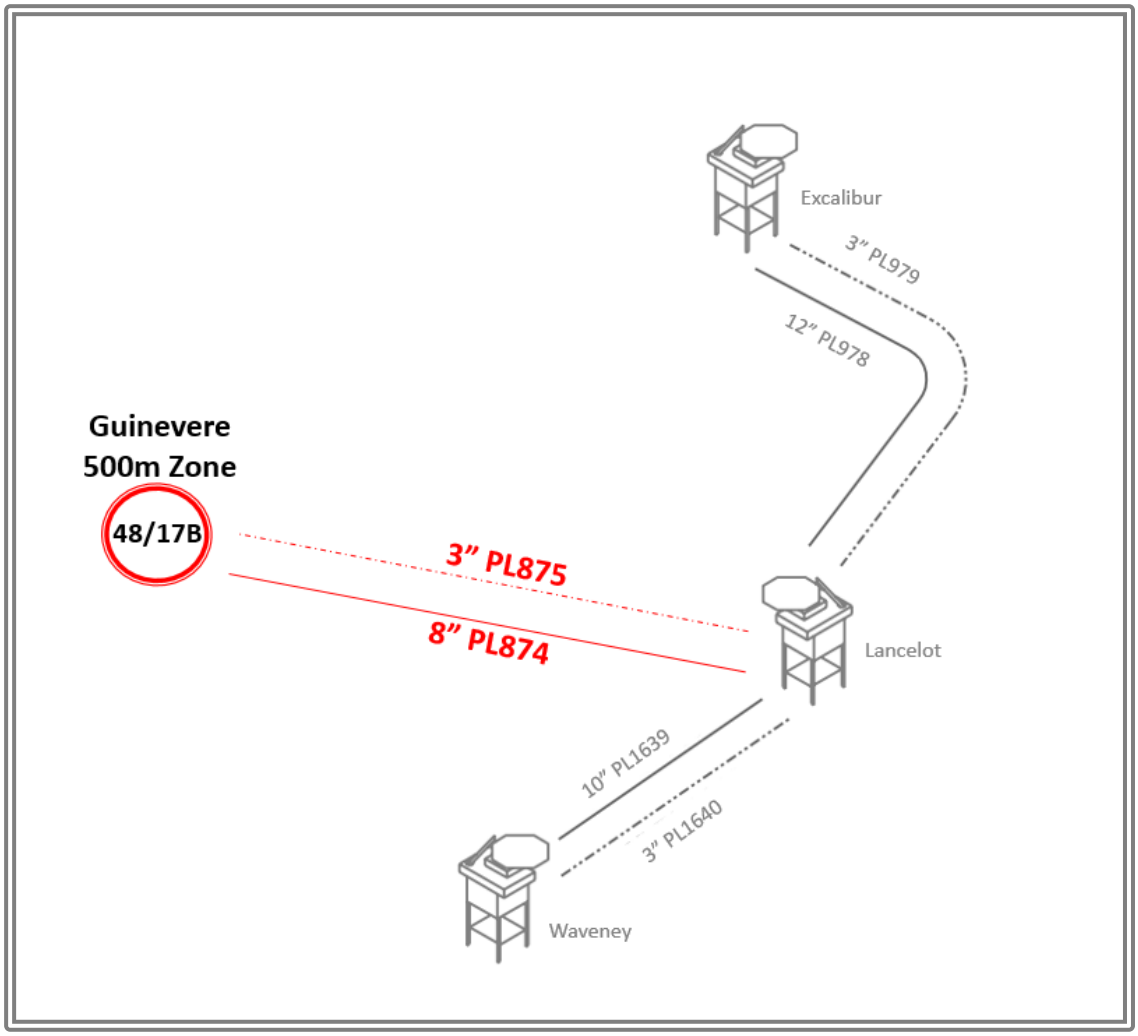

PERENCO GAS (UK) LIMITED

Guinevere PL874 and PL875

Pipeline Decommissioning Programme

March 2024

Consultation Draft

Document Control

Approvals

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Global Marine Systems Limited	1

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Terms and Abbreviations

Abbreviation	Explanation
°	Degree
%	Percentage
“	Inch
BAP	Best Aquaculture Practices
BGT	Bacton Gas Terminal
BEIS	Department for Business, Energy, and Industrial Strategy
CA	Comparative Assessment
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
COP	Cessation of Production
DepCon	Deposit Consent
DOB	Depth of burial
DP	Decommissioning Programme
EA	Environment Appraisal
EBS	Environmental Baseline Survey
EC	European Commission
EIA	Environmental Impact Assessment
EMT	Environmental Management Team
EUNIS	European Nature Information System
HAS	Habitat Assessment Survey
HCS	Hydrocarbon Safe
HSEx	Health and Safety Executive
ICES	International Council for the Exploration of the Seas
JNCC	Joint Nature Conservation Committee
JUB	Jack-Up Barge
km	Kilometre
LSA	Low Specific Activity
m	Metre
MCZ	Marine Conservation Zone
MEG	Monoethylene Glycol
MOD	Ministry of Defence
NFFO	National Federation of Fishermen’s Organisations

Abbreviation	Explanation
NIFPO	Northern Ireland Fish Producers' Organisation
NORM	Naturally Occurring Radioactive Material
NSTA	North Sea Transition Authority (formerly Oil and Gas Authority)
NUI	Normally Unattended Installation
OEUK	Offshore Energies UK (formerly Oil and Gas UK)
OPRED	Offshore Petroleum Regulator for Environment & Decommissioning
Perenco	Perenco Gas (UK) Limited
POB	Personnel on Board
PSR	Pipeline Safety Regulation
PWA	Pipeline Works Authorisation
ROV	Remotely Operated Vehicle
S29	Section 29 Notice Holder
SAC	Special Area of Conservation
SFF	The Scottish Fishermen's Federation
SNS	Southern North Sea
SPA	Special Protection Area
Te	Tonne
TGT	Theddlethorpe Gas Terminal
THC	Total Hydrocarbons
TOC	Total Organic Carbon
UK	United Kingdom
UKCS	United Kingdom Continental Shelf

1. EXECUTIVE SUMMARY

1.1 Decommissioning Programme

This document contains a Decommissioning Programme (DP) for: two offshore subsea pipelines (PL874 and PL875), four concrete mattresses, and two rock placements, which operated within the Guinevere gas field in the Southern North Sea (SNS), further details are provided in Table 2.2.

Perenco Gas (UK) Limited (Perenco) have prepared this DP on behalf of all Section 29 (S29) Notice Holders. A letter of S29 holder support will be provided in Section 8 in the final approved version of this document.

The Guinevere Topsides, Jacket and wells, and the sections of PL874 and PL 875 within the Lancelot 500m safety zone have been excluded from this DP as they are, or will be, covered by other DP's.

1.2 Requirement for Decommissioning Programme

In accordance with the Petroleum Act 1998, the Section 29 notice holders of the Guinevere pipelines (see Table 1.4) are applying to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to obtain approval for decommissioning the pipelines and stabilisation features detailed in Section 2.1 of this programme. (See also Section 8 – S29 Notice Holder(s) Letter(s) of Support).

In conjunction with public, stakeholder and regulatory consultation, the DP is submitted in compliance with national and international regulations and OPRED guidelines. The schedule outlined in this document is for a 5 year decommissioning programme that commenced in 2021.

This DP explains the principles supporting the selection of the decommissioning option, i.e., to leave the pipelines and stabilisation features in-situ and is supported by a CA (200605-S-REP-0004) and EA (200605-S-REP-0005).

The work scope for this DP therefore includes the in-situ decommissioning of PL874 and PL875 from within the Guinevere 500m safety zone (from the cut ends of the pipeline spool pieces) to the edge of the Lancelot 500m safety zone.

Note: All sections of the pipelines between the cut ends of the pipeline spool pieces and the Guinevere jacket (including the riser section attached to the jacket) were removed during the Guinevere jacket removal campaign completed in 2019.

1.3 Introduction

The Guinevere field is located in the Southern Basin of the United Kingdom Continental Shelf (UKCS), in licence block 48/17b, approximately 60km north of the Bacton Gas Terminal (BGT), 56km east of the Theddlethorpe Gas Terminal (TGT) on the Lincolnshire coast and 12km north west of the Thoresby Field. The Guinevere field was discovered in March 1988 by exploration well 48/17b-5. The platform was installed in 1993, with first gas produced the same year. Guinevere exported processed, and water separated, gas through an 8" export pipeline PL874 to the Lancelot Platform. On Lancelot the gas was comingled with gas produced on Lancelot, before being exported to the BGT on the Norfolk coast via the PL 876 pipeline system.

The pipelines are not situated within an environmentally sensitive area, the nearest Special Area of Conservation (SAC), Southern North Sea SAC, is 17km northeast of the Guinevere 500m safety zone. The Inner Dowsing, Race Bank and North Ridge SAC are 19km south west.

The co-ordinates of the former Guinevere Platform were Latitude: 53° 24' 53" North, Longitude: 01° 16' 25" East.

The Guinevere installation was a Normally Unattended Installation (NUI) with a maximum personnel on board (POB) of 12 and a temporary overnight shelter.

Perenco explored all avenues for continuing production as described in the Cessation of Production (COP) document and concluded that due to reduction of gas production, continued operations were uneconomical and therefore COP was announced in Q4 2017. In preparation for decommissioning COP documentation was submitted to the NSTA and approval was granted in December 2016. An Installation DP was subsequently submitted for the decommissioning of 48/17b Guinevere platform. This DP was approved by OPRED on 24th January 2019, with the topside and jacket subsequently removed and disposed of onshore in 2019 and 2020 respectively.

The Guinevere pipelines (approx. 7km in length) are located within Block 48/17b in the SNS. The two infield pipelines, PL874 and PL875 connected the removed Guinevere installation to the Lancelot installation, which remains operational under Perenco operatorship. This Pipeline DP therefore excludes the pipeline sections that fall within the Lancelot field installation 500m safety zone ending at the base of the Lancelot riser. A separate DP will be submitted for this section in due course.

In June 2016, in accordance with Regulation 14 of the Pipeline Safety Regulations 1996, Perenco Gas (UK) Limited notified the Health and Safety Executive (HSEx) of the decommissioning of the Guinevere pipelines, (Ref. Pipeline Safety Regulation (PSR) Notification SVC 4355817).

In 2017, pre-decommissioning surveys were carried along the pipeline out to assess the status along a 100m corridor, including a depth of burial. The 2017 depth of burial survey indicated that, except for the exposed section of pipeline spool pieces at the base of the former Guinevere platform, the average burial depth along the pipeline was 0.75m (Min: 0.3m, Max: 1.2m) with no reportable spans/exposures. No debris was identified along the pipeline lengths during this survey. Details of this survey including the depth of burial (DOB) profiles are shown in the comparative assessment (CA) scoping report Table 3.2.

In early Q4 2019, a pre-decommissioning debris survey at Guinevere was undertaken by Deep BV (Deep BV, 2019). This survey clarified the exposed length of pipelines identified by the 2017 survey detailed above. The pipeline spool piece free spans were within the Guinevere 500m safety zone, close to the Guinevere installation. The span lengths were: 12.9m along the Guinevere export pipeline PL874 and 13.3m along the piggy-backed MEG pipeline PL 875.

Subsequently, in late 2019 and early 2020, during the dismantlement campaign, the pipeline spool piece free spans were removed. The cut sections were recovered and transported ashore for processing in the UK. The removal of the Guinevere installation, and pipeline spool piece free spans was completed by the Blue Tern Jack-up vessel. The dismantlement works consisted of Guinevere topsides, jacket, and pipeline free span removal. Critical cuts were completed to separate the topsides from the jacket, and both the topsides and jacket were removed via heavy lift onto the Blue

Tern deck. Pipeline riser and spool piece free span removal was completed under an approved variation to the PWA 11/W/92.

The post platform removal ROV survey, completed immediately after the dismantlement campaign, identified that at the pipeline spool piece cut locations the pipeline spools were protruding from the seabed and posed a potential snagging hazard that required immediate attention; this resulted in a rock placement campaign in 2022, ensuring the snagging hazard was resolved.

The rock placement was conducted within the 500m safety zone at Guinevere to bury the exposed tie-in spools and associated stabilisation materials. The rock deposits formed a berm that was designed with a 1:3 slope to make it overtrawlable. The berm is approximately 22m in length. This work was completed under (DepCon: 15/D/22). The rock deposit tied into the existing rock placement installed in 1993.

In 2022, a post decommissioning survey was completed along PL874 and PL875 and within the Guinevere 500m safety zone (post rock placement); this confirmed no debris, free spans, or exposures. This survey also included the post decommissioning Environmental Survey and Habitat Assessment Survey (HAS).

1.4 Overview of Pipelines Being Decommissioned

1.4.1 Pipelines

Table 1.1: Pipelines Being Decommissioned	
Number of Pipelines Details given in Table 2.1	2

Table 1.2: Pipelines Section 29 Notice Holders Details		
Section 29 Notice Holders	**Registration Number**	**Equity Interest (%)**
Perenco Gas (UK) Limited	00715529	75
Everard Energy Limited	08066733	25
Noble Energy (Oilex) Limited	00797339	0
Perenco UK Limited	04653066	0

1.5 Summary of Proposed Decommissioning Programme

Table 1.3: Summary of Decommissioning Programme	
Proposed Decommissioning Solution	**Reason for Selection**
Pipelines, Flowlines & Umbilicals (PL874 & PL875): - **Within Guinevere 500m safety zone**	
Partial removal and remediation. Guinevere risers have already been removed.	Pipeline spool piece free span, and jacket riser section were removed during platform decommissioning campaign. Protruding pipeline spool remaining on seabed has been remediated with rock placement to prevent potential snagging hazards to other users of the sea. Proposed decommissioning solution selected in accordance with CA recommendation
- **From edge Guinevere 500m safety zone to edge of Lancelot 500m zone**	
Leave in-situ.	Pipelines are sufficiently buried and are stable. Minimal seabed disturbance to seabed, reduced risk to personnel engaged in the activity, reduced environmental impact from the generation of emissions and waste. Proposed decommissioning solution selected in accordance with CA recommendation
- **Lancelot 500m Safety Zone**	
To be covered by a separate DP	N/A
- **Pipeline stabilisation materials within the Guinevere 500m safety zone**	
Leave in-situ.	The stabilisation materials are concrete mattresses and are all buried under rock placement. Proposed decommissioning solution selected in accordance with CA recommendation.
Interdependencies	
Decommissioning of the pipeline section within the Lancelot 500m safety zone is subject to a future DP as the platform currently remains operational.	

1.6 Field Location Including Field Layout and Adjacent Facilities

Figure 1.1: Field Location in UKCS

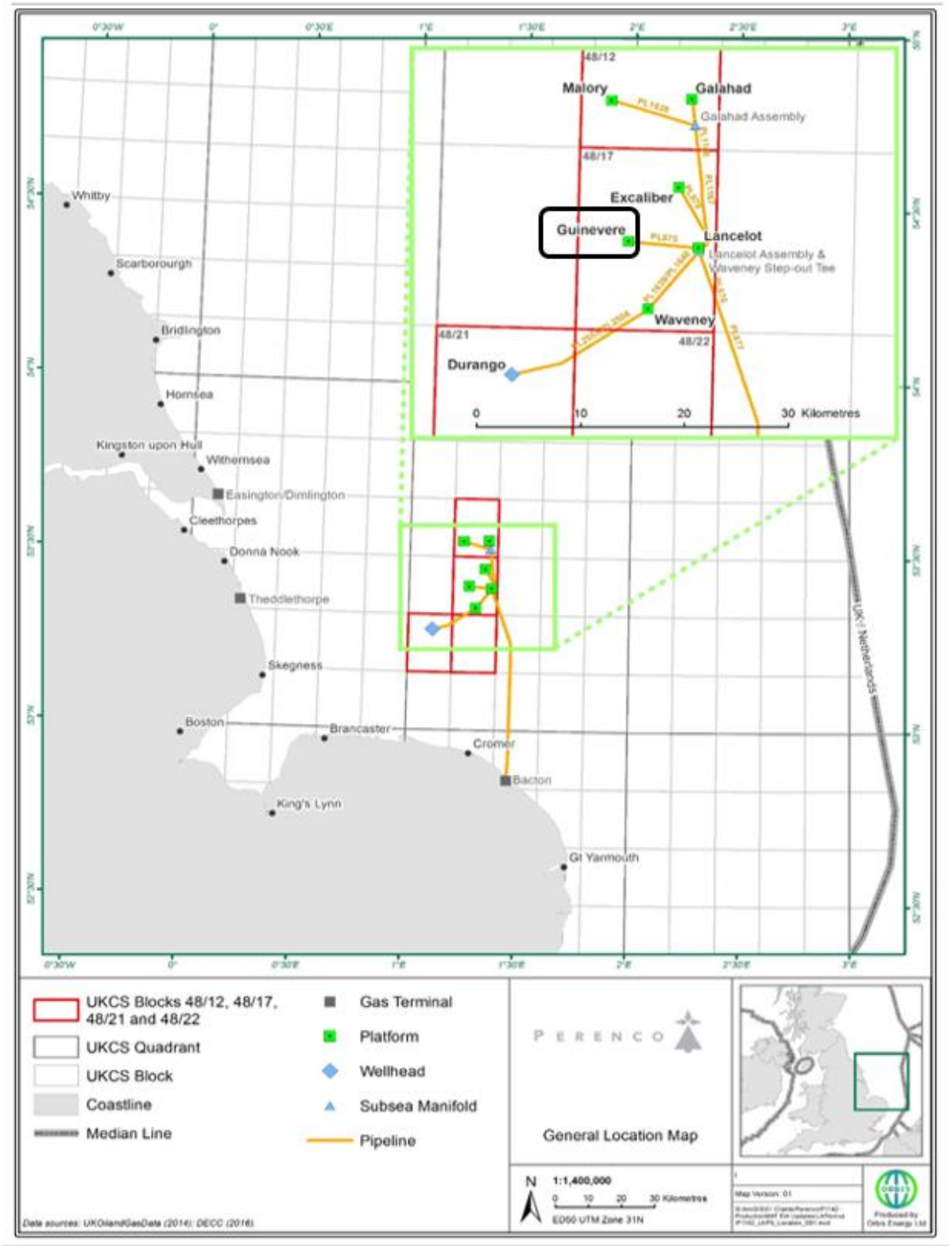


Figure 1.2: Field Layout

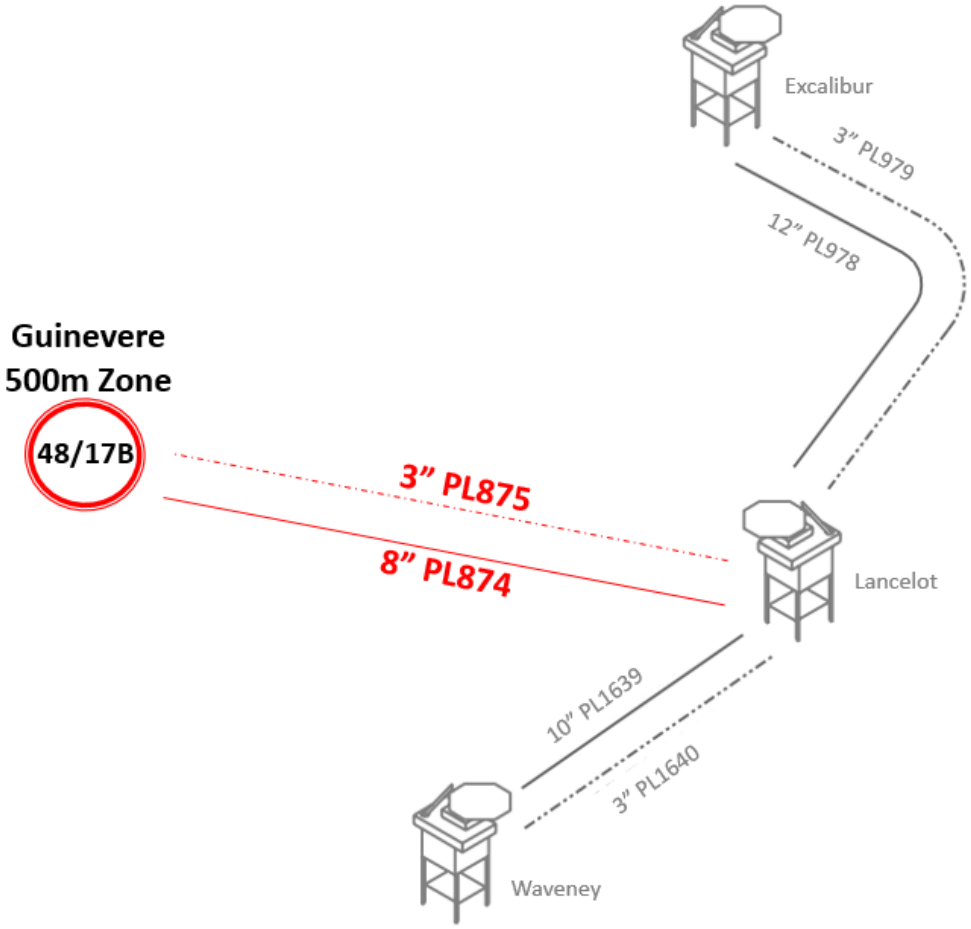


Figure 1.3: Adjacent Facilities

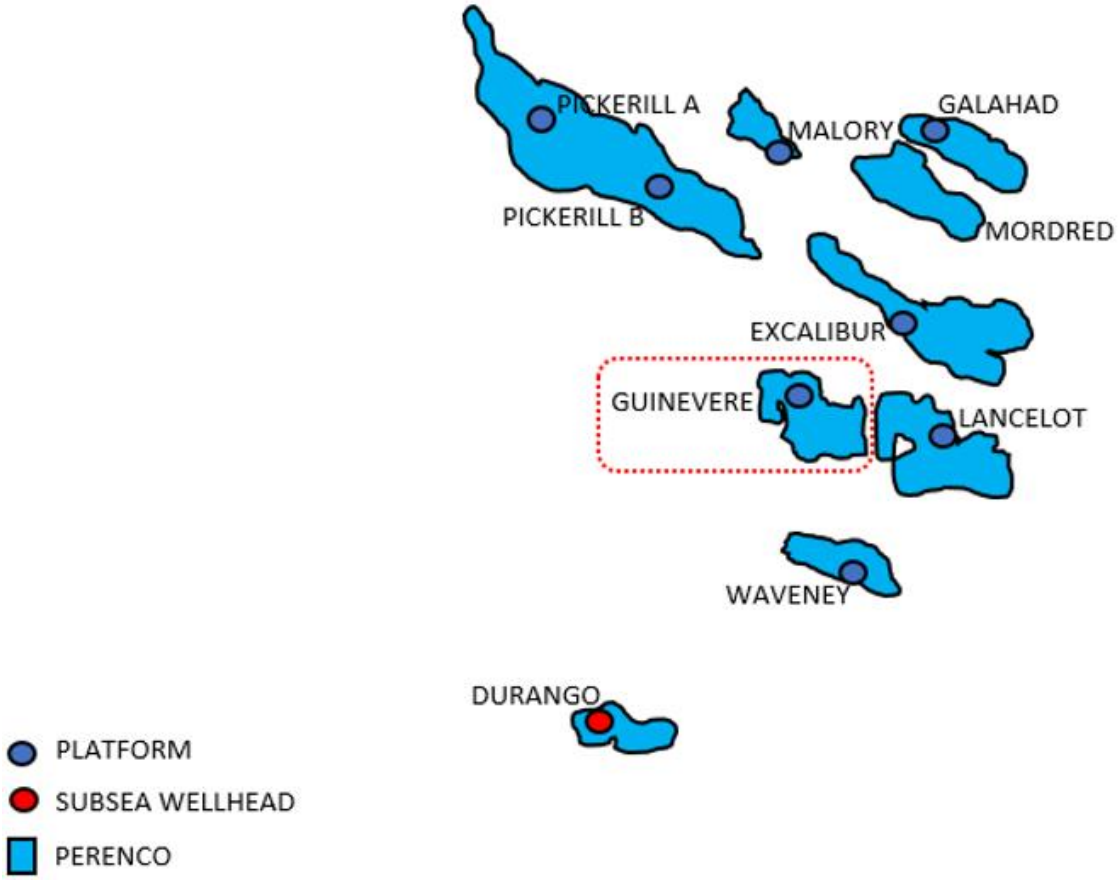


Table 1.4: Adjacent Facilities					
Operator	**Name**	**Type**	**Distance/Direction**	**Information**	**Status**
Perenco Gas (UK) Limited	Lancelot	Platform	Lancelot is 7km east from Guinevere.	Adjacent Platform	Operational
Perenco Gas (UK) Limited	Excalibur	Platform	Excalibur is 7km northeast from Guinevere.	Adjacent Platform	Operational
Perenco Gas (UK) Limited	Pickerill A	Platform	Pickerill A is 20km northwest from Guinevere.	Adjacent Jacket	Platform Hydrocarbon Safe (HCS), with topside Removed
Perenco Gas (UK) Limited	Pickerill B	Platform	Pickerill B is 14km northwest from Guinevere.	Adjacent Jacket	Platform HCS, with topside Removed
Perenco Gas (UK) Limited	Pickerill 16” PL818	Pipeline	Between Pickerill A and B Jackets Northwest from Guinevere	Adjacent Pipeline	Flushed and Air Gapped
Perenco Gas (UK) Limited	Pickerill 3” PL819	Pipeline	Between Pickerill A and B Jackets Northwest from Guinevere	Adjacent Pipeline	Flushed and Air Gapped
Perenco North Sea Limited	Waveney	Platform	Waveney is 7km southwest of Guinevere	Adjacent Platform	Operational
Perenco North Sea Limited	Durango	Subsea Well	Durango is 17km southwest of Guinevere	Adjacent subsea structure	Shut-in
Perenco Gas (UK) Limited	Galahad	Platform	Galahad is 16km northeast of Guinevere	Adjacent Platform	Platform HCS and in Lighthouse Mode
Perenco Gas (UK) Limited	Malory	Platform	Galahad is 14km northeast of Guinevere	Adjacent Platform	Operational
Impacts of Decommissioning Proposals					
Decommissioning of Guinevere pipelines will have no impact on Lancelot or any adjacent facilities. Pipelines are already flushed, cleaned, and buried. There are no known pipeline crossings along the 7km of pipeline from Guinevere to Lancelot					

1.7 Industrial Implications

Perenco's contract strategy and Supply Chain Action Plan will result in an efficient and cost-effective execution of the decommissioning works.

The Guinevere Pipeline DP is managed by Perenco to ensure safe, efficient, and legally compliant delivery of the various elements of the decommissioning scope. The intention is to make efficient use of the supply chain to generate value through the application of knowledge, innovation, and technology, explore collaboration opportunities and to employ best practice in the management of the supply chain to deliver a cost effective and reliable service. Where appropriate existing framework agreements may be used for decommissioning activities.

2. DESCRIPTION OF ITEMS TO BE DECOMMISSIONED

2.1 Pipelines Including Stabilisation Features

Table 2.1: Pipeline/Flowline/Umbilical Information									
Description	**Pipeline Number**	**Diameter (")**	**Length (km)**	**Description of Component Parts**	**Product Conveyed**	**From-To End Points**	**Burial Status**	**Pipeline Status**	**Current Content**
Export line	PL874	8"	6.560[1]	Fusion Bonded Epoxy coated steel	Gas	Subsea Cut End on Guinevere Spool to Lancelot Platform Pig Trap.	Trenched and Buried	Out-of-use	Cleaned; Flushed and open to sea.
MEG line	PL875	3"	6.537[1]	Fusion Bonded Epoxy coated steel	Chemicals	Lancelot Platform FB Ball Valve ESDV 1018 to Subsea Cut End on Guinevere Spool.	Trenched and Buried	Out-of-use	Cleaned; Flushed and open to sea.

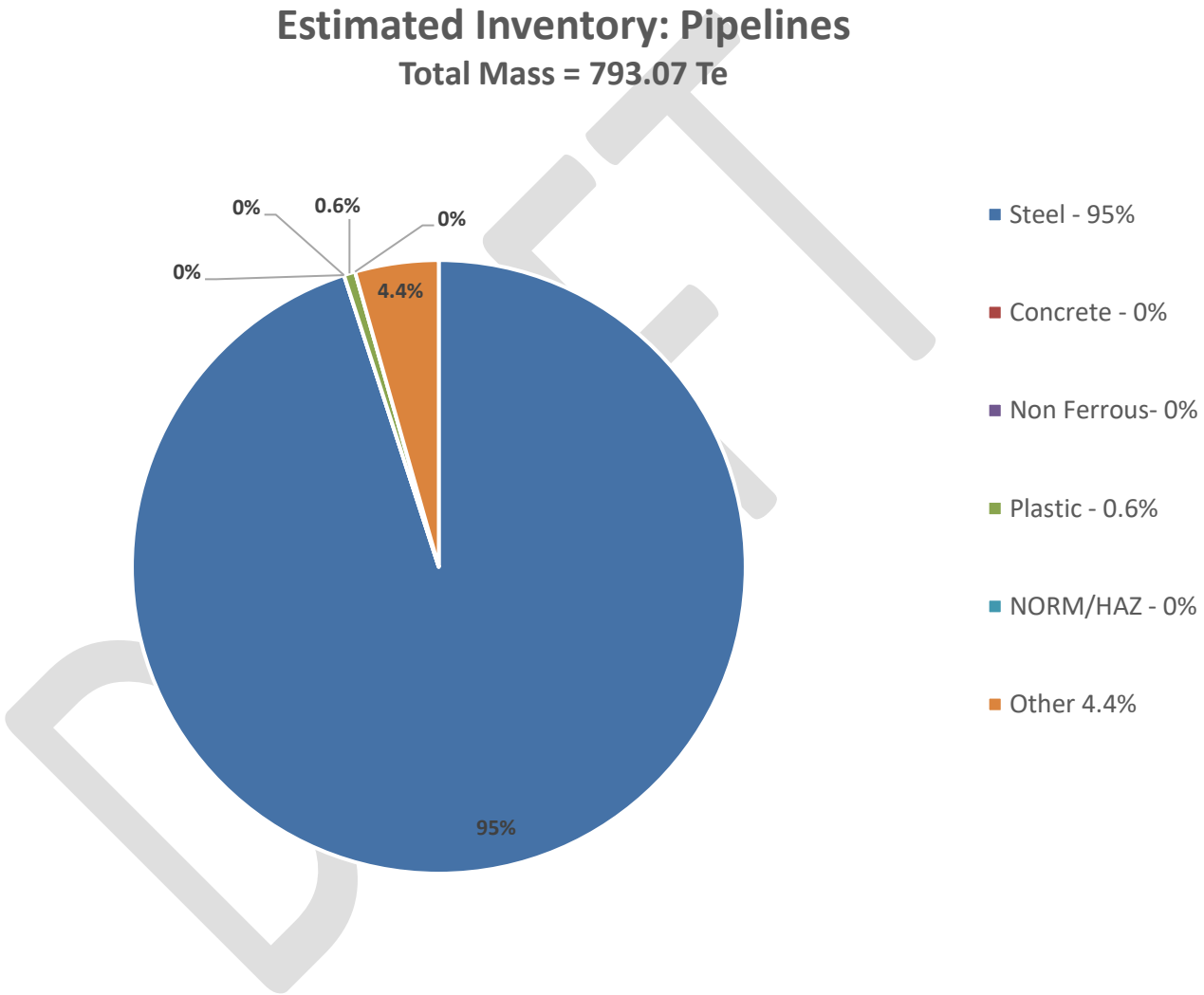
Note [1] Pipeline length considered for this DP is the original pipeline length as per the PWA (Ref: 11/W/92) minus 495m of Guinevere pipeline within the Lancelot 500m safety zone. It should be noted a variation to this PWA has been approved (Consent Document No. 267/V/23) to reflect the current length of the pipeline accounting for the sections already removed during the completed decommissioning campaigns detailed in Section 1.3 and Table 1.3.

Table 2.2: Subsea Pipeline Stabilisation Features				
Stabilisation Feature	**Total Number**	**Size (m)**	**Locations**	**Exposed/Buried/Condition**
Concrete Mattresses	2	2.4m x 5.8m x 0.48m	Covering the pipeline approach to Guinevere[1]. All mattresses are within platform 500m safety zones.	All concrete mattresses are buried by rock placement in 500m safety zone.
	2	2.0m x 10.0m x 0.30m		
Grout Bags (estimate)	50	0.25m x 0.25m (assumed)	Supporting riser at Guinevere[1].	No evidence of the presence of grout bags from recent surveys, therefore they are assumed to be completely buried below the seabed and/or by the rock placement.
Rock Placement	1	120m long section of protective rock placement	Covering the pipeline approach to Guinevere. All rock placements is within platform 500m safety zones.	Rock placement installed post installation of facility.
	1	22m long section of protective rock placement	Covering the exposed pipeline tie-in spools. All rock placements is within platform 500m safety zones.	Rock placement installed post removal of the Jacket in 500m safety zone.

Note [1] PL874 and PL875 stabilisation materials inside the Lancelot 500m safety zone are excluded from this Pipeline DP and will be covered in a separate DP.

2.2 Inventory Estimates

Figure 2.1: Pie Chart of Estimated Inventory (Pipelines)



3. REMOVAL AND DISPOSAL METHODS

Waste will be dealt with in accordance with the Waste Framework Directive. 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.

3.1 Pipelines

In accordance with the Offshore Energies UK (OEUK) formerly Oil and Gas UK Guidelines and the Department for Business, Energy, and Industrial Strategy (BEIS) Guidance Notes a CA process was followed to assess the removal and disposal methods available for PL874 and PL875. This process is further detailed in the following sections, with the considered pipeline decommissioning options summarised in Table 3.1.

Recent geotechnical surveys confirm that the western extent of the pipelines, on approach to the previous Guinevere jacket, are covered by historical rock placement. Additionally, in Q1 2022, the NSTA authorised additional rock placement to cover and secure the exposed cut end of the pipelines at the Guinevere installation location. This rock placement fully covers the 4 concrete mattresses within the Guinevere 500m safety zone with a berm that was designed with a 1:3 slope to make it overtrawlable.

The OPRED Guidance Notes, Decommissioning of Offshore Oil and Gas Installations and Pipelines states that “Where rock-dump has previously been used to protect a pipeline it is recognised that removal of the pipeline is unlikely to be practicable and it is generally assumed that the rock-dump and the pipeline will remain in place. Where this occurs, it is expected that the rock-dump will remain undisturbed.”

In accordance with current guidance, the pipeline sections and any associated stabilisation materials which have been covered by rock placement have been excluded from the CA process and will be left in situ.

N.B. There are no known crossings along the entire length of the pipelines from Guinevere to Lancelot.

A description of the different options that were considered is detailed in the CA Report (200605-S-REP-0004).

Decommissioning Options:

The decommissioning options considered as detailed in Table 3.1 included:

Key to Options

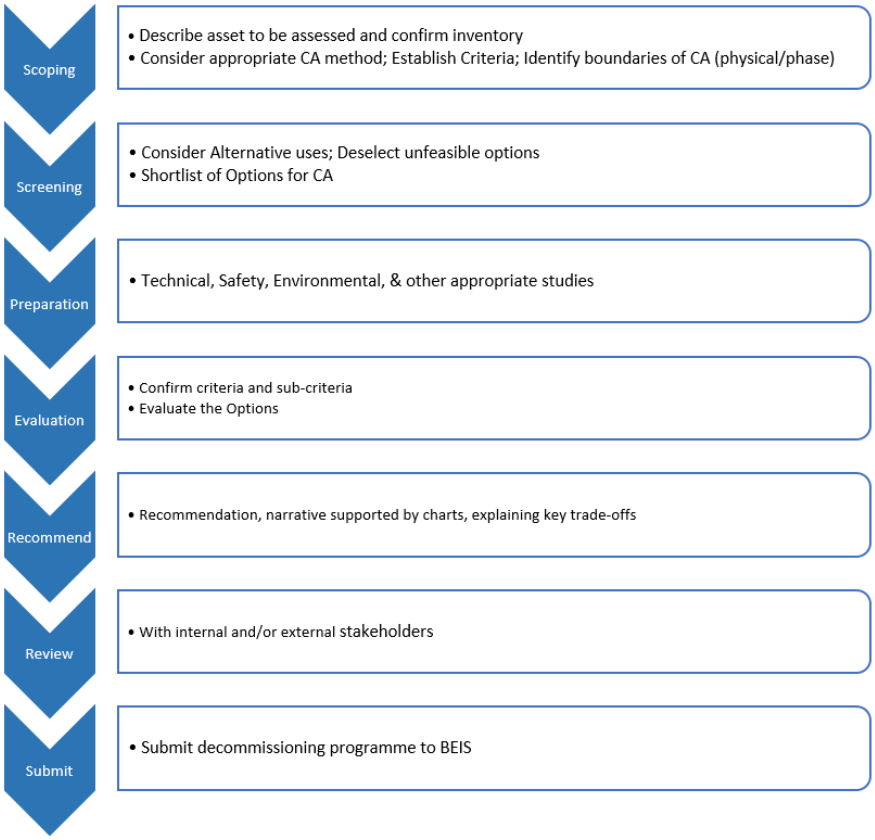
Option 1 a) Full removal – Cut and lift	Option 1 b) Full removal – Reverse reeling
Option 1 c) Full removal – Reverse installation (Surface cut)	Option 4 a) Leave in-situ without remediation

Table 3.1: Pipeline 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
PL874	Buried to an average depth of 0.7m	Whole of pipelines excluding those inside Lancelot 500m safety zone	1 a), 1b), 1 c) & 4 a) (no current exposures)
PL875	Buried to an average depth of 0.7m	Whole of pipelines excluding those inside Lancelot 500m safety zone	1 a), 1b), 1 c) & 4 a) (no current exposures)

Comparative Assessment Process:
The CA process was developed in-line with OEUK Guidelines and the BEIS Guidance Notes. The figure below presents the various phases the CA process that was followed.

Figure 3.1: Comparative Assessment Phases



Outcome of Comparative Assessment:

Perenco have assessed all available options for the decommissioning of both the 8" export PL874 and the 3" MEG PL875 piggy-backed pipelines. Including assessing both the waste hierarchy and re-use options. The preferred decommissioning option of leave in-situ will prevent the generation of waste.

Perenco have assessed options for re-use of the pipeline in-situ, however none have been identified, or have proven commercially or technically unviable. Reuse options were addressed within the COP document approved by the NSTA. None of the pipelines are candidates for carbon capture, use and storage.

As determined by the CA, it was concluded that the best option is for both pipelines to be left in-situ, with monitoring at an agreed interval. This aligns with the waste hierarchy, in which the preferred option is the prevention of waste, followed by the reduction or re-use of waste.

A summary of the justification for the selected option is presented in Table 3.2, with the weighting charts presented in Figure 3.2. Full details are provided in the CA report.

The potential impacts associated with the preferred option are presented in the Guinevere Pipelines EA.

Table 3.2: Outcome of Comparative Assessment

Pipeline or Group (as per PWA)	Recommended Option	Justification
PL874	Leave in-situ	Entire pipeline is fully buried, and all previous existing stabilisation materials, exposures and snagging hazards are buried with rock; therefore, leave-in situ was the outcome of the CA. CA Report (200605-S-REP-0004)
PL875	Leave in-situ	Entire pipeline is fully buried, and all previous existing stabilisation materials, exposures and snagging hazards are buried with rock; therefore, leave-in situ was the outcome of the CA. CA Report (200605-S-REP-0004)

Figure 3.2: Equal Weighting Charts

3.2 Pipeline Stabilisation Features

In accordance with the OEUK Guidelines and the BEIS Guidance Notes, the stabilisation materials which have been covered by rock placement, have been excluded from the CA process and will be left in-situ.

Table 3.3: Pipeline Stabilisation Features

Stabilisation Features	Number	To Remain in Situ	Disposal Route
Concrete Mattresses	4	To remain in situ; they were covered by rock in 2022. (DepCon: 15/D/22)	N/A
Grout Bags	Unknown	To remain in situ; they were covered by rock in 2022. (DepCon: 15/D/22). If any exposed grout bags are identified in later surveys they will be recovered where feasible.	N/A
Rock Dump (Te)	Rock berm installed during installation; tonnage is unknown. Rock berm installed in 2022 - 942 Te.	To remain in situ. Rock berms total length 120m + 22m = 142m	N/A

3.3 Waste Streams

Table 3.4: Waste Stream Management Methods

Waste Stream	Removal and Disposal Method
Marine Growth	All marine growth will remain in its current location, as both pipelines are to be left in-situ.
Naturally Occurring Radioactive Material (NORM)/ Low Specific Activity (LSA Scale)	Both pipelines were made HCS (flushed, cut, and filled with seawater) and verified in Q4 2017. Due to this, NORM/LSA testing will not be required for this decommissioning activity.
Other Hazardous Wastes	Both pipelines were made HCS (flushed, cut, and filled with seawater) in 2016. Due to this, a survey for hazardous waste will not be required for this decommissioning activity.
Onshore Dismantling Sites	If required, appropriate licensed sites will be selected. The dismantling site must demonstrate proven disposal track record and waste stream management throughout the deconstruction process and demonstrate their ability to deliver re-use and recycling options. If an onshore site is required, OPRED will be contacted.

Table 3.5: Inventory Disposition			
	Total Inventory (Te)	Planned (Te) to Shore	Planned Left in Situ
Pipelines	793.07	0	793.07

4. ENVIRONMENTAL APPRAISAL OVERVIEW

The following section provides a summary of the Environmental Impact Assessment (EIA) associated with the decommissioning proposal for the 8" export pipeline PL874 and 3 " MEG line PL875.

For the decommissioning activities completed to date, i.e., for the sections of pipeline within the 500m safety zone, further details of the environmental impacts and their management can be found in the Master Application Template (MAT) EIAs, DCA/P1202 and MAT:PLA/P882.

A full EIA is presented in the EA submitted alongside this DP (Ref. 200605-S-REP-0005 EA Report) for the remaining decommissioning activities.

4.1 Environmental Sensitivities (Summary)

Table 4.1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
Conservation Interests	Southern North Sea SAC – 17km north east Inner Dowsing, Race Bank and North Ridge SAC – 19km south west North Norfolk Sandbanks and Saturn Reef SAC – 23km east The Greater Wash Special Protection Area (SPA) – 32km south west Holderness Offshore Marine Conservation Zone (MCZ) – 37km north west
Seabed	The following European Nature Information System (EUNIS) seabed classifications have been identified in the vicinity of the PL874 and PL875 . The predominant broadscale habitat is circalittoral coarse sediment (A5.14). To the east and west, the habitat transitions through deep circalittoral coarse sediment (A5.37) and deep circalittoral sand (A5.27) to circalittoral fine sand or circalittoral muddy sand (A5.25 or A5.26). **A5.14 Circalittoral coarse sediment** - Tide-swept circalittoral coarse sands, gravel, and shingle generally in depths of over 15-20m. This habitat may be found in tidal channels of marine inlets, along exposed coasts and offshore. This habitat, as with shallower coarse sediments, may be characterised by robust infaunal polychaetes, mobile crustacea and bivalves. Certain species of sea cucumber (e.g. Neopentadactyla) may also be prevalent in these areas along with the lancelet (Branchiostoma lanceolatum). **A5.25/A5.26 Circalittoral sand** - Circalittoral clean fine sands with less than 5% silt/clay in deeper water, or either on the open coast or in tide-swept channels of marine inlets in depths of over 15-20m or

Environmental Receptor	Main Features
Seabed	non-cohesive muddy sands with the silt content of the substratum typically ranging from 5% to 20% generally found in water depths of over 15-20m. This habitat is generally more stable than shallower, infralittoral sands, and consequently supports a more diverse community. This habitat extends offshore, while very little information is available on these, they are likely to be more stable than their shallower counterparts. This habitat is characterised by a range of taxa including polychaetes, bivalve molluscs, and amphipod crustacea.
Fish	Species that spawn within International Council for the Exploration of the Seas (ICES) Rectangle 35F1 include herring (Clupea harengus), lemon sole (Microstomus kitt), mackerel (Scomber scombrus), sandeel (Ammodytes spp.), sole (Solea solea), and whiting (Merlangius merlangus). ICES Rectangle 35F1 is also a nursery ground for cod (Gadhus morhua), herring, horse mackerel (Trachurus trachurus), lemon sole, mackerel, plaice (Pleuronectes platessa), sandeels and whiting.
Fisheries	Guinevere is located within ICES Rectangle 35F1. Annual fishing effort in ICES Rectangle 35F1 is only available for 2012 and 2013, with an average of 726 days. This annual mean is consistent with large areas of the SNS. Monthly fishing effort is generally low but is highest between March and July. The most frequently used gear type is static gears, particularly traps which target shellfish species. This is reflected in the landings data which indicates that shellfish species are the most significant component of the fishery in terms of landed tonnage and value (over 95% for both). The most frequently caught species include the Norway lobster (Nephrops norvegicus), crabs, lobsters, and scallops. Elasmobranch species which have been recorded in the SNS at various times throughout the year and may therefore be present in the vicinity of Block 48/17 include: Blonde skate (Raja brachyura), Common smoothhound (Mustelus mustelus), Cuckoo skate (Leucoraja naevus), Small spotted Catshark (Scyliorhinus Canicular), Spiny dogfish (Squalus acanthias), Spotted skate (Raja montagui), Starry smoothhound (Mustelus asterias), Thornback skate (Raja clavate), Tope shark (Galeorhinus galeus) and Undulate skate (Raja undulata).
Marine Mammals	The relative abundance and density of cetaceans in the vicinity of the Guinevere location can be derived from data obtained during the Small Cetacean Abundance of the North Sea (SCANS-III) aerial and ship-based surveys. This project identified the abundance and density of cetacean species within predefined sectors of the North Sea and North-East Atlantic. The Guinevere location is situated within SCANS-III Block 'O' , in which harbour porpoise, minke whale and white-beaked dolphin have been recorded. The density of the harbour porpoise within the SCANS-III Block 'O' is higher than the total surveyed area, suggesting that the area may be important for these species. Densities for minke whale were similar to the total

Environmental Receptor	Main Features
Marine Mammals	surveyed area, whereas densities for white-beaked dolphin were a magnitude lower. Two species of seals; grey seal (Halichoerus grypus) and the harbour (or common) seal (Phoca vitulina) are found in the North Sea around the English east coast. Both species are listed under Annex II of the EC Habitats Directive and protected under the Conservation of Seals Act 1970 (from 0 to 12 nautical miles from the coast) and listed as UK Best Aquaculture Practices (BAP) priority marine species. The former Guinevere platform was located 52km from the nearest coastline, and thus the distribution of grey seals in the vicinity of Guinevere pipelines is very low (1 individual per 25km^2)
Birds	The most common species of seabird found in this area of the SNS include Northern fulmar (Fulmarus glacialis), Great Skua (Stercorarius skua), Black legged kittiwake (Rissa tridactyla), Great black backed gull (Larus marinus), Common gull (Larus canus), Lesser black backed gull (Larus fuscus), Herring gull (Larus argentatus), Common guillemot (Uria aalge), Razorbill (Alca torda), Little auk (Alle alle) and Atlantic puffin (Fratercula arctica). Fulmars are present in highest numbers during the early and late breeding seasons, leading to peak densities in September. Kittiwakes are widely distributed throughout the year. Lesser black-backed gull are mainly summer visitors, while in contrast guillemot numbers are greatest during winter months. In addition, substantial numbers of terns migrate northwards through the offshore North Sea area in April and May, with return passage from July to September.
Onshore Communities	The former Guinevere platform was located 52km from the nearest coastline.
Other Users of the Sea	The licenced aggregate production area Outer Dowsing (Licence No. 515/2, in operation 01/01/2015 – 31/12/2029), licenced to Westminster Gravels Ltd is located approximately 3km to the west of the proposed Guinevere pipeline PL874 and PL875 deposit area. There are currently no 'active' or 'under construction' windfarms within UKCS Block 48/17. However, the Dudgeon Extension Area which is in the 'pre-planning' stages extends into the southern portion of Block 48/17 approximately 7km to the south of the proposed Guinevere pipeline PL874 and PL875 deposit area. Dudgeon is the nearest 'active' windfarm to the Guinevere location, approximately 12km south in Block 48/22. The density of shipping traffic in the SNS is relatively high due to the presence of fishing vessels, some ferries between the UK and the rest of Europe and cargo and offshore support vessels. However, the waters surrounding the Guinevere location are described as having 'Moderate' shipping activity.

Environmental Receptor	Main Features
Other Users of the Sea	Block 48/17 does not lie within a known military practice and exercise area. However, a licence condition identified by the Ministry of Defence (MoD) exists for Block 48/17 as it lies within MoD training ranges. The licence condition stipulates that the MoD must be consulted 12 months in advance of placement of any installation (fixed or resting on the seabed or floating) related to oil and gas activity within the block.
Atmosphere	Although the project will produce atmospheric emissions and consume energy to undertake (both onshore and offshore), these activities are required to be undertaken to meet decommissioning obligations for the infrastructure. The preferred option has been considered with a focus on minimising vessel time and therefore minimising any associated emissions. An assessment of air emissions associated with the preferred option is presented in the EA. Although it should be noted that this assessment accounts for an overtrawl survey, these contributions are far below any thresholds for emissions in the UKCS or on a global scale and are not significantly larger than general vessel operations in the region. Future legacy survey frequency will be determined and agreed with OPRED, however the resulting emissions from these surveys are determined to be negligible as they will be extremely small in the context of UKCS and global emissions.

4.2 Potential Environmental Impacts and Their Management

Overview:
The only potentially significant impacts associated with the selected option are those associated with the legacy of infrastructure remaining in situ. This includes potential snagging hazards and the degradation of material. All impacts have been assessed within the EA and determined not to be significant.

There is negligible potential for cumulative impacts and no potential for transboundary impacts for the selected option.

Table 4.2 : Potential Significant Impacts Environmental Impact Management

Activity	Potential Significant Impacts	Management
Physical Presence of Infrastructure	The decommissioning of the Guinevere pipelines has the potential to impact on other users of the offshore environment through the physical presence of subsea infrastructure decommissioned in situ which may pose a potential snagging risk for commercial fisheries. The long-term presence of materials left in situ has the potential to interfere with other sea users, for subsea infrastructure this is particularly applicable to bottom trawl (Demersal) fishing. In addition to the pipelines themselves, other materials left in situ such as rock placement, concrete mattresses and grout bags all have the potential to add to this snagging risk. In addition to the above, the decommissioning of the Guinevere pipelines in situ has the potential to impact on the environment through the degradation and mobilisation of materials left in situ, including plastics used for pipeline coating.	Pipeline surveys completed along the pipeline route in 2017 confirmed both PL874 and PL875 are buried with an average depth of 0.7m across the entire length with no exposures, except for those at the tie in spool location, which were subsequently covered by berm that was designed with a 1:3 slope to make it overtrawlable. Additional surveys completed in 2022 confirmed that the pipeline remains buried with no exposures or free spans. Due to the time period between these surveys, it is reasonably assumed that the pipelines are stable and will remain buried at a suitable depth in their current location. The four concrete mattresses present in the Guinevere 500m safety zone are fully covered by a berm that was designed with a 1:3 slope to make it overtrawlable., which prevents snagging. As both pipelines are buried below the seabed in a stable condition, it is not expected that they would be subject to mechanical or chemical degradation and there are no known biological species capable of biologically breaking down fusion bonded epoxy material. As such the degradation and subsequent release of microplastic materials into the surrounding sediment or water column in not expected, preventing the ingestion of microplastics by marine fauna and mobilisation into the food chain.

Activity	Main Impacts	Management
Physical Presence of Infrastructure		The following mitigation measures will be employed to further reduce any impacts associated with the decommissioning option: • The Guinevere Pipelines are currently shown on Admiralty Charts, the FishSAFE system and the NSTA Infrastructure data systems (NSTA Open Data). • Surveys will be undertaken to confirm lack of snagging hazards and obtain clear seabed verification. This will ensure there is no residual risk to other sea users. Non-intrusive verification techniques will be considered in the first instance, but if deemed necessary, clear seabed verification may require conventional overtrawl survey methods. Any snagging hazard identified will be reviewed and discussed with OPRED on the appropriate method of remediation. Perenco will commit to a series of post decommissioning legacy surveys to confirm that the pipelines remain buried and do not pose a risk to other sea users. The frequency of such surveys will be agreed with OPRED as part of the decommissioning close out reporting arrangements, although it is anticipated that this frequency will be determined based on a risk-based approach. During the period over which monitoring is required, the burial status of the infrastructure decommissioned in situ would be reviewed and any necessary remedial action undertaken to ensure it does not pose a risk to other sea users.

Table 4.3: Potential Non-Signifiant Impacts Environmental Impact Management		
Activity	**Potential Non-Significant Impacts**	**Management**
Energy and Emissions	Although the project will produce atmospheric emissions and consume energy to undertake (both onshore and offshore), these activities are required to be undertaken to meet decommissioning obligations for the infrastructure. These contributions are far below any thresholds for emissions in the UKCS or on a global scale and are not significantly larger than general vessel operations in the region.	Future legacy survey frequency will be determined and agreed with OPRED, however the resulting emissions from these surveys are determined to be negligible as they will be extremely small in the context of UKCS and global emissions.
Operational Discharges to Sea	Prior to decommissioning activities, pipework and subsea flowlines have been cleaned to an agreed standard with OPRED. Any potential residual volumes are expected to be minimal and have previously been considered under the individual permit consent applications for the decommissioning activities through the Portal Environmental Tracking System (PETS).	Vessel based discharges will be limited to those generally associated with vessel operations and controlled via established methods under (Convention on Marine Pollution). Approved contractor procedures will assess and minimise vessel-based discharges. Any residual hydrocarbons, if present within the pipelines, will continue to dissipate slowly. It should be noted that the pipelines have been cut and open to seawater since 2017.
Noise Emissions	The only noise emissions associated with the preferred decommissioning option are those from operation of the survey vessel and geotechnical survey equipment.	Surveys will be scheduled and planned efficiently to minimise vessel operation time. Geotechnical survey equipment will be selected based on the lowest sound volume capable to achieving required survey results. Standard mitigations for minimising impacts on marine mammals will be employed where required.
Seabed Disturbance	The only source of potential impact from the selected decommissioning option is from the completion of overtrawl surveys. Overtrawl surveys, or other alternative methods of seabed verification, are an important element of the decommissioning process to ensure that no snagging hazards are present before the removal of exclusion zones or approval to leave pipeline and other materials in situ. The main impacts from the completion of overtrawl surveys will be physical damage to the seabed in the survey area.	Specific survey methods will be discussed and agreed with OPRED prior to commencement. Where possible to do so preference will be given to non-intrusive survey methods such as Side Scan Sonar and Remotely Operated Vehicle surveys to determine a clear seabed. Where these are deemed inconclusive targeted overtrawling may be undertaken to ensure no residual risk of snagging remains post-decommissioning. Should overtrawling be required, it will be conducted by fishing vessel(s) using trawl gear that is appropriate for the area.

5. INTERESTED PARTY CONSULTATIONS

Perenco as part of the Pipeline DP consultation process, plan to include the following statutory stakeholders of the DP:

- NFFO
- SFF
- NIFPO
- Global Marine Systems
- Public

Table 5.1: Summary of Stakeholder Comments		
Who	**Comment**	**Response**
Statutory Consultations		
NFFO		
SFF		
NIFPO		
Global Marine Systems		
Other Consultations		
Public		
Informal Stakeholder Consultations		
Joint Nature Conservation Committee (JNCC)		
HSEx		
Environment Agency		
MOD		
Centre for Environment, Fisheries and Aquaculture Science (CEFAS)		

6. PROGRAMME MANAGEMENT

6.1 Project Management and Verification

A Perenco 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 Perenco Policies and Principles.

Perenco standard procedures for operational control and hazard identification and management will be used. Where possible the work will be coordinated with other decommissioning operations in the SNS. Perenco will monitor and track the process of consents and the consultations required as part of this process.

6.2 Post-Decommissioning Debris Clearance and Verification

As detailed in Section 1.3, in 2022, following completion of all physical decommissioning activities as proposed in this DP, a post decommissioning survey was completed along PL874 and PL875 and within the Guinevere 500m safety zone. This survey included: a bathymetry survey, to identify any free spans, exposures, or large objects (which may present a snagging hazard), and an EBS and HAS.

A summary comparison of pre and post environmental survey results is provided in the EA; further detail will be provided as part of the close out report.

Additionally, a clear seabed certificate will be obtained in accordance with guidance from Department for Energy Security and Net Zero and NFFO. If deemed required an overtrawl will be conducted by the NFFO to confirm the clear seabed. These activities relate to the Guinevere area up to, but not including, the Lancelot 500m Safety Zone.

Any requirement for future legacy monitoring based on the results of the pre and post decommissioning surveys will be agreed with OPRED as part of the closeout process.

6.3 Schedule

A number of decommissioning activities have been carried out prior to the submission of the Pipeline DP, as detailed in Section 1.3. This work has been carried out under the appropriate permitting regime for the activity, i.e., OPRED, NSTA and HSEx.

The remaining decommissioning activities include: an overtrawl survey or equivalent, to confirm a clear seabed, and the completion of the Close Out Report. If remediation to the pipeline is required, this activity will be completed prior to completion of the clear seabed verification.

The final Close Out Report is expected to be submitted by Q2 2025.

Figure 6.1, below, provides the timeline of all decommissioning activities in relation to this DP, both those already completed and those to be completed.

Figure 6.1: Gantt Chart of Project Plan

Year	2021				2022				2023				2024				2025			
Quarter	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Pipeline Decommissioning Programe																				
Submission of DP																				
Consultation																				
Approval of DP																				
Post Decommissioning Activities and Surveys																				
Post Decommissioning Surveys																				
Remediation (if required)																				
Obtain Clear Seabed Certification																				
Close Out report																				

LEGEND	
	Earliest date task could be completed
	Period in which task is to be completed
	Date Tasks were completed

6.4 Costs

The decommissioning costs detailed within this Pipelines DP have been provided to OPRED. The costs provided covered the scope of work associated with decommissioning, closeout, and continuing liability of the Guinevere pipelines.

6.5 Close Out

In accordance with the OPRED Guidelines, a Close Out Report will be submitted to OPRED explaining any variations from the DP. A combined Guinevere Installation and Pipeline Close Out Report will be submitted within approximately 12 months of the completion of the post decommissioning surveys, including debris removal, and if deemed required for a clear seabed certificate an overtrawl survey, that will be completed along the length of the pipeline and the associated 500m safety zone.

6.6 Legacy Monitoring and Evaluation

The results of the post decommissioning surveys have been compared with the pre decommissioning surveys, the results of the post-decommissioning surveys and the comparison has been provided to OPRED within the EA report.

The Close Out Report will provide a proposed frequency for any further legacy monitoring surveys based on the survey results and comparisons. The legacy monitoring regime will be discussed and agreed with OPRED as part of the close out process.

As the Lancelot platform is still operational it is not possible to make the same conclusions for the proportion of the pipelines inside Lancelot 500m safety zone, which have been excluded from this pipeline DP. The pipeline section within the Lancelot 500m safety zone will therefore continue to be monitored and at Close-Out of the Lancelot Installation and Pipeline DP any ongoing monitoring requirements of PL874 and PL875 within the Lancelot platform 500m safety zone location will be agreed with OPRED.

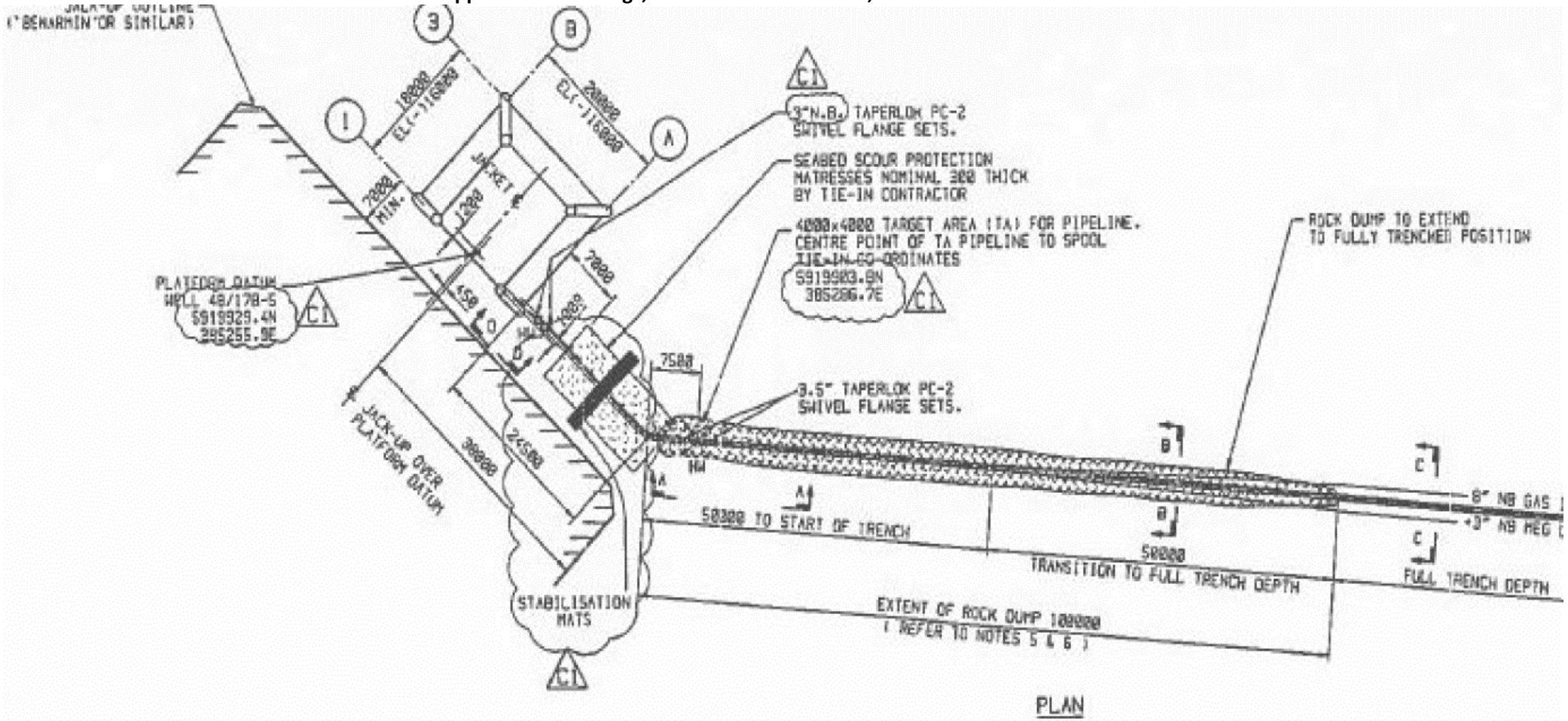
7. SUPPORTING DOCUMENTS

Table 7.1 : Supporting Documents		
Document Number	**Title**	**Reference**
1	Environmental Appraisal Scoping Report	200605-S-REP-0005
2	Comparative Assessment Scoping Report	200605-S-REP-0001
3	Comparative Assessment Screening Report	200605-S-REP-0002
4	Comparative Assessment Report 200605-S-REP-0004	200605-S-REP-0004
5	Guinevere Pre-Decommissioning Environmental Baseline and Debris Survey Campaign – Volume 3 Debris Survey 2017	2017-001_Vol3
6	Guinevere Pre-Decommissioning Environmental Baseline and Debris Survey Campaign – Volume 5 Pipeline Inspection/Depth of Burial Surveys PL874/PL875 2017	2017-001_Vol5
6	Guinevere Post-Decommissioning Seabed Environment Survey 2022	OEL_NSEPER0422_GUI_TCR
7	Guinevere Post-Decommissioning MBES 2022	NSO-PJ00292-RR-DC-SUR-003

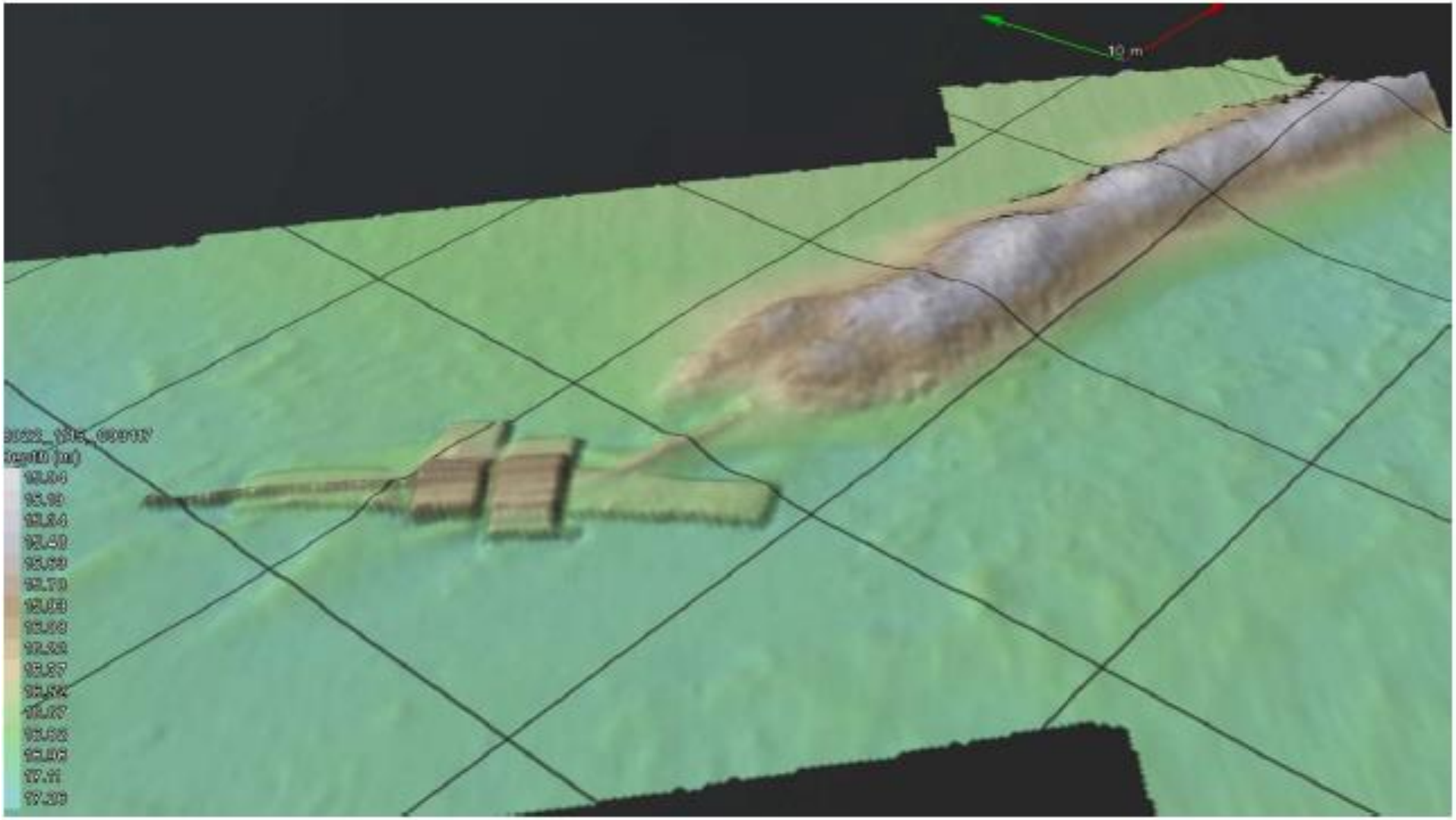
8. S29 HOLDER(S) LETTER(S) OF SUPPORT

9. APPENDICES

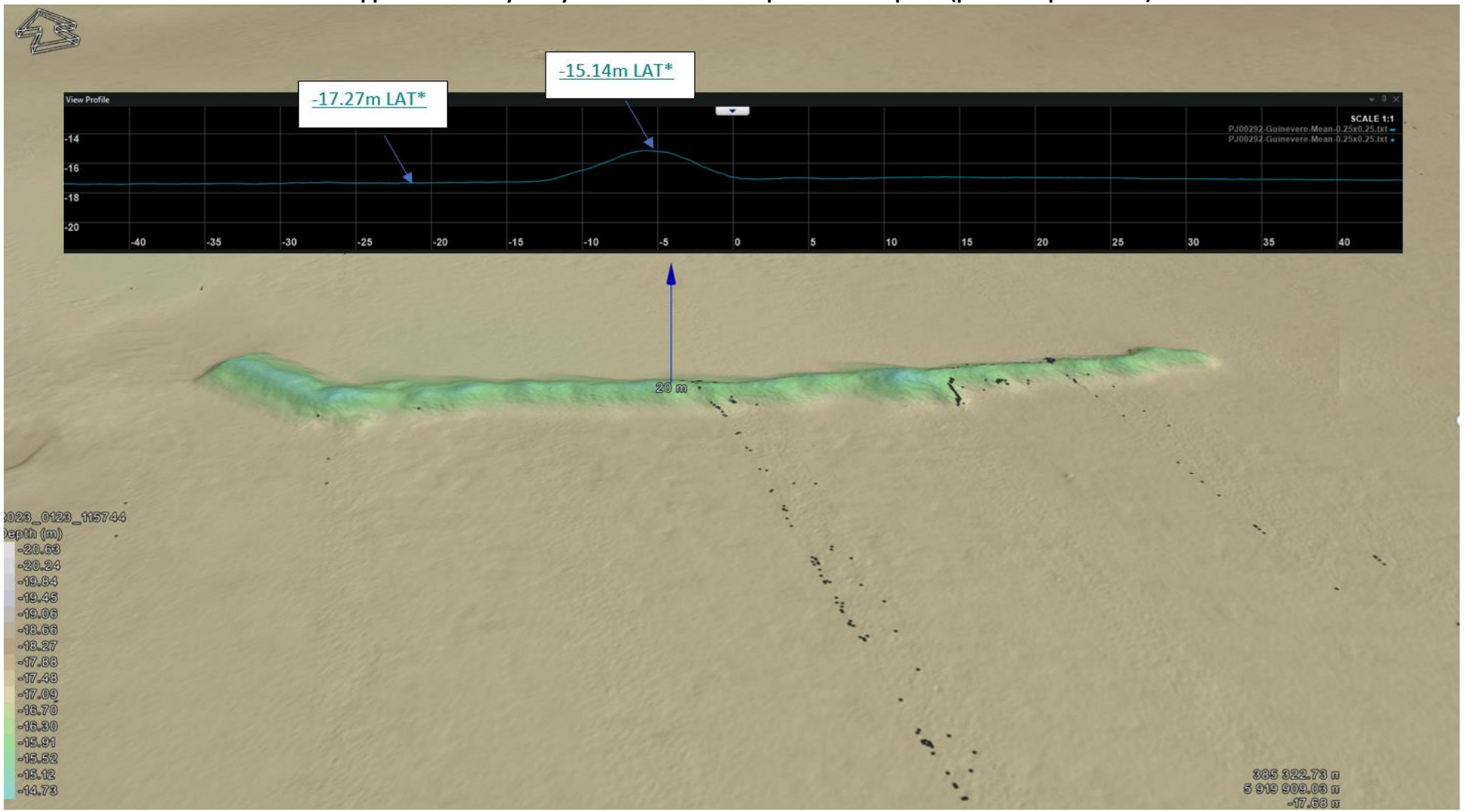
Appendix 1: Drawings, As-Installed Mattresses, and Rock Berm at Guinevere Jacket



Appendix 2: Bathymetry of Mattresses and Exposed Tie-In Spools (post removal of jacket and pre-rock placement) 2020



Appendix 3: Bathymetry of Mattresses and Exposed Tie-In Spools (post-rock placement) 2022



Appendix 4: Drawings, As-Installed Mattresses, and Rock Berm at Lancelot Jacket