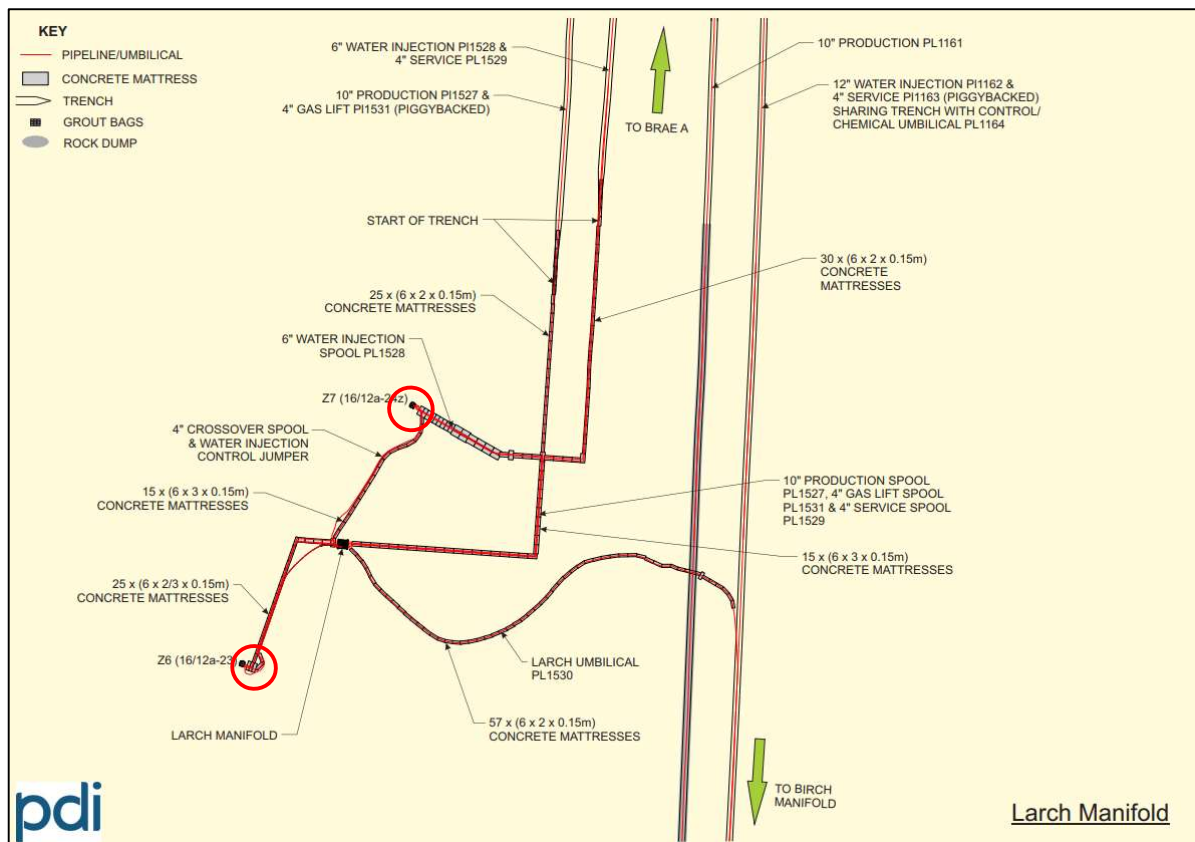


Figure 1.8.5: Larch Gas Lift & Production Manifold & Wells (Red Circle = XT with Protection Cage)



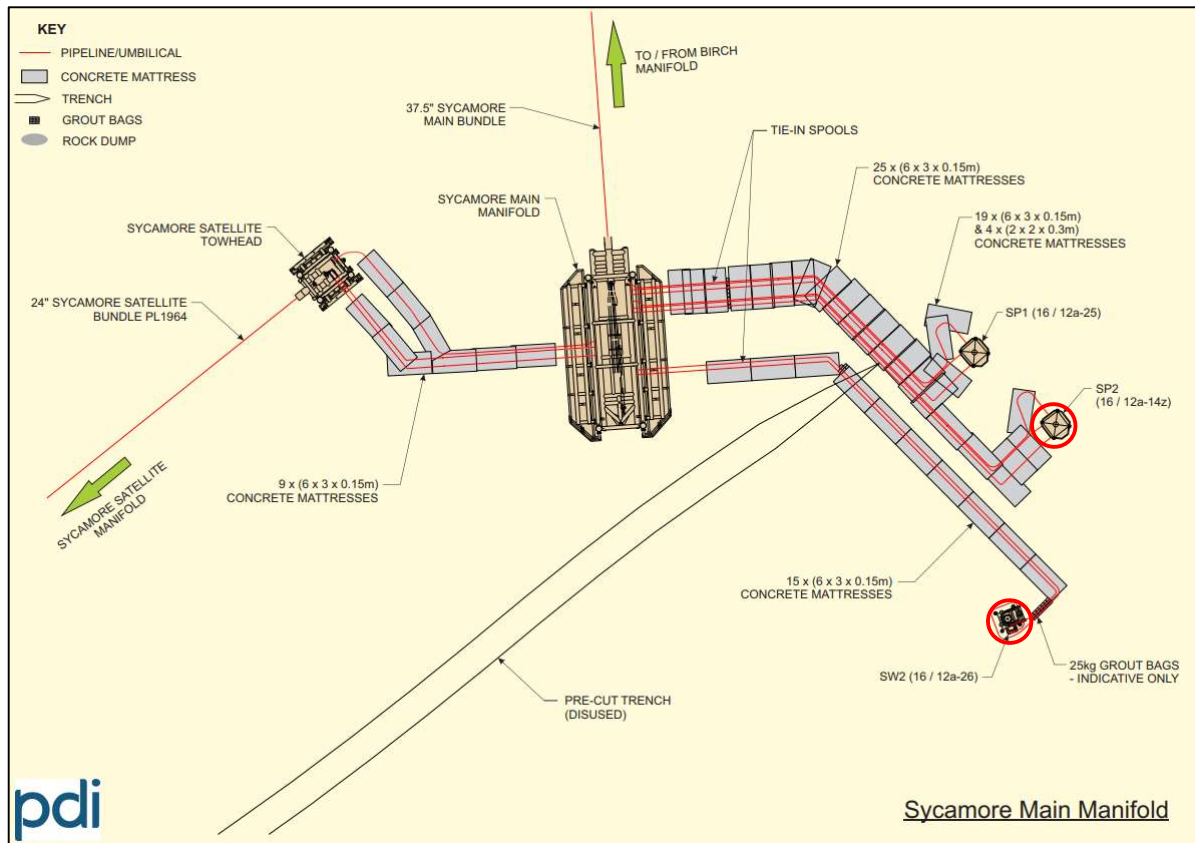


Figure 1.8.6: Sycamore Main Manifold & Wells (Red Circles = XT with Protection Cage)

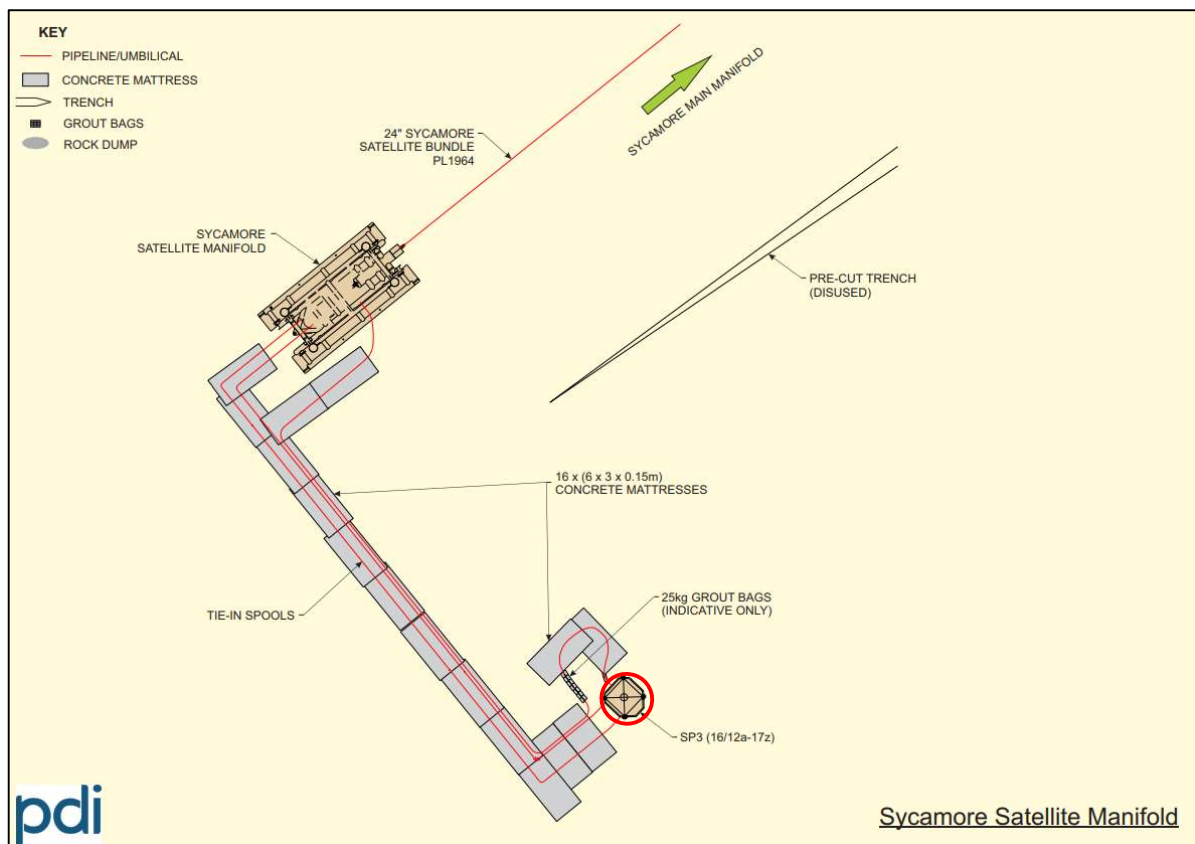


Figure 1.8.7: Sycamore Satellite Manifold & Wells (Red Circles = XT with Protection Cage)



**Table 1.8.1: Adjacent Facilities**

Operator	Name	Type	Distance / Direction	Information	Status
BP Exploration (Alpha) Limited	Miller	Steel Jacket Footings	14.5km, NE	DP Approved Dec 2013	Decommissioned
TAQA Bratani Limited	West Brae	Subsea Manifold	16.7km, N	DP Submitted for Consultation June 2017	Operational
TAQA Bratani Limited	Brae Alpha	Steel Jacket	8.9km, N	DP Submitted for Consultation June 2017	Operational
TAQA Bratani Limited	Brae Bravo	Steel Jacket	20.3km, NNE	DP Submitted for Consultation June 2017	Operational
TAQA Bratani Limited	Central Brae	Subsea Template	15km, NNE	DP Submitted for Consultation June 2017	Operational
Shell U.K Limited	Kingfisher	Subsea Manifold & WHPS	22.1km, NNE	DP Approved June 2021	Out of Use
Repsol Sinopec North Sea Limited	Enoch	WHPS	16.7km, ENE	Tied back to the Brae Alpha Platform	Operational
CNR International (U.K.) Limited	Tiffany	Steel Jacket	6.5km, S	Oil Producing Platform Exporting on to Forties Pipeline	Operational
CNR International (U.K.) Limited	Toni	Water Injection Manifold & WHPS	11.9km, S	Tied back to the Tiffany Platform	Out of Use
Neo Energy Production UK Limited	Lochranza	Subsea Manifolds	25.9km, SW	Tied back to Global Producer III FPSO	Out of Use
CNR International (U.K.) Limited	PL872	Pipeline	6.3km, E	Tiffany to Brae Subsea T-piece	Operational
BP Exploration Operating Company Limited	PL720	Pipeline	5.4km, NW	Miller to St. Fergus Trunkline	Out of Use
TAQA Bratani Limited	PL64	Pipeline	2.5km, E	Brae Alpha to Forties Charlie	Operational

**Impacts of Decommissioning Proposals**

There are no direct impacts on adjacent facilities from the decommissioning and removal of the integral protection cages. Short term environmental impacts associated with this activity are detailed in Section 4.



## 1.9 Industrial Implications

Well abandonment activities will be completed using a drilling rig and / or well intervention vessel. Precursory decommissioning work may be carried out by a Dive Support Vessel (DSV).

Spirit Energy has developed a contract strategy and Supply Chain Action Plan that will result in an efficient and cost-effective execution of the decommissioning works. Where appropriate existing framework agreements may be used. Spirit Energy will seek to combine the decommissioning activities with other development or decommissioning activities to reduce mobilisation costs should the opportunity arise. The decommissioning schedule is extended to allow flexibility for when decommissioning operations are carried out and completed.



## 2. DESCRIPTION OF ITEMS TO BE DECOMMISSIONED

### 2.1 Birch Field

#### 2.1.1 Installations: Subsea Including Stabilisation Features

**Table 2.1.1: Birch Subsea Installations and Stabilisation Features**

Subsea Installations Including Stabilisation Features	No.	Mass (Te)	Location		Comments/ Status
			WGS84 Decimal	WGS84 Decimal Minute	
		Size (m)			
Well Z1 XT	1	26	58.582078N 1.261223E	58°34.9247' N 01°15.6734' E	Protection cage is integral to the tree.
		4.2 x 4.0 x 3.5			
Well Z2 XT	1	24	58.582181N 1.261434E	58°34.9308' N 01°15.6860' E	Protection cage is integral to the tree
		4.2 x 4.0 x 3.5			
Well Z3 XT	1	26	58.582118N 1.261030E	58°34.9271' N 01°15.6618' E	Protection cage is integral to the tree
		4.2 x 4.0 x 3.5			
Well Z4 XT	1	24	58.582086N 1.261530E	58°34.9251' N 01°15.6918' E	Protection cage is integral to the tree
		4.2 x 4.0 x 3.5			
Well Z5 XT	1	26	58.582006N 1.261275E	58°34.9204' N 01°15.6765' E	Protection cage is integral to the tree
		4.2 x 4.0 x 3.5			

**NOTES:**

1. No stabilisation features such as concrete mattresses, grout bags, or deposited rock are associated with the items listed above.

#### 2.1.2 Birch Field Wells

**Table 2.1.2: Birch Field Well Information**

Well ID	Designation	Status <sup>2</sup>	Category of Well
16/12a-8 (Z1)	Producer - Oil	Isolated	SS 3/3 <sup>2</sup> /3
16/12a-18z (Z3)	Producer - Oil	Isolated	SS 3/3/3
16/12a-21 (Z5)	Producer - Oil	Isolated	SS 3/0/3
16/12a-15 (Z2)	Water Injector	Isolated	SS 3/3/3
16/12a-22 (Z4)	Water Injector	Isolated	SS 3/3/3

**NOTES:**

1. For details of well categorisation please refer the latest version of the OEUK Guidelines for the Decommissioning of Wells.

2. NSTA guideline: [https://www.nstauthority.co.uk/media/8246/nsta-wons-guide\\_final\\_accessible\\_3006.pdf](https://www.nstauthority.co.uk/media/8246/nsta-wons-guide_final_accessible_3006.pdf)



### 2.1.3 Birch Field Inventory Estimates

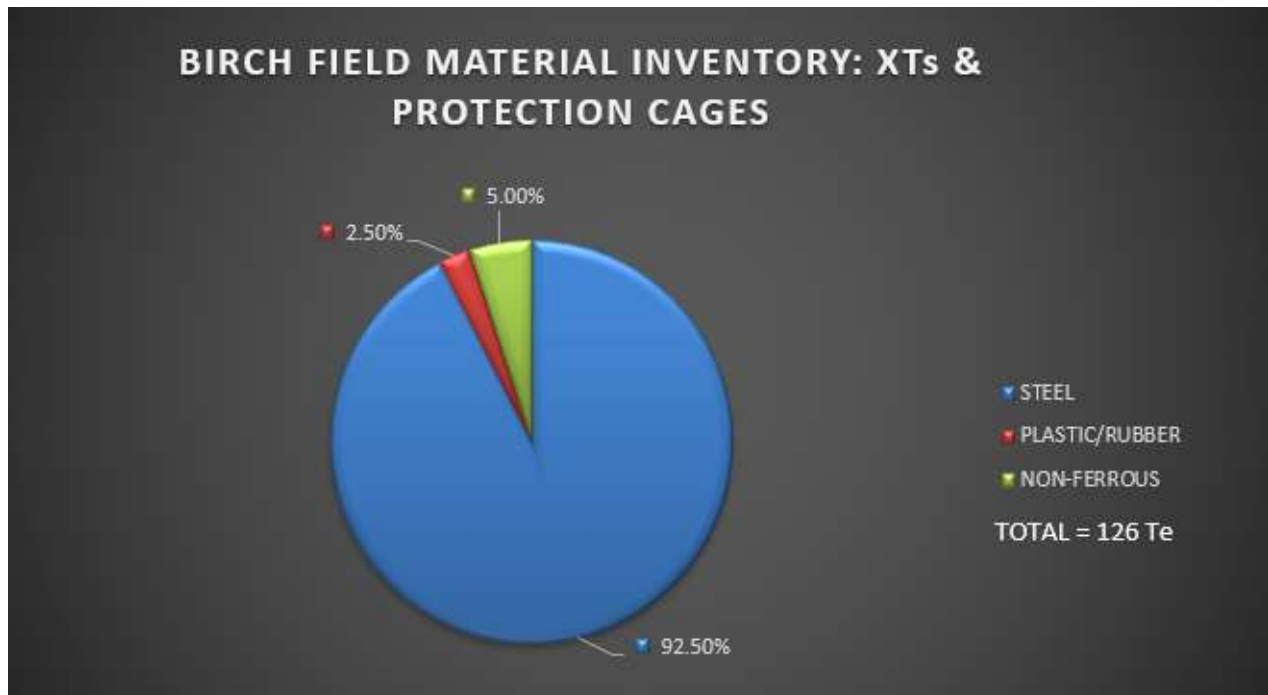


Figure 2.1.1: Birch Inventory Estimate (Installations)



## 2.2 Larch Field

### 2.2.1 Larch Field Installations: Subsea Including Stabilisation Features

Table 2.2.1: Larch Subsea Installations and Stabilisation Features					
Subsea Installations Including Stabilisation Features	No.	Mass (Te)	Location		Comments/ Status
		Size (m)	WGS84 Decimal	WGS84 Decimal Minute	
Well Z6 XT	1	26	58.59674N	58°35.8049' N	Protection cage is integral to the tree.
		4.2 x 4.0 x 3.5	1.255627E	01°15.3376' E	
Well Z7 XT	1	24	58.598293N	58°35.8976' N	Protection cage is integral to the tree.
		4.2 x 4.0 x 3.5	1.257463E	01°15.4478' E	
<b>NOTES:</b>					
1. No stabilisation features such as concrete mattresses, grout bags, or deposited rock are associated with the items listed above.					

### 2.2.2 Larch Field Wells

Table 2.2.2: Larch Field Well Information			
Well ID	Designation	Status <sup>2</sup>	Category of Well
16/12a-23 (Z6)	Producer - Oil	Isolated	SS 3/3/3
16/12a-24z (Z7)	Water Injector	Isolated	SS 3/3/3
<b>NOTES</b> 1. For details of well categorisation please refer the latest version of the OEUK Guidelines for the Decommissioning of Wells. 2. NSTA guideline: <a href="https://www.nstauthority.co.uk/media/8246/nsta-wons-guide_final_accessible_3006.pdf">https://www.nstauthority.co.uk/media/8246/nsta-wons-guide_final_accessible_3006.pdf</a>			



### 2.2.3 Larch Field Inventory Estimates

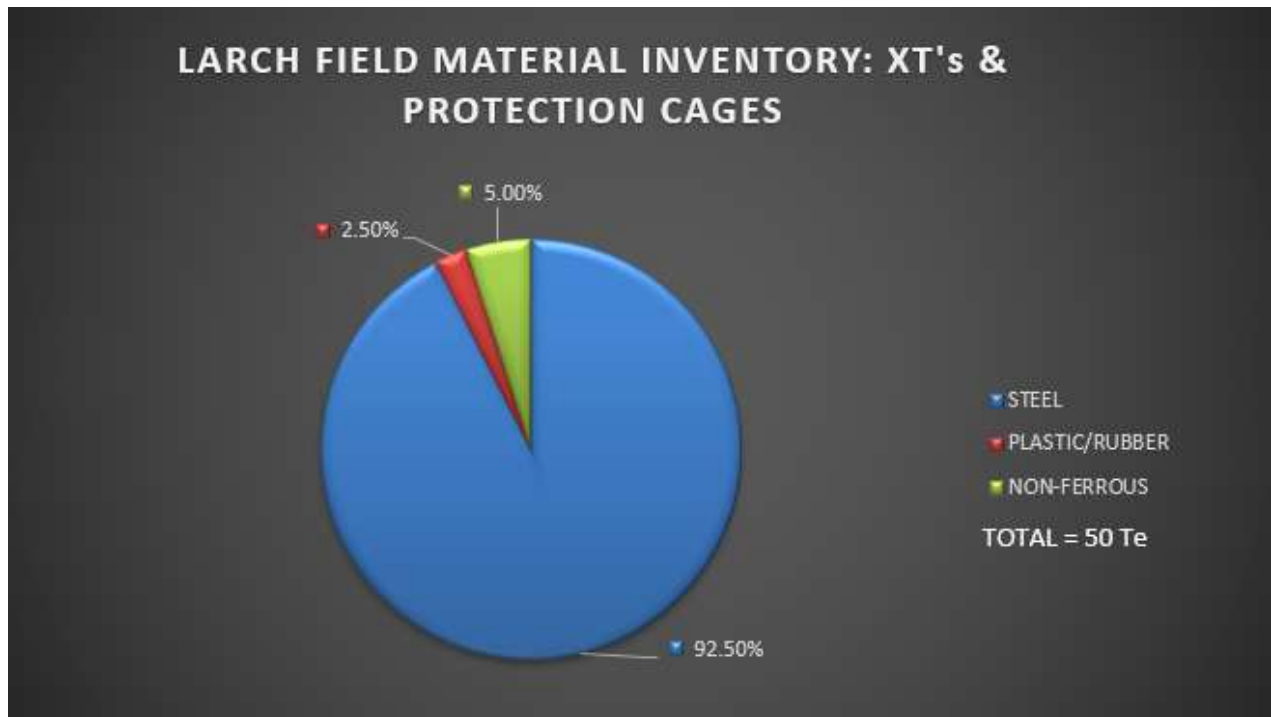


Figure 2.2.1: Larch Inventory Estimate (Installations)



## 2.3 Sycamore Field

### 2.3.1 Sycamore Field Installations: Subsea Including Stabilisation Features

Table 2.3.1: Sycamore Subsea Installation Features					
Subsea Installations Including Stabilisation Features	No.	Mass (Te)	Location		Comments/ Status
		Size (m)	WGS84 Decimal	WGS84 Decimal Minute	
Well SP2 XT	1	26	58.542722N 1.268542E	58°32.5633' N 01°16.1125' E	Integral protection will be recovered with the Xmas Tree.
		4.2 x 4.0 x 3.5			
Well SP3 XT	1	26	58.538239N 1.257541E	58°32.2943' N 01°15.4524' E	Integral protection will be recovered with the Xmas Tree.
		4.2 x 4.0 x 3.5			
Well SW2 XT	1	24	58.542485N 1.268408E	58°32.5491' N 01°16.1045' E	Integral protection will be recovered with the Xmas Tree.
		4.2 x 4.0 x 3.5			
<b>NOTES:</b> 1. No stabilisation features such as concrete mattresses, grout bags, or deposited rock are associated with the items listed above.					

### 2.3.2 Sycamore Field Wells

Table 2.3.2: Sycamore Field Well Information			
Well ID	Designation	Status	Category of Well
16/12a-25 (SP1)	Producer – Oil	Abandoned <sup>3</sup>	SS 0/0/1
16/12a-14z (SP2)	Producer – Oil	Isolated <sup>2</sup>	SS 4/0/3
16/12a-17z (SP3)	Producer – Oil	Isolated <sup>2</sup>	SS 3/0/3
16/12a-26 (SW2)	Water Injector	Isolated <sup>2</sup>	SS 3/3/3
<b>NOTES</b> 1. For details of well categorisation please refer the latest version of the OEUK Guidelines for the Decommissioning of Wells. 2. NSTA guideline: <a href="https://www.nstauthority.co.uk/media/8246/nsta-wons-guide_final_accessible_3006.pdf">https://www.nstauthority.co.uk/media/8246/nsta-wons-guide_final_accessible_3006.pdf</a> 3. This well was never produced from, and abandonment was completed Q4 2022. The wellhead and flowbase will be recovered and are not subject to notices under Section 29.			



### 2.3.3 Sycamore Field Inventory Estimates

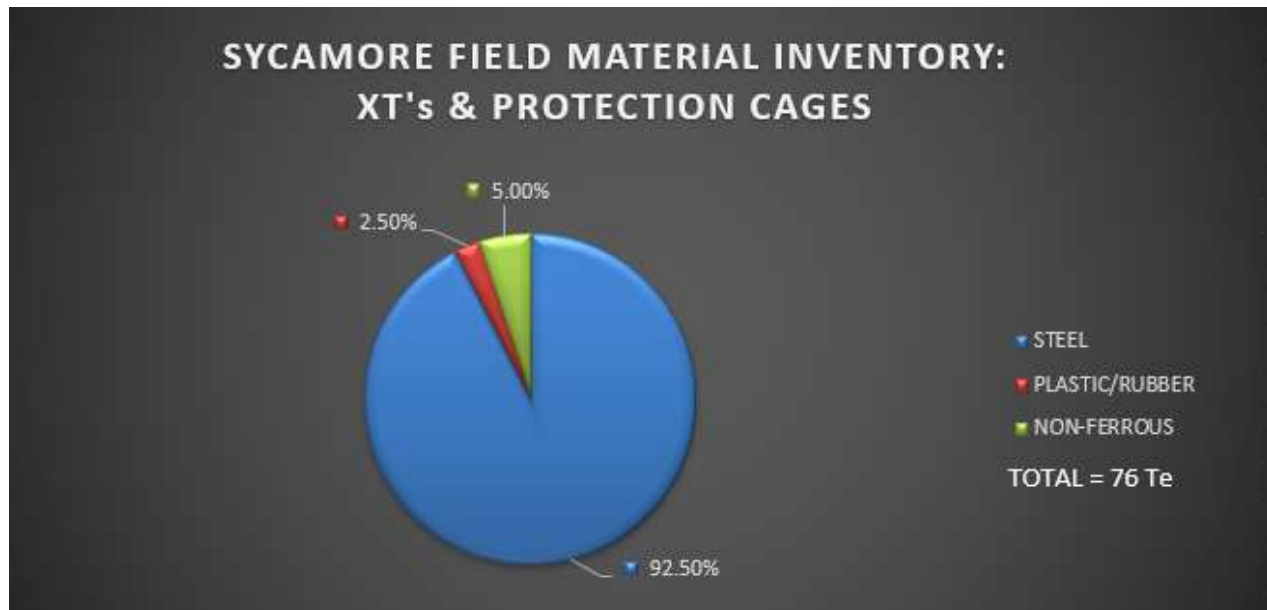


Figure 2.3.1: Sycamore Inventory Estimate (Installations)



### 3. REMOVAL AND DISPOSAL METHODS

Waste will be dealt with in accordance with the Waste Framework Directive. The re-use of an installation is first in the order of preferred decommissioning options and such options are currently under investigation. Waste generated during decommissioning will be segregated by type and periodically transported to shore in an auditable manner through licensed waste contractors. Steel and other recyclable metals are estimated to account for the greatest proportion of the materials inventory.

Geographic locations of potential disposal yard options may require the consideration of Trans Frontier Shipment of Waste (TFSW), including hazardous materials. Early engagement with the relevant waste regulatory authorities will ensure that any issues with TFSW are addressed.

Materials for which no re-use or recycling opportunities are available will be tracked through to final disposal.

#### 3.1 Subsea Installations & Stabilisation Features

Table 3.1.1: Subsea Installations and Stabilisation Features Decommissioning Options			
Subsea installations and stabilisation features	Quantity	Option	Disposal Route (if applicable)
Integral protection cages associated with XTs	10	Full recovery	Return to shore for reuse or recycling

#### 3.2 Wells

Table 3.2.1: Well Decommissioning
The Trees Field contains a total of seven production wells and four water injection wells <sup>3</sup> . ( <b>Birch</b> :16/12a-8, 16/12a-15, 16/12a-18z, 16/12a-22 and 16/12a-21 <b>Larch</b> :16/12a-23 and 16/12a-24z <b>Sycamore</b> : 16/12a-25, 16/12a-14z, 16/12a-17z, and 16/12a-26). All wells will be decommissioned in accordance with latest version of the OEUK Well Decommissioning Guidelines. A Master Application Template and the supporting Supplementary Application Template will be submitted in support of works carried out. An application to decommission the wells will be made via the online Well Operations Notification System (WONS) on the NSTA Energy Portal. Well decommissioning will be scheduled in accordance with the outline schedule presented in section 6.3.

<sup>3</sup> Trees consists of 11 wellheads which will be recovered, however in the context of this decommissioning programme, 10 XTs have integral protection cages



### 3.3 Waste Streams

#### 3.3.1 Waste Stream Management Methods

Table 3.3.1: Waste Stream Management Methods	
Waste Stream	Removal and Disposal method
Bulk liquids	Processing of any fluids or chemical associated with decommissioning of the wells will be managed under existing well intervention permits. Recovery of the protection cages will not require any use or discharge of chemicals or result in oil discharges to sea.
Marine growth	Where required and reasonable, potentially to allow access, some marine growth will be removed offshore during decommissioning activity. Due to the Trees Field water depth, there is less marine growth than typically found in shallower fields. Remnant growth will be brought to shore and subsequently disposed of under the appropriate permit and managed in accordance with guidelines and company policies.
NORM	Tests for NORM will be performed offshore and any NORM encountered will be dealt with and disposed of under the appropriate permit and managed in accordance with guidelines and company policies.
Asbestos	No known asbestos is associated with the Trees Fields. However, any such material found will be dealt with and disposed of in accordance with guidelines and company policies.
Other hazardous wastes	Will be recovered to shore and disposed of according to guidelines and company policies.
Onshore Dismantling sites	Appropriate licensed sites will be selected. Dismantling site must demonstrate proven disposal track record and waste stream management throughout the deconstruction process and demonstrate their ability to deliver reuse and recycling options.

Table 3.3.2: Trees Fields Inventory Disposition			
Inventory	Total inventory (Te)	Planned tonnage to shore (Te)	Planned left <i>in situ</i> (Te)
Subsea Installations	252	252	0

Table 3.3.3: Re-use, Recycle & Disposal Aspirations for Recovered Material			
Inventory	Re-use	Recycle	Disposal (e.g., Landfill)
Subsea Installations	<5%	>95%	<5%

All recovered material will be transported onshore for reuse, recycling, or disposal. It is not possible to predict the market for reusable materials with any confidence so the figures in Table 3.3.3 are aspirational.



## 4. ENVIRONMENTAL APPRAISAL

### 4.1 Environmental Sensitivities (Summary)

Table 4.1.1: Environmental and Societal Sensitivities	
Physical Environment	<p>Water depths range from ca.110m at Brae A, to ca. 129m at Sycamore Main and Sycamore Satellite. Water depths at Larch and Birch range from 125m to a maximum depth of 129m with localised variations. A thermocline develops during summer, and generally breaks up with the onset of autumnal gales. Winds are variable, although predominantly from the south-west and north east. Annual mean significant wave height is ca. 2.1-2.4m, varying seasonally. Tidal currents are generally weak and readily influenced by other factors (e.g. winds and density driven circulation). Surface water temperatures typically range between 6.5-7°C in winter and 13.5-14°C in summer; bottom temperatures are similar to winter, but typically 7-8°C in summer.</p>
Conservation Interest	<p>The Trees infrastructure does not lie within a designated area, the closest of these being two Special Areas of Conservation (SACs), the Scanner Pockmark SAC and the Braemar Pockmarks SAC, located more than 30km away. The closest Nature Conservation Marine Protected Area (NCMPA) are the Norwegian Boundary Sediment Plain and Central Fladen sites, ca. 42km and 69km away respectively. The pre-decommissioning survey identified the presence of sea pens (<i>Pennatula phosphorea</i> and <i>Virgularia</i> sp.), and burrows, although mounds were not recorded. The report concluded that sea pens and burrows occurred in sufficient density to comprise the OSPAR listed threatened and/or declining habitat 'sea pen and burrowing megafauna communities'. It should be noted however, that the Trees area is not located within or near (closest site more than 60km away) any designated site for this habitat.</p> <p>Significant environmental effects on any conservation interest are not considered likely from decommissioning activities.</p>
Seabed	<p>The seabed is relatively flat, with localised variations. Throughout the area there are scattered semi-circular depressions, some up to 40m wide and 0.9m deep; there was no evidence on the seabed or within shallow soils of soft clays or gas seepages. Seabed sediments comprise sandy mud or muddy sand and are classified as 'circalittoral muddy sand', 'deep circalittoral sand' and 'deep circalittoral mud', with occasional accumulations of shell and coarse material present. The main habitat in the area was identified as 'deep circalittoral mud'. Anchor scars and anchor pull outs were also identified as present. There is evidence of historic drill cuttings at Birch and Sycamore, cuttings present do not exceed the OSPAR thresholds.</p> <p>Seabed disturbance from decommissioning activities, all of which will be temporary, was assessed and significant effects from physical disturbance are not expected.</p>
Fish	<p>The Trees area overlap with reported spawning grounds of 5 commercially important fish and shellfish species (cod, mackerel, Norway pout, saithe and <i>Nephrops</i>), all of which are Priority Marine Features, with the exception of <i>Nephrops</i>. The area is also within reported nursery grounds for these species (except saithe) and a further 9 species (ling, anglerfish, blue whiting, haddock, European hake, herring, sandeel, spotted ray, spurdog and whiting).</p> <p>Significant environmental effects on fish spawning/nursery areas are not considered likely from decommissioning activities.</p>
Fisheries	<p>Trees are located within ICES rectangle 46F1, and the area is dominated by demersal (in terms of landings by weight), with shellfish dominating by value. In comparison with UK total landings, landings from 46F1 (weight and value) are relatively small, typically less than 1%. Fishing effort in the area is considered low to moderate, and while fishing activity can occur throughout the year, fishing effort (days at sea) typically peaked in spring and summer months, although in 2021, higher numbers has also been seen towards the latter part of the year.</p> <p>Significant environmental effects on fisheries are not considered likely from decommissioning activities.</p>
Marine mammals	<p>The central North Sea has a moderate to high density of cetaceans, with a general trend of increasing diversity and abundance. Seven species can be considered regular visitors to waters around the Trees area, harbour porpoise, white-sided dolphin, white-beaked dolphin, minke whale, killer whale, Risso's dolphin, and bottlenose dolphin, only three of these (harbour porpoise, white-sided dolphin and minke whale) were recorded in the area from the SCANS-III survey (blocks 16/12 and 16/07 are within SCANS III survey strata 'U'). Significant environmental effects on marine mammals are not considered likely from decommissioning activities.</p>



**Table 4.1.1: Environmental and Societal Sensitivities**

Birds	
<p>The area can be considered of relatively low importance to seabirds in the context of the North Sea as a whole – this is related to the distance from breeding colonies and the availability of prey; Trees is more than 200km from the Scottish mainland and 190km from Fair Isle, which is beyond the maximum foraging distance for most species breeding on these coastlines. Species present offshore vary seasonally and being far offshore, birds present will predominately be those transiting through the area during migration, non-breeding juveniles and post breeding dispersion from colonies.</p> <p>The Seabird Oil Sensitivity Index (SOSI) has been used in conjunction with JNCC 2017 guidance to determine seabird sensitivity within the Trees area; sensitivity is generally low, and for block 16/12 and 16/07 only two months remain with no coverage in either block.</p> <p>Significant environmental effects on birds are not considered likely from decommissioning activities.</p>	
Other users of the sea	
<p>Trees is within a mature area of the North Sea for oil and gas activity where development has been extensive, evident by the number of installations/FPSOs within 40km of the Trees area. In terms of renewable development, INTOG area NE-9 is located within 2 km of the Larch field and the closest Crown Estate lease area is that of Marram Wind which is approximately 105 km away. Trees is relatively close (ca. 3km) to the CNS Area 1, an area offered in the North Sea Transition Authority (NSTA) carbon storage licensing round. There are no operational telecommunication cables in the vicinity; the TAMPNET 3 part 7 cable passes ca. 20km to the east. There are no military interests, dredging areas, or marine disposal sites or any designated wrecks, in the vicinity. Shipping density data shows block 16/12 as having moderate and block 16/07 has having low levels of shipping; typical vessels being oil and gas supply and support vessels.</p> <p>Significant environmental effects on other users of the sea are not considered likely from decommissioning activities.</p>	
Atmosphere	
<p>Sources of emissions will be from the combustion of diesel, primarily from drilling rig and / or well intervention vessels. The decommissioning activities for the whole of the decommissioning of Trees is estimated to represent an increment of 0.0009% on those emitted from all UK sources in 2019, or 0.03% of those from installations on the UKCS 2018 and, as such, are not considered to result in a significant impact. Emissions associated with the removal of the Trees protection cages under this Decommissioning Programme is expected to be a fraction of this and therefore not considered significant.</p> <p>Once fully decommissioned, there will be no more atmospheric emissions as equipment will be completely removed.</p>	

## 4.2 Potential Environmental Impacts and their Management.

The environmental impacts and risks (potential impacts) associated with the project activity were assessed and commitments and actions (i.e. their management) are described in Table 4.2.1.

The potential environmental impacts of these operations in general and the issues related to the recovery operations have been assessed in the following MAT applications: Sycamore - WIA/1471 ML/964; Birch WIA/1472 ML/963; Larch WIA/1473 ML/965. A summary of the impacts and environmental control measures identified is provided here, considering the context of the recovery of the protective cages. It should be noted that recovery of the cages will not require any use or discharge of chemicals or result in oil discharges to sea. There will be no planned use of explosives during these activities.

**Table 4.2.1: Environmental Impact Management**

Activity	Main Impacts	Management
Protection cage removal	<p>Removal of the protection cage will require cutting of the structure subsea and lifting using a drilling rig. The principle impacts will include:</p> <ul style="list-style-type: none"> <li>physical presence of vessels and equipment;</li> </ul>	<p>The impacts associated with the decommissioning operations are expected to be short-term, localised and of low significance provided the proposed mitigation measures are in place.</p> <p>Activities will be planned to be executed as efficiently as possible, minimising cutting to reduce potential noise impacts.</p> <p>The contractors' capability, processes and procedures will be subject to audit and evaluation as part of the selection process.</p>



**Table 4.2.1: Environmental Impact Management**

	<ul style="list-style-type: none"> <li>energy use and atmospheric emissions;</li> <li>underwater noise from vessels;</li> <li>noise from cutting operations;</li> <li>discharges to the marine environment from vessels;</li> <li>disturbance of the seabed from anchors;</li> <li>generation of waste materials.</li> </ul> <p>Risks of additional impact will include:</p> <ul style="list-style-type: none"> <li>disturbance to the seabed from potential dropped objects;</li> <li>accidental releases of hydrocarbons to the marine environment;</li> <li>disruption to fishing or shipping during vessel transits.</li> </ul>	<p>Vessels will be managed to minimise durations and on-board operational practices will address fuel efficiency, noise management, and minimise waste. Vessels will be managed in accordance with Spirit Energy's Marine Assurance Standard. Spirit Energy will also develop decommissioning emissions key performance indicators.</p> <p>DP vessels will be used in preference over vessels with anchors, however in the event these vessels are required, anchoring procedures will be developed. Risk assessments will be undertaken for the work at key stages throughout planning and execution.</p> <p>As part of the OPEP, specialist oil spill management and response services will be in place, to minimise impacts from potential releases to the marine environment.</p> <p>The waste hierarchy will be followed and only if other options are not possible will waste material be sent to landfill. Spirit Energy will monitor the performance of contractors throughout operational activities and will comply with EU and UK waste legislation and the requirements of duty of care. The selected receiving port and waste handling facility will be able to demonstrate a proven disposal track record and waste stream management throughout the process.</p> <p>The assessment of potential cumulative impacts concludes that these are not anticipated to be significant.</p>
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In summary, the outcome of the assessment found there to be:

- No significant environmental or adverse effects on benthic habitats or faunal communities in the area as a result of decommissioning operations.
- No significant environmental or adverse effects expected from estimated atmospheric emissions as a result of decommissioning operations.
- No significant environmental, or adverse effects on other users of the sea expected from the planned activities associated with the decommissioning operations.
- No impacts on conservation interests expected.
- No specific, additional controls were considered necessary for activities beyond application of regulatory requirements, established Spirit Energy management processes, operational controls and following industry guidelines and best practice where applicable.



## 5. INTERESTED PARTY CONSULTATIONS

### 5.1 Overview

To be populated following consultation

### 5.2 Consultation Summary

Table 5.2.1: Summary of Stakeholder Comments		
Who	Comment	Response
<b>INFORMAL CONSULTATIONS</b>		
NIFPO		
NFFO		
SFF	Meeting held on 11 <sup>th</sup> August 2022, covering both Chestnut and Trees Decommissioning Programmes. The feedback was focussed on the wider decommissioning of the pipelines and bundles which will be addressed in a separate decommissioning programme.	No adverse comments made.
Crossing Parties	n/a	
<b>STATUTORY CONSULTATIONS</b>		
GMG	To be completed post-consultation	
NFFO	To be completed post-consultation	
SFF	To be completed post-consultation	
NIFPO	To be completed post-consultation	
Section 29 Holders	To be completed post-consultation	
Public	To be completed post-consultation	



## 6. PROGRAMME MANAGEMENT

### 6.1 Project Management and Verification

Spirit Energy's project management team will manage the operations of competent contractors selected for all decommissioning activities. The team will ensure the decommissioning is executed safely, in accordance with legislation and Spirit Energy Health & Safety principles. Changes to the Decommissioning Programmes will be discussed and agreed with OPRED, with any necessary approvals sought.

### 6.2 Post-Decommissioning Debris Clearance and Verification

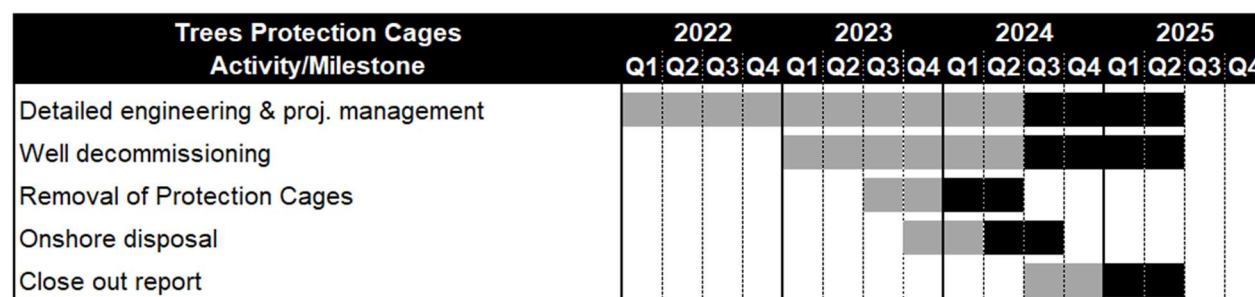
This Decommissioning Programme covers removal of the integral protection cages associated with XTs of the Trees development. Post-decommissioning debris surveys and seabed verification will be carried out after full decommissioning of the Trees development.

### 6.3 Schedule


The proposed schedule for the decommissioning of the Trees integral protection cages is provided in Figure 6.3.1.

The activities are subject to the acceptance of the Decommissioning Programmes presented in this document and any unavoidable constraints (e.g. vessel availability) that may be encountered while executing the decommissioning activities. Therefore, activity schedule windows have been included to account for this uncertainty.

The commencement of wider offshore decommissioning activities will depend on commercial agreements & commitments and timelines, Spirit Energy will also examine the possibility of including the offshore work in a wider campaign of subsea works to reduce costs.



#### Notes / Key

Most likely period of activity 


Activity window to allow commercial flexibility associated with decommissioning activities 

Figure 6.3.1: Gantt Chart of Project Plan

### 6.4 Costs

Decommissioning costs will be provided separately to OPRED.



## **6.5 Close Out**

In accordance with the OPRED Guidelines, a close out report will be submitted to OPRED within 12 months of the completion of the scope within this decommissioning programme.

## **6.6 Post-Decommissioning Monitoring and Evaluation**

This Decommissioning Programme concerns the removal of the integral protection cages associated with the XTs of the Trees development. Following completion of the wider decommissioning scope including the pipelines and bundles, appropriate status surveys and environmental surveys will be completed with the findings being sent to OPRED in the close out report. The frequency of future surveys will be agreed with OPRED and supported with a risk assessment.

Residual liability for the facilities will remain with the Section 29 holders. Unless agreed otherwise in advance with OPRED, Spirit Energy will remain the focal point for this including any change in ownership, for example.



## **APPENDIX B PUBLIC NOTICES AND CONSULTEE CORRESPONDENCE**

Public notices and consultee correspondence will be added following Statutory Consultation