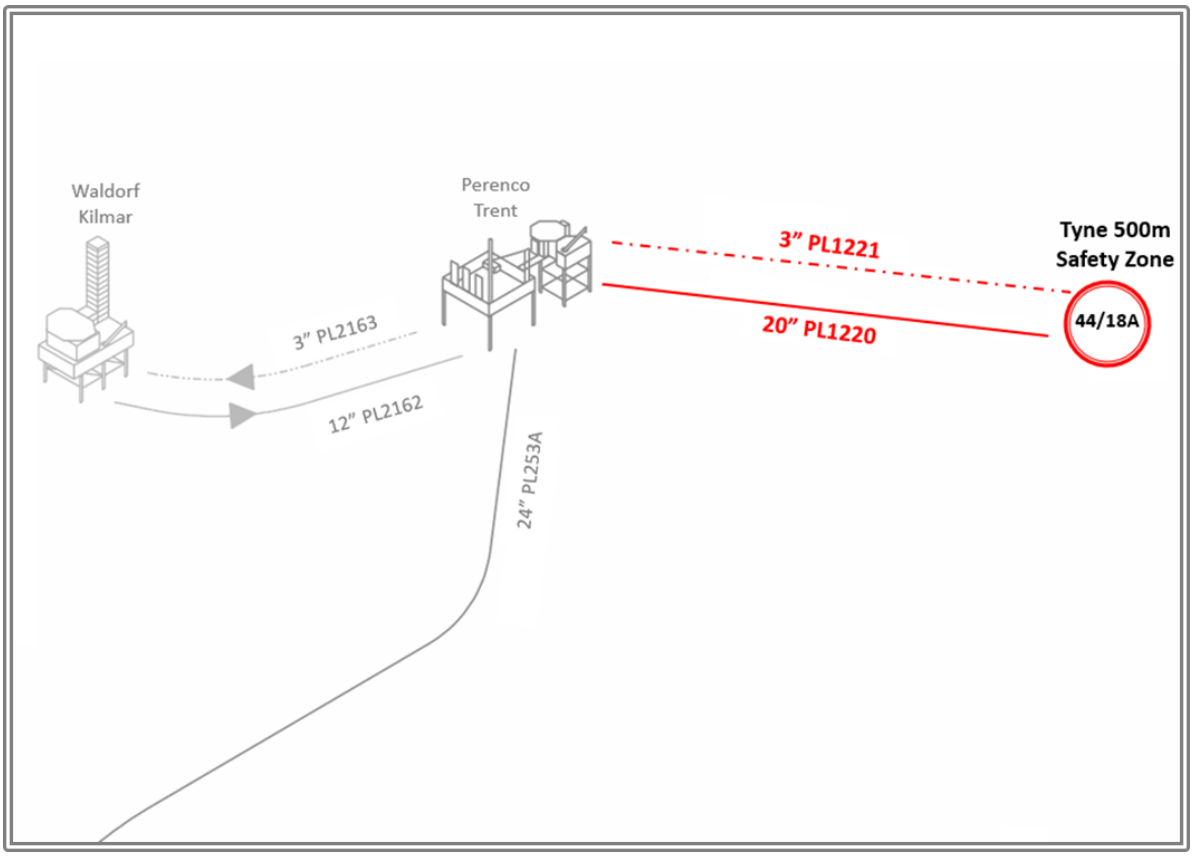

PERENCO UK LIMITED

Tyne Field

Pipeline Decommissioning Programme

June 2025

Consultation Version

Document Control

Approvals

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Revision Control

Revision No.	Reference	Changes/Comments	Issue Date
0	Internal Draft	Initial draft for internal review	06/01/21
1	Internal Draft	Internal comments actioned and submitted to OPRED	31/05/21
2	Draft V1	OPRED comments actioned	18/01/22
3	Draft V2	Updated following post-decom survey results	11/07/24
4	Draft V3	OPRED comments actioned	08/04/25
5	Draft V4	Issued for Consultation	16/06/25

Distribution List

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Terms and Abbreviations

Abbreviation	Explanation
%	Percentage
'	Seconds
°	Degree
“	Inch
AIS	Automatic Identification System
ALARP	As Low as Reasonably Practicable
BSH	Broad Scale Habitat
BSL	Benthic Solutions Limited
c	Circa
CA	Comparative Assessment
CPI	Carbon Preference Index
COA	Coastal and Offshore Area
CoP	Cessation of Production
DESNZ	Department for Energy Security and Net Zero
DECC	Department of Energy and Climate Change
DoB	Depth of Burial
DP	Decommissioning Programme
EA	Environmental Appraisal
E	East
EBS	Environment Baseline Survey
EEEGR	East of England Energy Group
ESDV	Emergency Shut Down Valve
EU	European Union
FCS	Favourable Conservation Status
HCS	Hydrocarbon Safe
HL	Heavy Lift
HOCI	Habitat of Conservation Importance
HSEx	Health and Safety Executive
ICES	International Council for the Exploration of the Seas
Inde	Indefatigable
LAT	Lowest Astronomical Tide
LSA	Low Specific Activity
km	Kilometres
km^2	Square Kilometre
kgm/3	Kilogram per cubic metre

Abbreviation	Explanation
m	Metres
m^2	Square Metre
MARPOL	The International Convention for the Prevention of Pollution from Ships
MBES	Multi-Beam Echo-Sounder
MCZ	Marine Conservation Zone
MEG	Mono Ethylene Glycol
MM	McAdam (i.e., McAdam Subsea well)
MMO	Marine Management Organisation
MoD	Ministry of Defence
MOAB	Mobile Offshore Application Barge
MPA	Marine Protected Areas
N	North
N/A	Not Applicable
NFFO	National Federation of Fishermen's Organisations
NIFPO	Northern Ireland Fish Producers' Organisation
nm	Nautical Miles
NORM	Naturally Occurring Radioactive Material
NRA	Navigational Risk Assessment
NUI	Normally Unattended Installation
NSTA	North Sea Transition Authority (formerly Oil & Gas Authority OGA)
OEUK	Offshore Energies UK (formerly Oil & Gas UK OGUK)
OGA	Oil & Gas Authority
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
Perenco	Perenco UK Limited
PETS	Portal Environmental Tracking System
PL	Pipeline
POB	Personnel on Board
PSR	Pipeline Safety Regulations
PWA	Pipeline Works Authorisation
RAG	Red/Amber/Green
ROV	Remotely Operated Underwater Vehicle
SAC	Special Area of Conservation
SCAP	Supply Chain Action Plan
SCANS	Small Cetacean Abundance of the North Sea
S29	Section 29
SEMS	Safety and Environmental Management System

Abbreviation	Explanation
SFF	The Scottish Fishermen's Federation
SNS	Southern North Sea
SPA	Special Protection Area
SSS	Side Scan Sonar
SZ	Safety Zone
THC	Total Hydrocarbon Content
TOC	Total Organic Carbon
UK	United Kingdom
UKCS	UK Continental Shelf
UKHO	UK Hydrographic Office
UKOOA	United Kingdom Offshore Operators Association

1. EXECUTIVE SUMMARY

1.1 Decommissioning Programme

This document contains the Decommissioning Programme (DP) for two offshore subsea pipelines (PL1220 and PL1221) which operate within the Tyne gas field in the Southern North Sea (SNS), and thirty-two concrete mattresses within the Tyne 500m Safety Zone (SZ).

The scope for this Tyne Pipeline DP includes the decommissioning of PL1220 and PL1221, from the bottom of the Tyne riser within the Tyne 500m SZ to the edge of the Trent 500m SZ, including the exposed pipeline sections and associated stabilisation materials (concrete mattresses) in the scour basin within the Tyne 500m SZ.

The Tyne riser sections, within the Tyne 500m SZ, were considered in the Tyne Installation DP. The installation was removed in 2019 during the Tyne Heavy Lift (HL) campaign (see Section 1.3). The decommissioning of the PL1220 and PL1221 pipeline and riser sections within the Trent 500m SZ have been excluded from this DP and will be detailed in separate DPs.

1.2 Requirement for Decommissioning Programme

Pipelines: In accordance with the Petroleum Act 1998, the Section 29 notice holders of the Tyne pipelines (see Table 1.3) are applying to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to obtain approval for decommissioning the pipelines detailed in Section 2.1 of this programme. (See also Section 8 – Section 29 Notice Holders Letter(s) of Support).

In conjunction with public, stakeholder and regulatory consultation, the decommissioning programme(s) is/are submitted without derogation and in compliance with national and international regulations and OPRED guidelines. The schedule outlined in this document is for a 3-year decommissioning project plan, which will commence in Q1 2026.

1.3 Introduction

1.3.1 Description & Status of Tyne Field Installation

This decommissioning programme explains the principles of the removal activities and is supported by an environmental appraisal (EA) and a comparative assessment (CA).

The Tyne field is located in Block 44/18a in the SNS, 57km east northeast of Trent field (Block 43/24a), approximately 188km off the coast of Norfolk and 184km off East Yorkshire. The Tyne Platform was located at Latitude: 54° 26’ 57” N, Longitude: 02° 28’ 52” E (Figure 1-3) situated within the Dogger Bank Special Area of Conservation (SAC).

The Tyne pipelines (PL1220 and PL1221), which are approximately 56 kilometres (km) in length, are located within Blocks 43/24, 43/25, 43/20, 44/16, 44/17 and 44/18 in the SNS. The closest landfall is 115km west of the westernmost extent of the pipelines. These infield pipelines connected the recently removed Tyne installation to the Trent installation (see Figure 1-4).

The Tyne Normally Unattended Installation (NUI) was installed in 1996, with maximum personnel on board (POB) of 12 and a temporary overnight shelter. Wet gas was exported through a 20 Inch (") Pipeline PL1220 to the Trent Platform Mobile Offshore Application Barge (MOAB) and Mono Ethylene Glycol (MEG) was imported through a 3" Pipeline PL1221 to the Tyne Installation. During installation, both pipelines were trenched and buried to a depth of 0.75m below the seabed.

Perenco UK Limited (Perenco) explored all avenues for continuing production from the Tyne Field as described in the Cessation of Production (CoP) document and concluded that due to a reduction of gas production, continued operations were uneconomical. Therefore, in preparation for decommissioning, the CoP documentation was submitted to the North Sea Transition Authority (NSTA) and approval was granted in November 2015.

A campaign was undertaken on the Tyne Platform in 2016 to render the Installation Hydrocarbon Safe (HCS) and the installation remained in Lighthouse Mode for 3 years.

The Tyne Installation DP was approved by OPRED on 24th January 2019. The Tyne Installation, the PL1220 and PL1221 riser sections, and 10.6m of the PL1220 and 13.5m of the PL1221 freespans were removed in December 2019. The Tyne subsea template was removed in June 2020. The onshore dismantlement and recovery were completed in December 2020.

1.3.2 Description & Status of Tyne Field Pipelines & Associated Stabilisation Materials

In 2016, during the HCS campaign, pipelines PL1220 and the piggy-backed PL1221 were cleaned, flushed, and isolated on the Topsides of the Tyne and Trent Platforms. Both pipelines were left filled with seawater. This work was completed under the approved Pipeline Work Authorisation (PWA) variation Consent Reference No.254/V/16.

In 2016, a pre-decommissioning Environmental Baseline Survey (EBS) was undertaken by Benthic Solutions Ltd (BSL) supported by Bibby HydroMap. The survey area included a 1 square kilometre (km^2) area centred on the Tyne Platform, and a circa 250m wide corridor along the export pipeline and MEG line (PL1220/ PL1221) to the Trent Platform. The survey comprised Side Scan Sonar (SSS), single beam and Multi-beam Echo Sounders (MBES) [Ref. 4].

In 2017, a Depth of Burial (DoB) survey was carried out in 2017 along the length of the pipeline [Ref. 4]. The DoB survey data indicated that the average burial depth along the pipeline was 0.9m (Min:0.4m, Max:2.2m) with no reportable spans/exposures, except for exposed sections close to the Tyne Platform. No debris was identified during these surveys.

For the exposed sections within the Tyne 500m SZ, the survey data showed that from the base of the riser to the start of the existing mattress coverage, the gas export pipeline (PL1220) was in free span, with the piggy-backed MEG Pipeline (PL1221) in burial beneath it for a length of circa 22m. The free

span was considered a potential snagging hazard to other users of the sea once the jacket was removed.

In 2019 during the Tyne HL campaign, both PL1220 and PL1221 risers were cut at the seabed and the risers were removed with the jacket, (the PL1220 riser was 40.1m in length and the PL1221 riser was 39.1m in length).

An attempt was also made to remove the free spans within the Tyne 500m SZ. However, due to the 45-degree (°) pipeline bend protruding out of the jacket, the cutting tool could not reach as close to the Jacket as planned. Of the total as-found exposed pipeline length of 22m (from the 45° bend to the start of the mattresses) a total of 10.6m of the 20" pipeline (PL1220) and 13.5m of the 3" MEG pipeline (PL1221) was removed. These removed pipeline sections were transported onshore. This work was completed under the approved PWA variation Consent Reference No.114/V/18.

Between 2008 and 2019, a combination of debris surveys, Remotely Operated Underwater Vehicle (ROV) surveys, scour surveys, and general inspections of the PL1220 and PL1221 were conducted. The surveys have shown that scour is present at both ends of the Tyne pipelines due to the presence of hard infrastructure and strong water currents. The surveys also indicated that the pipelines at the approach of the Tyne Platform are covered by a historical rock placement. Additionally, rock placement protection is observed at three crossings of third-party assets.

In 2022, post-decommissioning pipeline and benthic surveys were carried out along a 100m corridor of the pipelines and within the Tyne 500m SZ [Ref. 6, Ref.7]. A geophysical assessment of the survey results identified that infill of the scour basin within the Tyne 500m SZ scour basin has not progressed as had originally been assumed. Approximately 52m of pipeline and associated stabilisation material (concrete Armorflex type mattresses) remain exposed within the Tyne scour basin.

Outside of the remaining exposed sections within the Tyne scour basin, the pipelines were fully buried and are likely to remain buried over time due to their weight being heavier than the surrounding substrate. The additional weight from the seawater within the pipeline will likely lead to the pipeline migrating downwards should the seabed substrates become liquefied.

The Tyne mattresses were installed in 1996 and have been in-situ for more than 24 years. A total of 32 stabilisation mattresses were installed within the Tyne 500m SZ. The surveys carried out have identified that 26 of the 32 mattresses are exposed, and the remaining 6 of the 32 mattresses are fully buried. The exposed mattresses lie within the scour basin and rest on the seabed approximately 2m below the adjacent seabed level outside of the scour basin see Figure 1-1. These mattresses demonstrate colonisation by marine mobile and sessile epifauna species. Of the 26 exposed mattresses, 21 mattresses are still serving their original function as pipeline stabilisation material. The other 5 exposed mattresses are confirmed to be displaced from the pipeline and in poor condition. This is supported by the ROV inspection, which identified poor integrity of either the concrete material, steel wire and/or lifting loops, hence they have failed as their original function as a stabilisation feature.

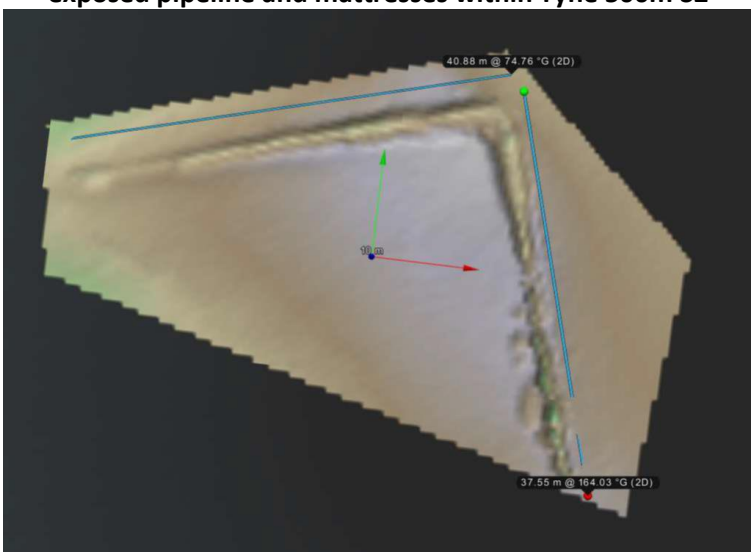
The pre-and post-decommissioning surveys have indicated that scour is present at both ends of the Tyne pipelines due to the presence of hard infrastructure and strong water currents.

1.3.3 Status of Tyne Scour Basin

An assessment of the infill rate of the Trent scour basin within the Trent 500m SZ (which includes the end of the Tyne Pipeline) from recent geophysical surveys and associated Perenco scour basin analysis over the 10-year period has identified that the seabed infilling rate is not following the predicted pattern. In addition, three other exposure locations along the pipeline length were identified, one between two parallel crossings and two surrounded by areas of scour, totalling 196.1m in length. These are, however, non-reportable exposures with no free spans. Trent Installation scour basin and associated pipeline stabilisation materials will be detailed in a separate Trent Pipeline DP.

Bathymetry data spanning from 2012 to 2022 was overlaid using NAVIMODEL software (a point cloud data system used to analyse geophysical survey data for all Perenco subsea assets) to compare the seabed movements over the 10 years. This data focuses on a 1,648m^2 area around the previous existing Tyne Jacket and shows the extension of the scour basin (ref. Figure 1-1).

Figure 1-1: NAVIMODEL extract with linear dimensions of scour basin showing total length of the exposed pipeline and mattresses within Tyne 500m SZ



The removal of the Tyne Jacket in 2019 (and therefore the reduction of hard substrate within the area) was expected to significantly increase the rate of scour basin infill and thus lead to a reduction in the scour basin size. However, data from the surveys has shown an increase in the volume of the Tyne scour basin volume from 2019 to 2022 of approximately 1932m^3. This increase is 50% less than the increase in the volume of the basin before the removal of the installation.

Based on the data currently available, it cannot be concluded for certain that the scour basin will infill over time. Rather, the position of the basin floor and geometry of the side slopes appear to change over time, in some periods showing evidence of accretion and in other periods of further lowering.

Table 1.1: Changes in Scour Basin Volume at the Tyne Location				
Year of Survey	**2012**	**2017**	**2019**	**2022**
Approximate scour basin volume (m^3)	25,989	30,420	30,298	32,230
Volume change between 2012 - 2017	+ 4431			
Volume change between 2017 – 2019		- 122		
Volume change between 2019 – 2022			+ 1932	
Volume change between 2012 – 2022	+ 6241			

1.3.4 Proposed Decommissioning Option for Pipelines & Stabilisation Materials

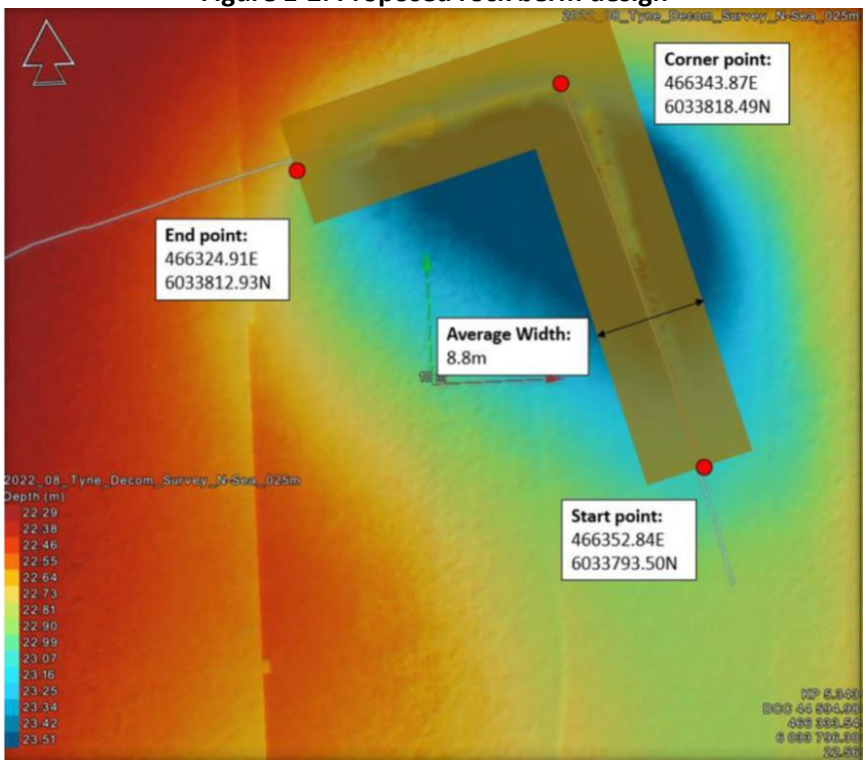
Previous draft versions of this DP and CA had originally anticipated that the proposed decommissioning solution would be to leave the pipelines and stabilisation materials in-situ with natural remediation of the exposed pipeline ends and mattresses within the Tyne scour basin. However, following the results of the post-decommissioning surveys, the CA was updated [Ref.2, Tyne CA]. The updated CA indicates that the optimum solution is the in-situ decommissioning of the pipelines and pipeline stabilisation materials, with rock placement on snagging hazards, see section 3.1.

The potential environmental impacts associated with the proposed decommissioning activities have been assessed as part of the Tyne Pipelines Decommissioning Environmental Appraisal (EA) and are reported in an EA [Ref.3, Tyne EA] accompanying this DP. See section 4.2 of this DP for a summary of the appraisal. The EA concludes that the proposed Tyne pipeline decommissioning activities can be completed without causing a significant adverse impact on the environment, providing the proposed mitigation and management measures, as identified within the EA, are implemented.

Subject to the approval of this Tyne Pipeline DP, it is proposed that a rock placement campaign be carried out to cover the exposed pipeline ends and associated stabilisation material within the Tyne scour basin. The rock deposits will form a berm designed with a 1:3 slope to make it over trawlable, (see Figure 1-2). The berm will be completed under an approved deposit consent. The rock deposit will tie into the existing rock placement installed during the Platform installation.

Following remediation, subject to consultation with DESNZ and National Federation of Fishermen's Organisations (NFFO), a clean seabed certificate will be obtained to confirm that there are no snagging hazards which could be a risk to fishermen.

Figure 1-2: Proposed rock berm design



Before obtainment of the Clean Seabed Certificate, the Tyne 500m SZ will remain in place and will be marked on the UK Hydrographic Office (UKHO) Admiralty maps and recorded in the FishSAFE database. As previously agreed with the HSEx, once it is confirmed that the pipeline ends and stabilisation materials are no longer a snagging hazard, Perenco will request that the SZ be removed from the maps/database.

1.4 Overview of Pipelines Being Decommissioned

1.4.1 Pipelines

Table 1.2: Pipelines Being Decommissioned	
Number of Pipelines. Details given in Table 2.1	2

Table 1.3: Pipelines Section 29 Notice Holders Details		
Section 29 Notice Holders	**Registration Number**	**Equity Interest (%)**
Perenco UK Limited	04653066	100
Arco British Limited, LLC	FC005677 BR001713	0
BP Exploration Operating Company Limited	00305943	0
Serica Energy Chinook Limited	SC335305	0

1.5 Summary of Proposed Decommissioning Programme

Table 1.4: Summary of Decommissioning Programme	
Proposed Decommissioning Solution	**Reason for Selection**
Pipelines, Flowlines & Umbilicals	
The pipeline ends within the Tyne 500m SZ to the edge of the Trent 500m SZ – Leave in situ with remediation of any snagging hazards.	The proposed decommissioning solution was selected in accordance with the Tyne CA recommendation. The DoB survey indicated that the average burial depth along the pipeline was 0.9m (Min:0.4m, Max:2.2m) with no reportable spans/exposures, except for exposed sections close to the Tyne Platform. The pipelines have been cleaned, flushed, and filled with seawater, which changes the specific gravity and increases the depth of burial overtime. The pipeline ends will be remediated with rock placement due to it being a potential snagging hazard. The Tyne risers were removed with the Tyne installation and the Trent risers will be removed when the Trent Jacket is removed.
Pipeline and related stabilisation features	
Pipeline stabilisation features (concrete mattresses) – Leave in situ with remediation of any snagging hazards.	The proposed decommissioning solution was selected in accordance with the Tyne CA recommendation. The concrete mattresses are a combination of exposed, partially, or fully buried and still serve the purpose of stabilising the Tyne pipelines. If these mattresses are removed, it will leave exposed sections of the pipeline to potential future scouring, the forming of new free spans, and potential snagging hazards to other marine users. Thus, these sections of pipeline will need to be recovered or remediated with rock placement. This CA identified the preferred decommissioning was to leave in situ with remediation by rock placement on snagging hazards. The estimated quantity of rock would be 833 tonnes (assuming a block density of 2650kgm/3).
Pipeline Crossings	
PLU4685 Hawksley EM WHPS to McAdam MM WHPS – left buried in situ.	PLU4685 crosses above the PL1220 and PL1221 and has been approved by OPRED to be left buried in situ in the Decommissioning Programmes for Caister-Murdoch System III Installations and Pipelines, CDP2.
PL1922 Hawksley subsea wellhead to ESDV (Murdoch MD) - left buried in situ.	PL1922 crosses above the PL1220 and PL1221 and has been approved by OPRED to be left buried in situ in the Decommissioning Programmes for Caister-Murdoch System III Installations and Pipelines, CDP2.

PL1925 ESDV (Murdoch MD) to Hawksley subsea wellhead – left buried in situ.	PL1925 crosses above the PL1220 and PL1221 and has been approved by OPRED to be left buried in situ in the Decommissioning Programmes for Caister-Murdoch System III Installations and Pipelines, CDP2.
PL2285 Cavendish to Murdoch – – left buried in situ.	PL2285 crosses above the PL1220 and PL1221 and has been approved by OPRED to be left buried in situ in the Cavendish Decommissioning Programmes.
PL3088 Cygnus B Crossing – left buried in situ.	PL3088 is operational and crosses over the PL1220 and PL1221 pipelines. Therefore, it will be left in situ until PL3088 is decommissioned.
Interdependencies	
Trent installation is still in place; therefore, the decommissioning of the pipelines within the Trent 500m SZ cannot take place. The decommissioning strategy for the Trent inventory will be detailed in a separate DP.	

1.6 Field Location Including Field Layout and Adjacent Facilities

Figure 1-3: Tyne Field Location in United Kingdom Continental Shelf (UKCS)

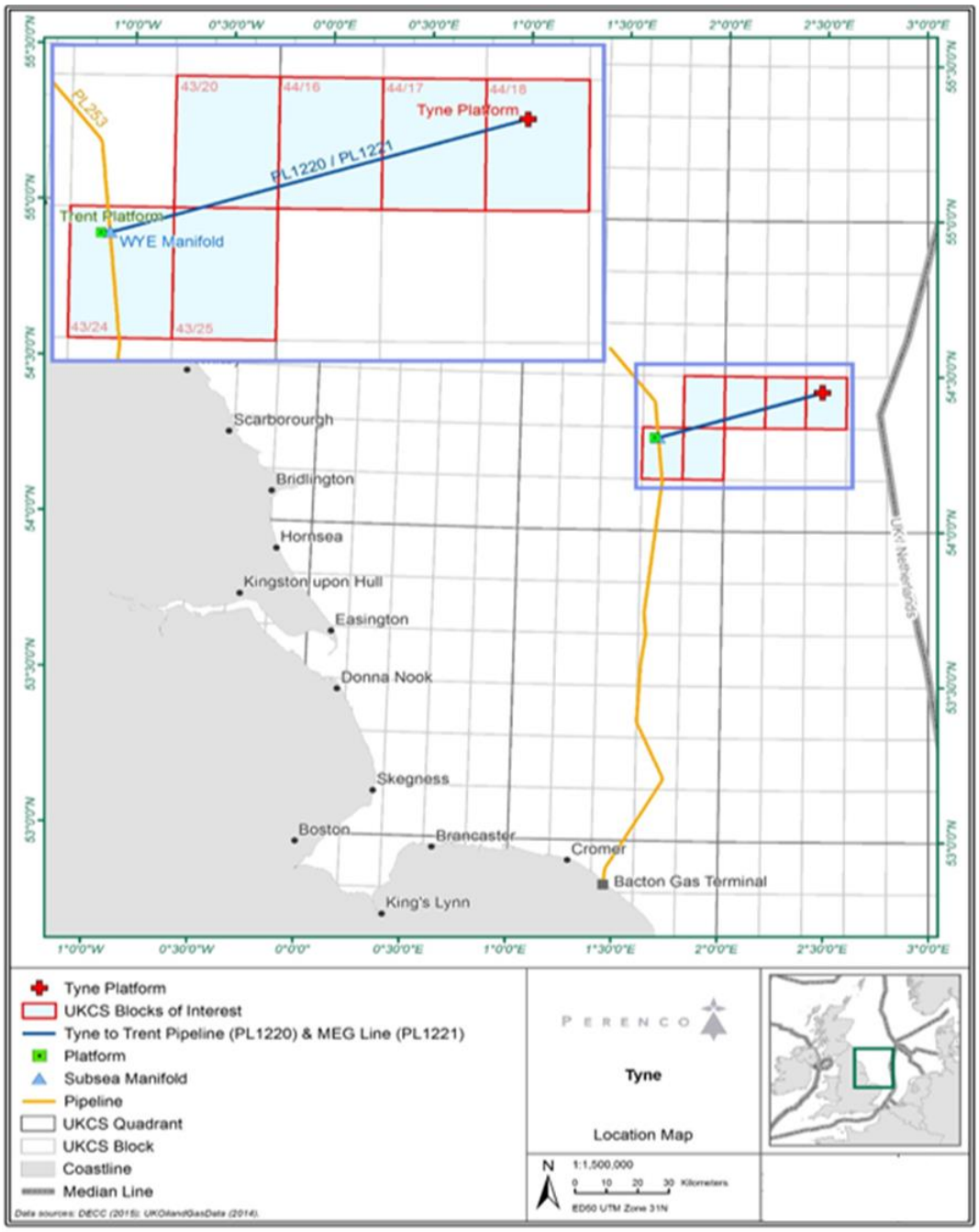


Figure 1-4: Tyne Field Layout

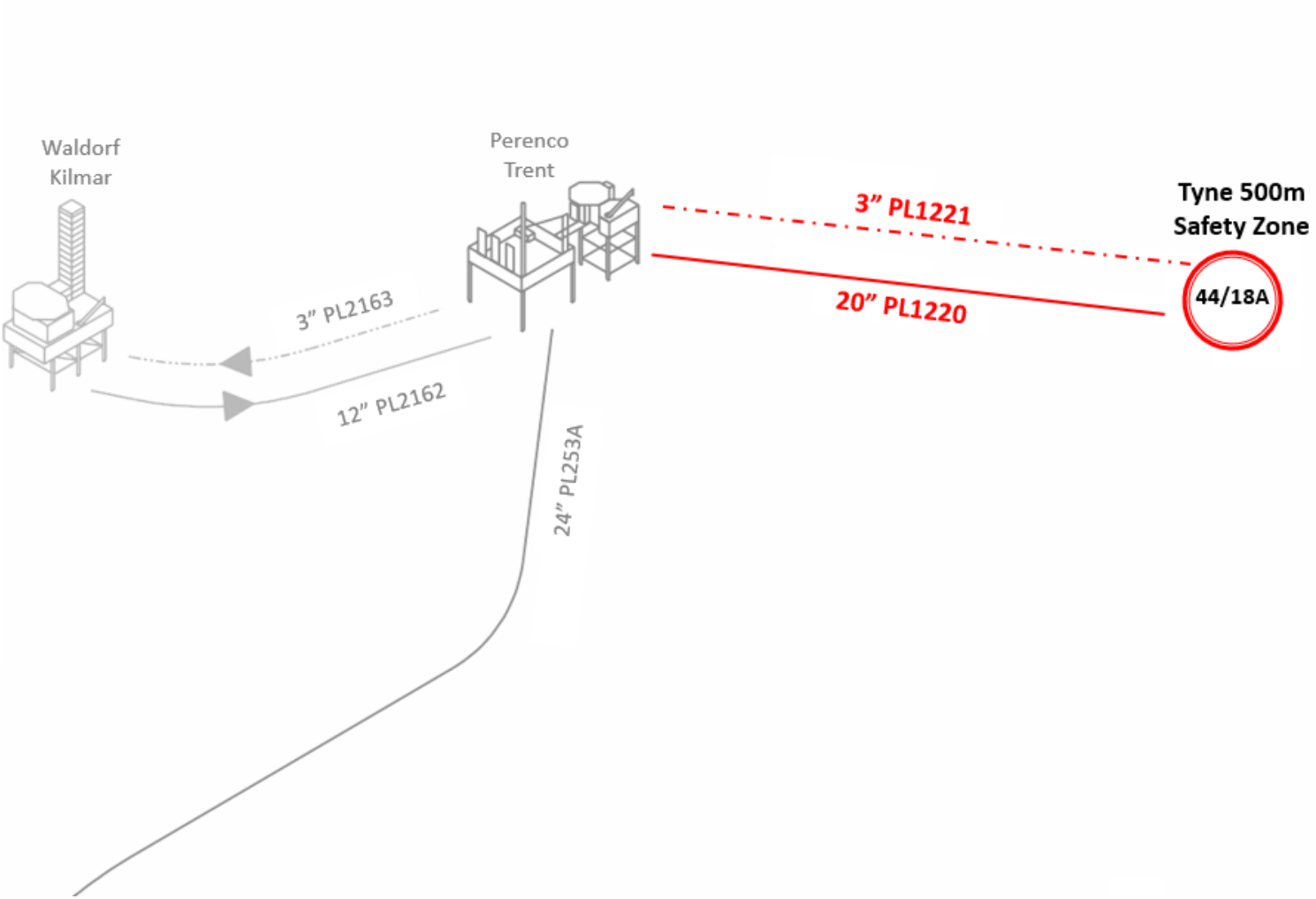
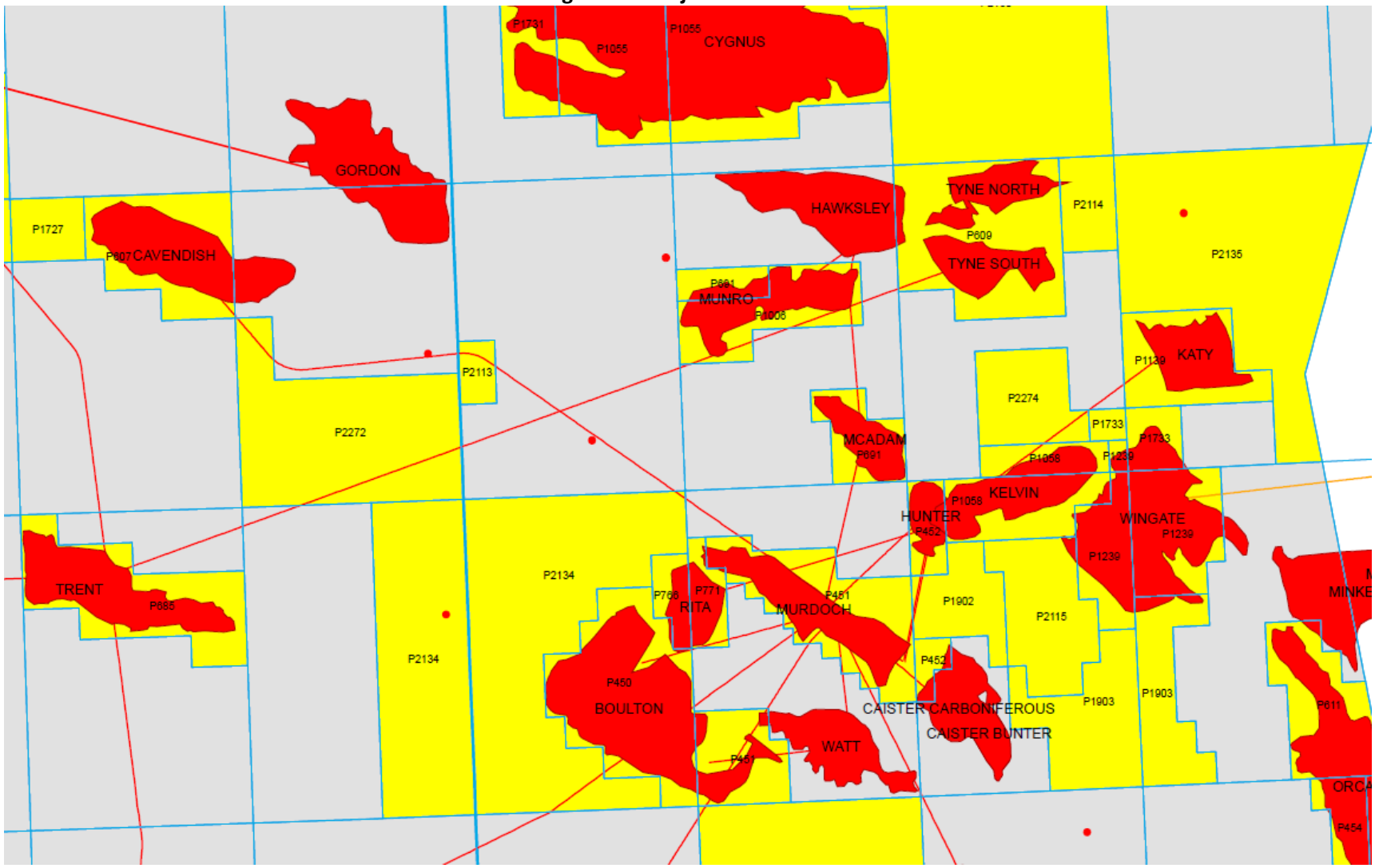


Table 1.5: Adjacent Facilities					
Owner Operator	**Name**	**Type**	**Distance/Direction**	**Information**	**Status**
Perenco UK Limited	Trent	Platform	Trent is 56.5km southwest from Tyne.	Adjacent Platform	Out of use
Chrysaor Production (U.K.) Limited	Katy	Platform	Katy is 13km southeast from Tyne.	Adjacent Platform	Out of use
Chrysaor Production (U.K.) Limited	Kelvin	Platform	Kelvin is 13km south from Tyne.	Adjacent Platform	Out of use
Chrysaor Production (U.K.) Limited	Munro MH	Platform	Munro is 12km southwest of Tyne.	Adjacent Platform	Out of use
Chrysaor Production (U.K.) Limited	Hawksley EM	Subsea	Hawksley is 7.6km Northwest of Tyne.	Single slot template	Out of use
ENI Energy E&P UK Limited	Cygnus A	Platform	Cygnus is 18km northwest of Tyne.	Adjacent Platform	Operational
Wintershall Noordzee B.V.	Wingate	Platform	Wingate is 17km southeast of Tyne.	Adjacent Platform	Operational
Chrysaor Production (U.K.) Limited	PLU4685	Pipeline crossing	PLU4685 crossing is 8.5km southwest of Tyne	108.5mm Electrohydraulic Umbilical	Not in use
Chrysaor Production (U.K.) Limited	PL1922 and PL1925	Pipeline crossing	PL1922 and PL1925 crossing is 8.5km southwest of Tyne	12” Gas pipeline	Not in use
INEOS UK SNS Limited	PL2284 and PL2285	Pipeline crossing	PL2284 and PL2285 crossing is 26.5km southwest of Tyne	2” Methanol pipeline	Not in use
ENI UK Limited	PL3088 Cygnus B Crossing	Pipeline crossing	PL3088 crossing is 55km southwest of Tyne	Pipeline junction	Operational

Tampnet AS	MCCS Fibre optic cable	Telecommunication	The Tampnet cable is 14km east of PL1220 PL1221	1.65” fibre optic cable adjacent to PL1220 PL1221	Operational

Impacts of Decommissioning Proposals
The decommissioning of Tyne pipelines will have no impact on adjacent facilities. The pipelines are already flushed, cleaned, buried, and filled with seawater. All 3rd party pipelines cross over the top of the Tyne Pipelines, and as we intend to leave the Tyne pipelines in situ, the proposal will not impact the current and future pipeline decommissioning proposals from the other 3rd party operators at the Tyne pipeline crossings. Should the Tyne pipelines at the crossings be impacted by any proposals from a 3rd party operator Perenco will discuss and agree on any actions that are required with OPRED.

Figure 1-5: Adjacent Facilities



1.7 Industrial Implications

The Tyne Pipeline DP has been planned carefully to recognise synergies and efficiencies. Engineering and planning consider the potential integration of various activities.

All contracts will be tendered according to Perenco procedures. Suppliers' offers will be assessed along many criteria, including: their technical ability and capacity to execute the work in a safe and efficient manner that minimises the impact on the environment; the commercial offer; and the experience of carrying out this type of operation in the UKCS.

Due to the minimal work scope anticipated with leaving the pipelines in situ, Perenco does not envisage that a Supply Chain Action Plan (SCAP) will be required for this Pipeline DP. Perenco will engage with the NSTA Supply Chain team to gain agreement that a SCAP is not required.

Perenco is an active participant in various industry initiatives, including:

a) Offshore Energies United Kingdom (OEUK) Supply Chain Forum
b) OEUK Decommissioning Forum
c) OEUK Wells Forum
d) East of England Energy Group (EEEGR)

Current operational contracts for items such as potential vessel sharing and logistical support will be implemented to support decommissioning activities and wider business optimisation.

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	PL1220	20	56.08	X65 Steel with Coal Tar Enamel and Concrete Weight Coating	Gas	PL1220 Tyne Subsea Pipeline Cut Location #2 at EL-18.700 to Trent Platform Pig Trap	Trenched & buried, except for 52m of exposure within the 500m exclusion zone scour basin and non-reportable exposures outside the Tyne 500m exclusion zone.	Out of Use	Seawater
MEG Line	PL1221	3	56.156	X52 Steel with Fusion Bonded Epoxy coating	Chemicals	PL1221 Trent Platform 3" Ball Valve to Tyne Subsea Pipeline Cut Location #2 at EL-18.700	Trenched & buried, except for 52m of exposure within the 500m exclusion zone scour basin and non-reportable exposures outside the Tyne 500m exclusion zone.	Out of Use	Seawater

Note 1: Pipeline length considered for this DP is the original pipeline length as per the PWA consent (Ref: 2/W/96), minus the Tyne pipeline riser and the section of the pipelines within the Trent 500m SZ. This aligns with the scope of the DP outlined in Section 1.2 of this DP.

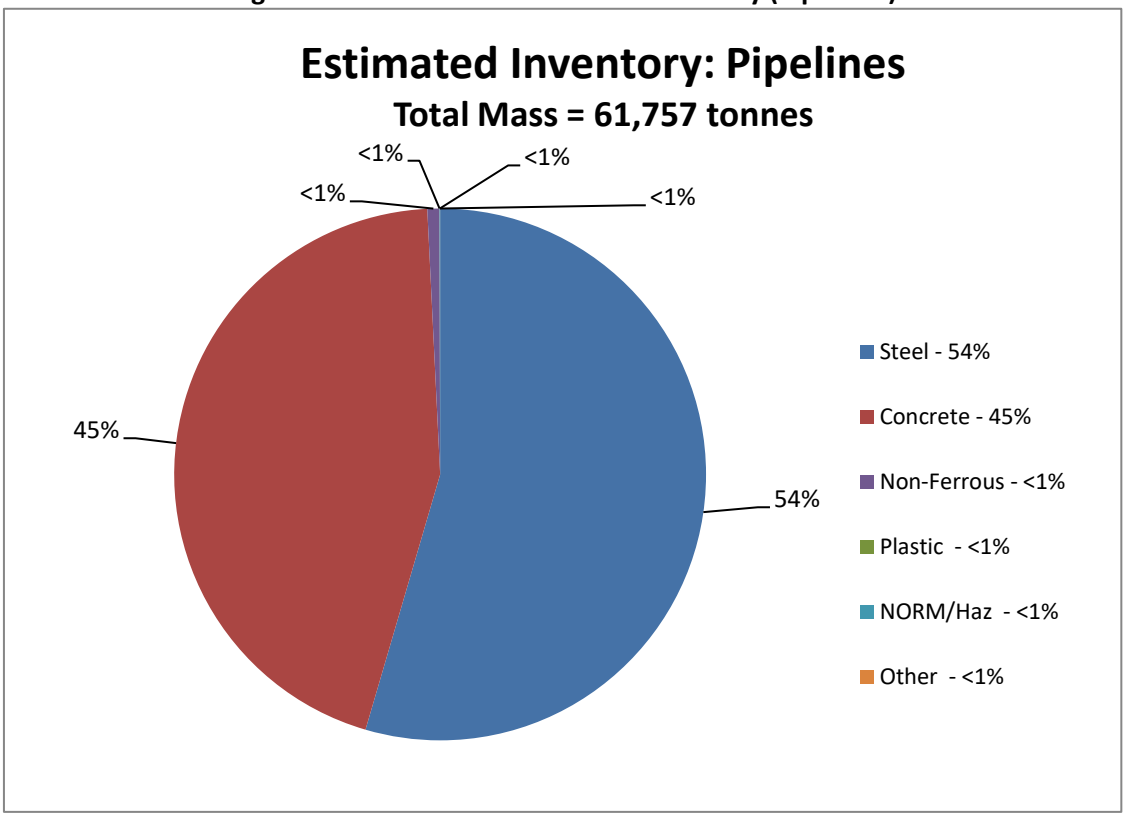
It should be noted that a variation to the PWA consent was approved by the NSTA (Ref: PA/2584) for the removal of the Tyne riser and the pipeline free span. The PWA consent now reflects the current length of the pipeline, accounting for the sections already removed during the completed decommissioning campaigns detailed in Section 1.3. The removal of the Trent pipeline riser will be included in the Trent Installation DP. The PWA consent (2/W/96) will be updated in due course to reflect the removal of the PL1220/PL1221 Trent pipeline risers.

Table 2.2: Pipeline crossing information		
Pipeline, umbilical or cable description	**Location (WGS84 Decimal)**	**Protection**
PLU 4685 108.5mm Electrohydraulic Umbilical	54.42627390°N, 02.35511161°E	Buried under deposited rock
PL1922 12" gas pipeline and PL1925 3" Methanol pipeline	54.42636406°N, 02.35560374°E	Buried under deposited rock
PL2284 and PL2285 2.37" Methanol pipeline	54.37701840°N, 02.08851033°E	Buried left in situ
PL3088 Cygnus B Crossing Pipe junction	54.30084895°N, 01.67626267°E	Operational
Tampnet AS	54.43065269°N, 02.37922621°E	Operational

Table 2.3: Subsea Pipeline Stabilisation Features				
Stabilisation Feature	**Total Number**	**Weight (Te)**	**Location**	**Exposed/Buried/Condition**
Concrete Mattresses	32	743 (Total)	Covering the pipeline approach to the Tyne Platform location. All (32) mattresses are within Platform 500m SZ.	It has been established from recent surveys that 6 of the 32 mattresses are fully buried and 26 mattresses are partially exposed. Of the 26 exposed mattresses, 21 mattresses rest on top of the pipeline and are still serving their original function as pipeline stabilisation material. The remaining 5 mattresses are confirmed to be in poor condition. They are displaced from the pipeline and have failed.
Grout Bags	50 (Estimate)	125 (Total Estimate)	Supporting Riser	There is no evidence of grout bags from the recent surveys; it is therefore assumed that they are completely buried below the seabed or have been widely dispersed.

2.2 Inventory Estimate

Figure 2-1: Pie Chart of Estimated Inventory (Pipelines)



3. REMOVAL AND DISPOSAL METHODS

In line with the waste hierarchy, in which the preferred option is the prevention of waste, followed by the reduction or reuse of waste, the preferred decommissioning option of leaving it in situ with natural remediation will prevent the generation of waste.

Perenco has assessed options for the reuse of the pipeline in situ however, none have been identified or have proven commercial or technically viable. Reuse options have been addressed within the COP document approved by the NSTA.

3.1 Pipelines

Decommissioning Options: The decommissioning options are considered as detailed in Table 3.1 below. Key to Options – Pipelines:

- Option 1 – Complete Removal a) Cut and Lift (subsea cuts) b) Reverse installation (surface cuts).
- Option 2 – Partial Removal a) Cut and Lift (scour basin).
- Option 3 – Leave in-situ with Remediation a) Reburial and backfilling of scour basin. (Except mattresses) b) Leave in-situ and rock placement of the scour basin (including mattress).

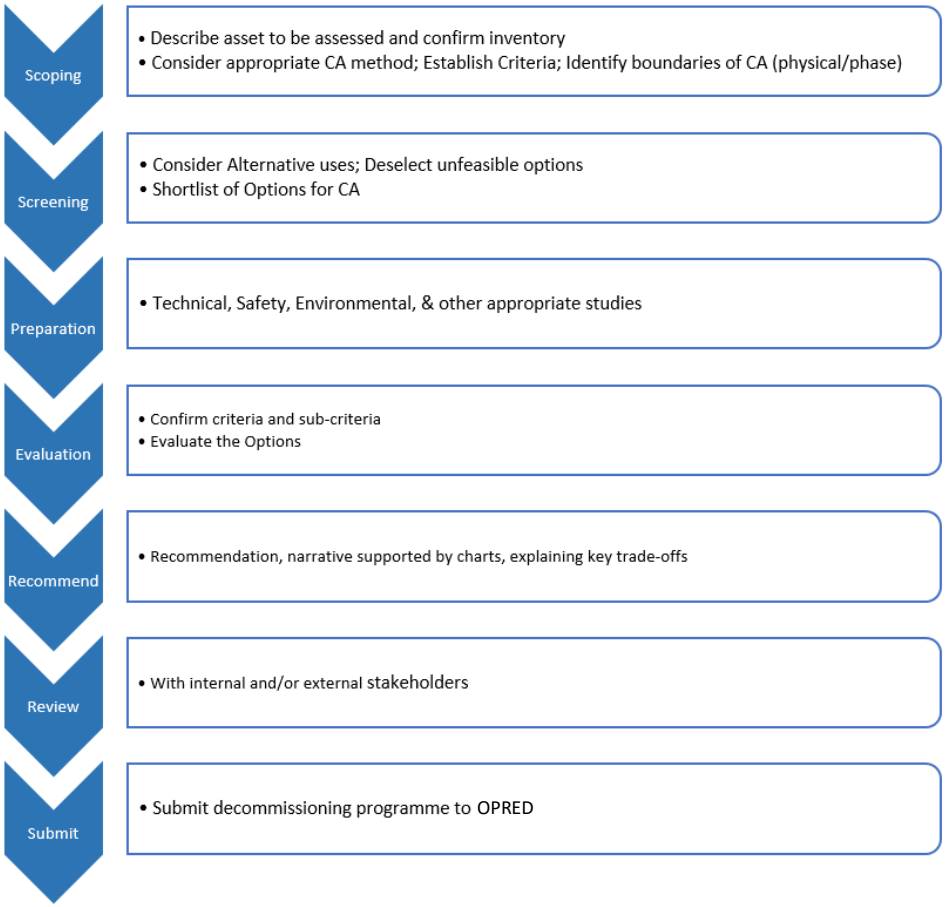
- Option 4 – Leave without remediation a) no reported exposures leave in situ.

Table 3.1: Pipeline Decommissioning Options			
Pipeline or Group (as per Pipeline Work Authority (PWA))	**Condition of Line/Group**	**Whole or Part of Pipeline/Group**	**Decommissioning Options Considered**
PL1220[1]	HCS, Trenched and buried	Whole except within Trent 500m SZ	1a,1b, 2a, 3a,3b, 4a
PL1221[1]	HCS, Trenched and buried	Whole except within Trent 500m SZ	1a,1b, 2a, 3a,3b, 4a

[1] Pipeline Works Authorisation (PWA) 2/W/96

Comparative Assessment Method:
The CA was carried out in accordance with section 7 of OEUK Guidance for Comparative Assessment [OEUK, (2015)], i.e., using a combination of methods A, B and C, and a Red/Amber/Green (RAG) system. This approach includes a combination of quantitative and qualitative assessment against the CA criteria and sub-criteria, focussing on key and significant differentiators, with further exploration of the outcome by way of a sensitivity analysis. Further details are presented within section 5.1.3 of the CA report [Ref. 2, Tyne CA].

Figure 3-1: Comparative Assessment Phases



Outcome of Comparative Assessment:
Perenco has assessed all available options for the decommissioning of pipelines PL1220 and PL1221. The preferred decommissioning option of leaving it in situ will prevent the generation of waste.

Perenco has 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 the 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 reuse of waste.

Scores across all criteria were very similar between option 3b and option 4a, except for the environmental and safety criteria. Options 2a, 3a and 3b scored lower for the safety criteria due to the reduced snagging risk of removing or burying the exposed pipelines, while option 4a scored lower at the environmental criteria due to the zero impact on the seabed.

While scores were almost identical between option 3b (Leave in situ with remediation by rock placement of the scour basin) and option 4a (Leave in situ without remediation), Perenco wishes to progress with option 3b as this option represents the lowest overall impact across all remaining criteria after committing to the option with the lowest safety impact score.

A summary of the justification for the selected option is presented in Table 3.2, with the weighting charts presented in Section 2. Full details are provided in the CA report. The potential impacts associated with the preferred option are presented in the Pipelines Environmental Appraisal (EA).

Table 3.2: Outcome of Comparative Assessment

Pipeline or Group (as per PWA)	Recommended Option	Justification
PL1220 (2/W/96)	Within Tyne 500m SZ – PL1220 & concrete mattresses. Leave in-situ under rock placement.	Rock placement of snagging hazards (option 3b) remained consistently the lowest CA score option for all scenarios. This indicates that the preferred option is not being determined by any one specific criteria, with all contributing to the outcome. [Ref 2, Tyne CA]
PL1221 (2/W/96)	Within Tyne 500m SZ – PL1221. Leave in-situ under rock placement.	Rock placement of snagging hazards (option 3b) remained consistently the lowest CA score option for all scenarios. This indicates that the preferred option is not being determined by any one specific criteria, with all contributing to the outcome. [Ref 2, Tyne CA]
PL1220 (2/W/96)	Within Trent 500m SZ – PL1220. To be considered in Trent DP / CA	Not covered under this DP
PL1221 (2/W/96)	Within Trent 500m SZ – PL1221. To be considered in Trent DP / CA	Not covered under this DP

PL1220 (2/W/96)	Remaining section - PL1220. Leave in-situ	As this is outside the scour basin, Option 4a is a negligible preferred score over Option 3b when compared under equal weighting for the main criteria. [Ref 2, Tyne CA]
PL1221 (2/W/96)	Remaining section – PL1221. Leave in-situ	As this is outside the scour basin, Option 4a is a negligible preferred score over Option 3b when compared under equal weighting for the main criteria. For future detail refer to [Ref 2, Tyne CA]

The CA sub-criteria which differentiate the preferred decommissioning from other decommissioning methods include impacts on other users of the sea, the safety of offshore personnel, impacts on the condition/status of Marine Protected Areas (MPAs), and level of seabed disturbance.

The EA provides an assessment of any potential impacts associated with the selected decommissioning option [Ref. 3, Tyne EA]; see Section 4, Environmental Appraisal Overview within this DP, which provides a summary of the assessment carried out.

3.2 Pipeline Stabilisation Features

While scores were almost identical between Option 3b (Leave in situ with remediation by rock placement of the scour basin) and Option 4a (Leave in situ without remediation), Perenco wishes to progress with Option 3b as this option represents the lowest overall impact across all remaining criteria after committing to the option with the lowest safety impact score.

As a result, the decommissioning option is to leave it in situ with remediation by rock placement of the scour basin (Table 3-3). This outcome does carry within it several obligations that will be discussed and agreed with OPRED, including the requirement to carry out an overtrawl survey (or other agreed non-intrusive method) of the Tyne 500m SZ when relevant to confirm a lack of snagging hazard after rock placement. Additionally, periodic post decommissioning surveys will be completed to confirm that the pipelines remain buried under the rock and do not present a snagging hazard, as well as the monitoring of the scour basin.

In line with the CA outcome, Perenco considers the key aspects which could generate impacts and would, therefore, be included in a detailed assessment within the EA to be:

- Physical presence of infrastructure decommissioned in situ in terms of snagging risk and residual impacts.
- Seabed disturbance from rock placement of the scour basin.

A detailed assessment of impacts, both positive and negative, on the environment and society is presented within the Tyne pipelines and stabilisation materials EA, which has been submitted alongside this DP.

Table 3.3: Pipeline Stabilisation Features			
Stabilisation Features	**Number**	**Option**	**Disposal Route (if applicable)**
Exposed concrete mattress over pipelines	21	21 to remain in situ covered with rock placement	N/A
Completely buried mattresses	6	6 to remain buried in situ	N/A
Exposed concrete mattress displaced from pipeline	5	5 to remain in situ covered with rock placement	N/A
Historic rock placement	N/A	N/A	N/A
Grout bags (buried)	50 (estimate)	50 to remain buried in situ	N/A

3.3 Waste Streams

Table 3.4: Waste Stream Management Methods	
Waste Stream	**Removal and Disposal Method**
Bulk Liquids	There will be no bulk liquid removal needed for the proposed decommissioning activity.
Marine Growth	All marine growth will remain in its current location, as both pipelines are to be decommissioned in situ.
NORM/LSA Scale	Both pipelines were made HCS (flushed, cut, and filled with seawater) in 2016. Due to this NORM/LSA testing will not be required for this decommissioning activity.
Asbestos	Not required for this decommissioning activity.
Other Hazardous Wastes	Both pipelines were made HCS (flushed, cut, and filled with seawater) in 2016. A survey for hazardous waste will therefore not be required for this decommissioning activity.
Onshore Dismantling Sites	There will be no disposal needed for the proposed decommissioning activity. If this change and an onshore site is required, OPRED will be contacted, and an appropriate licensed site will be selected. The dismantling site must demonstrate a proven disposal track record and waste stream management throughout the deconstruction process and demonstrate their ability to deliver re-use and recycling options.

Table 3.5: Inventory Disposition			
	Total Inventory (Te)	Planned (Te) to Shore	Planned Left in Situ
Pipelines	61,757	0	61,757

4. ENVIRONMENTAL APPRAISAL OVERVIEW

4.1 Environmental Sensitivities (Summary)

Table 4.1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
Conservation Interests	**Dogger Bank Special SAC** – 0km The recently removed Tyne Platform and approximately 40km (75%) of the associated pipelines (PL1220/ PL1221) lie within the boundary of the Dogger Bank SAC. The site is designated for its Annex I habitat under the European Union (EU) Habitats Directive 'Sandbanks which are slightly covered by sea water all the time' and is the largest single continuous expanse of shallow sandbank in UK waters, extending into both Dutch and German waters. The extensive sublittoral sandbank in the SNS was formed by glacial processes and later submerged by sea level rise. **Southern North Sea SAC** – 0km The conservation objective for the Southern North Sea SAC is "To ensure that the integrity of the site is maintained and that it makes an appropriate contribution to maintaining Favourable Conservation Status (FCS) for Harbour Porpoise in UK waters". The site features Annex II species of the EU Habitats Directive, such a Harbour porpoise (Phocoena phocoena). **Special Protection Area (SPA)** >40km There are no inshore SPAs located <40km from the Tyne Pipelines. **Marine Conservation Zone (MCZ**) >40km There are no MCZs located <40km from the Tyne Pipelines. **Coastal and Offshore Annex II species** The conservation objective for the Southern North Sea SAC is "To ensure that the integrity of the site is maintained and that it makes an appropriate contribution to maintaining Favourable Conservation Status (FCS) for Harbour Porpoise in UK waters". • The Southern North Sea SAC lists Harbour porpoise (Phocoena phocoena) as its protected feature making the reduction of noise in this environment a key objective. Harbour porpoise have been recorded in the vicinity of the project area for all months, with offshore sightings peaking in the early to late summer months between May – August. • Bottlenose dolphin (Tursiops truncates) are typically present in low abundance during November but have not been recorded in the area. • Grey seal (Halichoerus grypus) abundance in the vicinity of Tyne pipelines is low due to the Trent and Tyne being located Platform is

Table 4.1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
	located 115km, and 170km respectively from the nearest coastline (up to 5 individuals per 25km^2) (Russell et al., 2017). Harbour seal (Phoca vitulina) at-sea utilisation of waters surrounding Tyne is very low due to the considerable distance to shore (less than one individual per 25km^2) (Russell et al., 2017).
Seabed	**Seabed Sediments** The following European Nature Information System seabed classifications have been identified in the vicinity of the Tyne pipelines (Connor et al., 2004; DECC, 2016; Ocean Ecology, 2022): • A5:15: Infralittoral coarse sediment; • A5.14: Circalittoral coarse sediment; • A5.23: Infralittoral fine sand; • A5.24: Infralittoral muddy sand; • A5.25: Circalittoral fine sand; • A5.26: Circalittoral muddy sand; • A5.43: Infralittoral mixed sediments; • A5.44. Circalittoral mixed sediments. **Benthic Fauna** Environmental baseline surveys were completed in 2016 and 2022 to assess changes in seabed chemistry and benthic fauna. Across both surveys Total Organic Carbon (TOC), Total Hydrocarbons Content (THC) and heavy and trace metal concentration were all found to be relatively low and consistent. Based on pre- and post-decommissioning data, some variations in sediment type and composition were observed across the Tyne field with finer sediments within the decommissioned Platform stations compared to pipeline stations. However, most stations belonged to Broad Scale Habitat (BSH) A5.2, followed by stations falling into BSH A5.4 and BSH A5.1. These are among the most common habitats found in offshore settings across the UK coast and BSH A5.1 and A5.2 are considered a component of Habitat of Conservation Importance (HOCI) 'Subtidal sands and gravels'. Chemical analysis of TOC was tested at the post Platform decommissioning seabed samples. Concentrations around the Tyne Platform ranged from 0.04% at station TY_06 to 0.08% at station TY_10 with an average value (± SE) of 0.06% across the Tyne Platform. Along the Tyne pipeline, TOC concentrations ranged from 0.08% at station ENV_P05 to 0.25% at station ENV_P02 with an average value (± SE) across the pipeline of 0.017%. In general, the samples reflected a more homogeneous sediment texture and consolidation across the Tyne Platform sediments than across the pipeline's sediments. No trend was observed between mud content in the sediment and percentage contribution of TOC or moisture content. Samples collected at the pre- and post- Platform decommissioning surveys show similar THC concentrations to pre-Platform decommissioning surveys. The mean concentrations of THC recorded around Tyne Platform are 1,888.18 ± 209.34µg.kg-1 and along the pipeline of 3,524µg.kg-1 ±

Table 4.1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
	613.2µg.kg-1 are lower than the background levels from United Kingdom Offshore Operators Association (UKOOA) dataset (Ocean Ecology, 2022). To determine whether the decommissioning of the Tyne field has had a significant impact on the hydrocarbon content of sediments, the THC and Carbon Preference Index (CPI) of sediments were compared between both decommissioning surveys. Values between pre- and post-decommissioning surveys show no statistically significant differences over time, suggesting that decommissioning activities across the Tyne field resulted in no measurable impact on the local environment. When comparing the concentrations of key metals with post and pre-decommissioning data, no statistically significant differences were found between the concentrations of arsenic, lead, and barium over time, suggesting that contamination resulting from the decommissioning of the Tyne field was minimal and resulted in no measurable impact on the local environment. Benthic faunal communities in the vicinity of the Tyne pipelines showed minor variation in terms of individual abundance, species richness and species composition; as would be expected given the homogeneity of the sediment, energetic environment, and depth within the area. From a previously conducted survey, the infaunal community was determined to dominate over the epifaunal community and was primarily dominated by annelids, including the polychaetes Goniada aculate and Ophelia limacine. Seabed macrofauna surveys indicated similar results between surveys.
Fish	**Fish spawning areas** There are potential fish spawning areas in ICES rectangles 37F1 and 37F2 for cod (Gadus morhua), herring (Clupea harengus), lemon sole (Microstomus kitt), mackerel (Scomber scombrus), Horse mackerel (Trachurus trachurus) Nephrops (Nephrops norvegicus), plaice (Pleuronectes platessa), sandeels (Ammodytidae marinus), sole (Solea solea), sprat (Sprattus sprattus) and whiting (Merlangius merlangus) (Coull et al., 1998; Ellis et al., 2012; Aires et al, 2014). **Fish nursery areas** In addition to the spawning grounds described above, the waters of International Council for the exploration of the sea (ICES) rectangles 37F1 and 37F2 also act as nursery areas for anglerfish (Lophius piscatorius), blue whiting (Micromesistius poutassou) cod (G. morhua), European hake (Merluccius merluccius), herring (C. harengus), mackerel (S. scombrus), lemon sole (M. kitt), ling (Molva molva), Nephrops (Nephrops norvegicus), sandeels (A. marinus), sprat (S. sprattus), spurdog (Squalus acanthias), tope shark (Galeorhinus galeus) and whiting (M. merlangus) (Coull et al., 1998; Ellis et al., 2012).
Fisheries	Fishing effort within ICES rectangles 37F1 and 37F2 primarily takes place between May and October and is dominated by traps, trawls, dredges, and seine nets. Data presented within the Navigational Risk Assessment (NRA) indicates fishing vessel activity on Automatic Identification System (AIS) (15m

Table 4.1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
	length and above) to be moderate in the area. The main fishing vessels operating in the area were UK and Dutch trawlers. Landings (by weight) are dominated by demersal fisheries, which comprise 65% of landings, with shellfish contributing to the remaining 35%. However, fisheries value is split equally between demersal (50%) and shellfish (50%) species. Both species and Nephrops dominate fisheries landings and value (Marine Scotland, 2021).
Marine Mammals	The relative abundance and density of cetaceans in the vicinity of the Tyne location can be derived from data obtained during the Small Cetacean Abundance of the North Sea (SCANS-III) aerial and ship-based surveys. PL1220 / PL1221 are situated within the SCANS-III block 'O' and was surveyed by air (Hammond, 2013). 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 white-beaked dolphin were a magnitude lower. In addition to the aforementioned cetacean, other species have been observed or have been modelled to have presence in the North Sea (Waggitt JJ et al., 2019). These include the Atlantic white-sided dolphin (Lagenorhynchus acutus), Risso's dolphin (Grampus griseus), short-beaked common dolphin (Delphinus delphis), and killer whale (Orcinus orca). It is evident that harbour porpoises are the most abundant species in the North Sea compared to other species identified. Two species of pinnipeds; 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 12nm from the coast) and listed as UK Biodiversity Action Plan priority marine species. The Trent Platform is located 115km and the Tyne Platform is located 170km from the nearest coastline, and thus the distribution of grey and harbour seals in the vicinity of Tyne pipelines are low (1 individual per 25km^2) and very low (less than 1 individual per 25km^2) respectively (Russell et al., 2017).
Birds	The offshore waters of the SNS are visited by numerous seabirds, mainly for feeding purposes in and around the shallow sandbanks. Regional Sea 2 also includes several areas suitable for cliff nesting seabirds and some of the most important sites for wintering and passage waterbirds in a national and international context, including the Wash and Thames Estuary. Therefore, individuals found offshore in the vicinity of the Tyne location may originate from onshore colonies or be passing migrants. Numbers of seabirds are generally lower in Regional Sea 2 compared to further north [BEIS (2016), UK Offshore Energy Strategic Environmental Assessment 3 (OESEA3)]. The most common species of seabird found in this area of the SNS include Northern fulmar, Great Skua, Black legged kittiwake, Great black backed gull, Common gull, Lesser black backed gull, Herring gull, Common guillemot, Razorbill, Little auk and Atlantic puffin (Kober, et al.,2016).

Table 4.1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
	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 (BEIS, 2016).
Onshore Communities	Only low levels of vessel derived waste are associated with the decommissioning option. All waste produced from the Tyne decommissioning activities will be transported to an onshore decommissioning facility. Perenco will ensure the chosen site(s) comply with all relevant permitting and legislative requirements. No onshore communities are expected to be affected by the DP.
Other Users of the Sea	**Shipping** 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 (DECC, 2016). The waters surrounding the Tyne pipelines are described as having 'High' shipping activity (OGA, 2016). Estimated national shipping density (total vessels) in 2014 in Block 44/18 was 200-500 vessels (Marine Management Organisation (MMO), 2019). Additionally, a NRA commissioned by Perenco in 2016 identified the area as having high shipping density, with an estimated 2,095 vessels per year passing within 10nm of the Tyne location. This corresponds to an average of 5 to 6 vessels per day. The majority of these vessels were defined as cargo vessels [Ref.8, Anatec ,2016]. **Oil and Gas Industry** The Trent and Tyne fields lie in a collection of gas fields in the SNS and therefore oil and gas activity surrounding the Tyne pipelines is high. The nearest platforms are the Chrysaor Production (U.K.) Limited owned Munro MH Platform (12km west) and Katy KT Platform (13km southeast). The Tyne to Trent (PL1220/PL1221) pipelines traverses Block 44/18 connecting the Tyne Platform to the Trent Platform in Block 43/24. Five pipelines traverse the PL1220/PL1221 pipelines. In addition, the pipelines are also traversed by MCCS Fibre optic cable operated by Tampnet. **Offshore Wind Farms** Four offshore windfarms are located north of the project area (Creyke Beck A, Creyke Beck B, Sofia and, Teesside A), the closest of which to the project area is the Creyke Beck A at a distance of 36km. To the south of the project area lies Hornsea 1, 2 & 3 offshore windfarms. The nearest carbon capture and storage lease site is located approximately 20km west of the Trent end of the PL1220/PL1221 pipelines. **Dredging and Dumping Activity** Several offshore aggregate areas are located to the south and southwest of the project area. The closest UK area, known as Humber 4 & 7 falls

Table 4.1: Environmental Sensitivities	
Environmental Receptor	**Main Features**
	65km south of the project area. A single aggregate extraction area called E1 is located 55km northeast of the previous Tyne Platform location on the other side of the Netherlands/UK median line. **Military Activity** UKCS Blocks 43/24, 43/25, 43/20, 44/16, 44/17 and 44/18 lie within a known Ministry of Defence (MoD) practice and exercise area (DECC, 2016). However, there are no restrictions identified by the MoD for UKCS Blocks 43/24, 43/25, 43/20, 44/16, 44/17 and 44/18 (OGA, 2019). **Wrecks** There are circa 38 wrecks recorded within 50km the project area, however none are recorded as protected (MMO, 2019). The closest wreck to the Tyne area is located approximately 65m from the PL1220/PL1221 pipelines. Two 'dangerous wrecks' are located approximately 11km northeast of the Tyne Platform. **Telecommunications** The Tampnet telecommunications cables are located to the East of the project area. Running north/south, the shortest distance between the project area and the Tampnet cable is 11km at the previous Tyne Platform location.
Atmosphere	Local atmospheric emissions will be influenced by vessel movements and associated activities during the proposed decommissioning operations. It is expected that these emissions will be localised to the area of interest.

4.2 Potential Environmental Impacts and Their Management

A key consideration when planning and finalising the decommissioning of the Tyne pipelines is a clear understanding of the surrounding environment. The physical, biological, and socio-economic environments have been considered to understand the full potential for the programme to interact with the environment. The appropriate controls will be adopted to mitigate negative impacts.

Environmental Impact Assessment Summary:
The potential environmental impacts associated with the proposed decommissioning activities have been assessed as part of the Tyne Pipelines Decommissioning Environmental Appraisal and are reported in an EA 200605-S-REP-0009 accompanying this DP.

The EA identifies potential environmental impacts by identifying interactions between the proposed decommissioning activities and the associated environmental receptors. Impacts identified as potentially significant associated with the proposed decommissioning activities have been grouped within the EA under the following EA section headings:

- Physical presence – Infrastructure left in situ (Section 7.3.1).
- Seabed disturbance (Section 7.3.2).

Any cumulative and transboundary impacts have been assessed within these sections.

The EA also describes the proposed mitigation measures designed to avoid or reduce the identified potential environmental impacts to as low as reasonably practicable (ALARP) and how these will be managed in accordance with the Perenco Safety and Environmental Management System (SEMS) while considering responses from stakeholders.

The EA concludes that the Tyne pipelines decommissioning activities can be completed without causing significant adverse impact to the environment, providing the proposed mitigation and management measures, as identified within the EA, are implemented. In addition, the assessment of potential cumulative impacts indicated that there would be no significant impacts and no significant transboundary impacts expected to occur as a result of the decommissioning operations.

Table 4.2 : Environmental Impact Management		
Activity	**Main Impacts**	**Management**
Decommissioning Pipelines and Stabilisation Features (Leave in situ with remediation)	Seabed Disturbance	• Perenco will apply for a Deposit Consent for the deposition of rock material after approval of DP by OPRED. • Use of fall pipe ROV to deploy the rock mass over the targeted area to ensure maximum overtrawlability with minimum rock use and seabed disturbance. • Use of optimal rock berm design to minimise rock requirement for an effective overtrawlable berm. • Vessels will use dynamic positioning instead of anchors. • Overtrawl survey conducted by non-intrusive methods when possible or optimised to allow survey completion with minimal sweeps. • No infrastructure to be removed unless identified as a snagging hazard during the overtrawl survey. • Perenco will commit to a series of post-decommissioning legacy surveys to focus on the status of the score basin and seabed natural regeneration of the rock placement. • Post-decommissioning debris clearance, surveys and monitoring shall be carried out using non-intrusive methodologies such as SSS, ROVs, etc.
Decommissioning Pipelines and Stabilisation Features (Leave in situ with remediation) – continued.	Physical Presence Infrastructure	• All offshore decommissioning and survey activities will be notified to stakeholders prior to vessels undertaking these activities. Notifications will be sent out via kingfisher navigation bulletins and direct notification with the fishing industry. In addition, the 500m SZ will remain in operation during the decommissioning activities limiting exposure of other sea users to the presence of these vessels. • All vessels will operate a manned bridge policy and have active AIS positioning in operation so other vessels can identify the decommissioning vessels via radar.

Table 4.2 : Environmental Impact Management		
Activity	**Main Impacts**	**Management**
		• Suitable size of rock used for the decommissioning activity to minimise the snagging risk for fishing gear. • The Tyne pipelines are currently shown on Admiralty Charts, the FishSAFE system and the NSTA Infrastructure data systems (NSTA Open Data). • Post-decommissioning 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, seabed clearance 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 does 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 will be 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.
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	Best practices will be employed to minimise this environmental footprint. This includes optimal remediation operations and survey planning and procurement of vessels which operate effective EMS minimising their emissions. Future legacy survey frequency will be determined and agreed with OPRED, however the resulting emissions from these surveys are

Table 4.2 : Environmental Impact Management		
Activity	**Main Impacts**	**Management**
	global scale and are not significantly larger than general vessel operations in the region.	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 2016.
Waste Generation	All waste generated from decommissioning activities, which will be limited to two operational vessels waste, will be handled, and recovered or disposed of in line with existing waste management legislation following the principles of the waste hierarchy.	Raw materials will be returned to shore with the expectation to recycle the majority of the returned non-hazardous material. Other non-hazardous waste which cannot be reused or recycled will be disposed of to a landfill site. Hazardous waste will be disposed of in accordance with established waste legislation. Only licensed contractors will be used for waste handling and treatment/disposal.
Physical Presence of Vessels in Relation to Other Sea Users	The requirement to deploy vessels to the area for the preferred decommissioning option will be limited to a single fall pipe ROV vessel and a single survey vessel. Further legacy survey frequency is expected to be agreed with OPRED and will consist of a single vessel per survey. The project area has a moderate amount of shipping activity within it, which will not be significantly increased due to project activity.	It is not anticipated that vessel movements would require a significant exclusion area to operate within (circa 1km), instead the impacts of this presence will be managed via standard maritime navigational rules. Furthermore, the decommissioning activity will be located within the existing 500m SZ designation given by the previously installed Tyne Platform.

5. INTERESTED PARTY CONSULTATIONS

Table 5.1: Summary of Stakeholder Comments		
Who	**Comment**	**Response**
Statutory Consultations		
NSTA		Perenco has consulted with NSTA under S29(2A) of the Petroleum Act.
NFFO		
SFF		
NIFPO		
Global Marine Systems		
Other Consultations		
Public		
Informal Stakeholder Consultations		
MCA		
HSEx		
Environment Agency		
MMO		
UKHO		

6. PROGRAMME MANAGEMENT

6.1 Project Management and Verification

The decommissioning surveys for the Tyne Platform are covered under the Tyne Installation DP. However, the platform and pipeline surveys will be carried out within the same survey campaign. 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

In 2022 a post-decommissioning pipeline survey and benthic survey were carried out along a 100m corridor of the pipelines and within the Tyne 500m SZ [Ref. 6, N-Sea (2022), Tyne Platform Post Decommissioning MBES and Environmental Survey 2022, and Ref. 7, Ocean Ecology (2022)], Tyne Platform Post-Decommissioning Seabed Environment Survey]. Any debris identified during these surveys (along the pipelines and within the Tyne 500m SZ) was recovered for onshore disposal or recycling in line with existing disposal methods.

Subject to approval of this Tyne Pipeline DP, it is proposed that a rock placement campaign be carried out inside the Tyne 500m SZ to cover the exposed pipeline ends and associated stabilisation material within the Tyne scour basin. Rock placement was determined as the optimum solution for both pipelines following analysis of the survey results and the CA. It was discussed at Perenco-OPRED quarterly meetings from January 2022 to May 2024. A rock berm engineering design was commissioned, which determined a berm of 0.5m cover height (excluding the concrete mattresses on top of the pipeline) with a total rock requirement of 833te will provide an overtrawlable berm whilst minimising total rock volume.

Additionally, a clean seabed certificate will be obtained in accordance with guidance from DESNZ and NFFO. If deemed required, an overtrawl will be conducted by the NFFO to confirm the clear seabed. These activities relate to the Tyne area up to, but not including, the Trent 500m SZ.

Before the obtainment of the Clean Seabed Certificate, the Tyne 500m SZ will remain in place and will be marked on the UK Hydrographic Office (UKHO) Admiralty maps and recorded in the FishSAFE database. As previously agreed with the HSEx, once it is confirmed that the pipeline ends and stabilisation materials are no longer a snagging hazard, Perenco will request that the Tyne SZ be removed from the maps/database.

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, see Section 6.6.

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 remediation of the exposed pipeline sections and associated stabilisation within the Tyne scour basin, an overtrawl survey (or equivalent) to confirm a clear seabed, and the completion of the Close Out Report. The final Close Out Report is expected to be submitted by Q4 2028. The proposed remediation within the Tyne Scour basin to the pipeline will be completed before the completion of the clear seabed verification.

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	2024				2025				2026				2027				2028			
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	Survey Completed in Q3 2022																			
Remediation																				
Clear Seabed Verification																				
Close Out report																				

LEGEND	
	Earliest date task could be completed
	Period in which the task expected to be completed
	Latest date task could be completed

6.4 Costs

The decommissioning costs detailed within this Pipeline DP has been provided to OPRED.

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 Tyne Installation and Pipeline Close Out Report will be submitted within approximately 12 months of the completion of the offshore decommissioning scope, including debris removal, post-decommissioning surveys, and any required remediation along the length of the pipeline.

In the Close Out Report, the company responsible for the subsequent management of ongoing residual liabilities for any infrastructure left in situ will be detailed. That company will also be the contact point for any third-party claims arising from damage caused by any remains from the Tyne Pipeline DP.

6.6 Post-Decommissioning Monitoring and Evaluation

The results of the post decommissioning surveys will be compared with the surveys carried out before decommissioning commenced. The results of the post-decommissioning surveys and the comparison will be provided to OPRED within the Close Out Report.

The Close Out Report will provide a proposed frequency for any further surveys. The frequency of the surveys will be agreed upon with OPRED as part of the decommissioning close out reporting arrangements; it is anticipated that this will be 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.

7. SUPPORTING DOCUMENTS

Table 7.1 : Supporting Documents

Ref	Title	Document Number
1	Tyne Field Installation Decommissioning Programme.	DECOM-2020-Tyne-QS-Q-016
2	Tyne Pipelines Comparative Assessment.	200605-S-REP-0008
3	Tyne Pipelines and Stabilisation Materials Decommissioning Environmental Appraisal Report.	200605-S-REP-0009
4	Bibby Hydromap (2017). Pre-Decommissioning Environmental Baseline and Debris Survey Campaign, Volume 2 – Debris Survey – Tyne Platform.	Bibby Hydromap Project No: 2017-001, April 2017
5	Debris Detection and Bathymetric Survey, Tyne Platform Bibby HydroMap.	Project No: 2016-004 Date: March 2016 - Perenco (2016) Pipeline Acoustic Survey Volume 2
6	Tyne Platform Post Decommissioning MBES and Environmental Survey 2022, N-Sea Offshore Wind Ltd.	NSO-PJ00292-RR-DC-SUR-002 Rev 2 - N-Sea (2022)
7	Tyne Platform Post-Decommissioning Seabed Environment Survey.	OEL_NSEPER0422_TYNE_TCR - Ocean Ecology (2022).
8	Navigational Risk Assessment Tyne Platform decommissioning.	A3815-PER-NRA-1 - Anatec (2016).
9	Tyne Comparative Assessment Scoping Report.	200605-S-REP-0006
10	Tyne Environmental Appraisal Scoping Report	200605-S-REP-0010_Rev 0

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

9. REFERENCES

Hammond, P.S., MacLeod, K., Berggren, P., Borchers, D.L., Burt, L., Canadas, A (2013). Cetacean abundance and distribution in European Atlantic shelf waters to inform conservation and management. Biological conservation. 107-122.

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Russell, D.J.F., Jones, E.L. and Morris, C.D. (2017). Updated Seal Usage Maps: The Estimated at-sea Distribution of Grey and Harbour Seals. Scottish Marine and Freshwater Science, 8 (25).

Kober, K., Webb, A., Win, I., Lewis, M., O'Brien, S., Wilson, L.J. & Reid, J.B. (2010). An analysis of the numbers and distribution of seabirds within the British Fishery Limit aimed at identifying areas that qualify as possible marine SPAs, JNCC Report No. 431. JNCC, Peterborough, ISSN 0963-8091.

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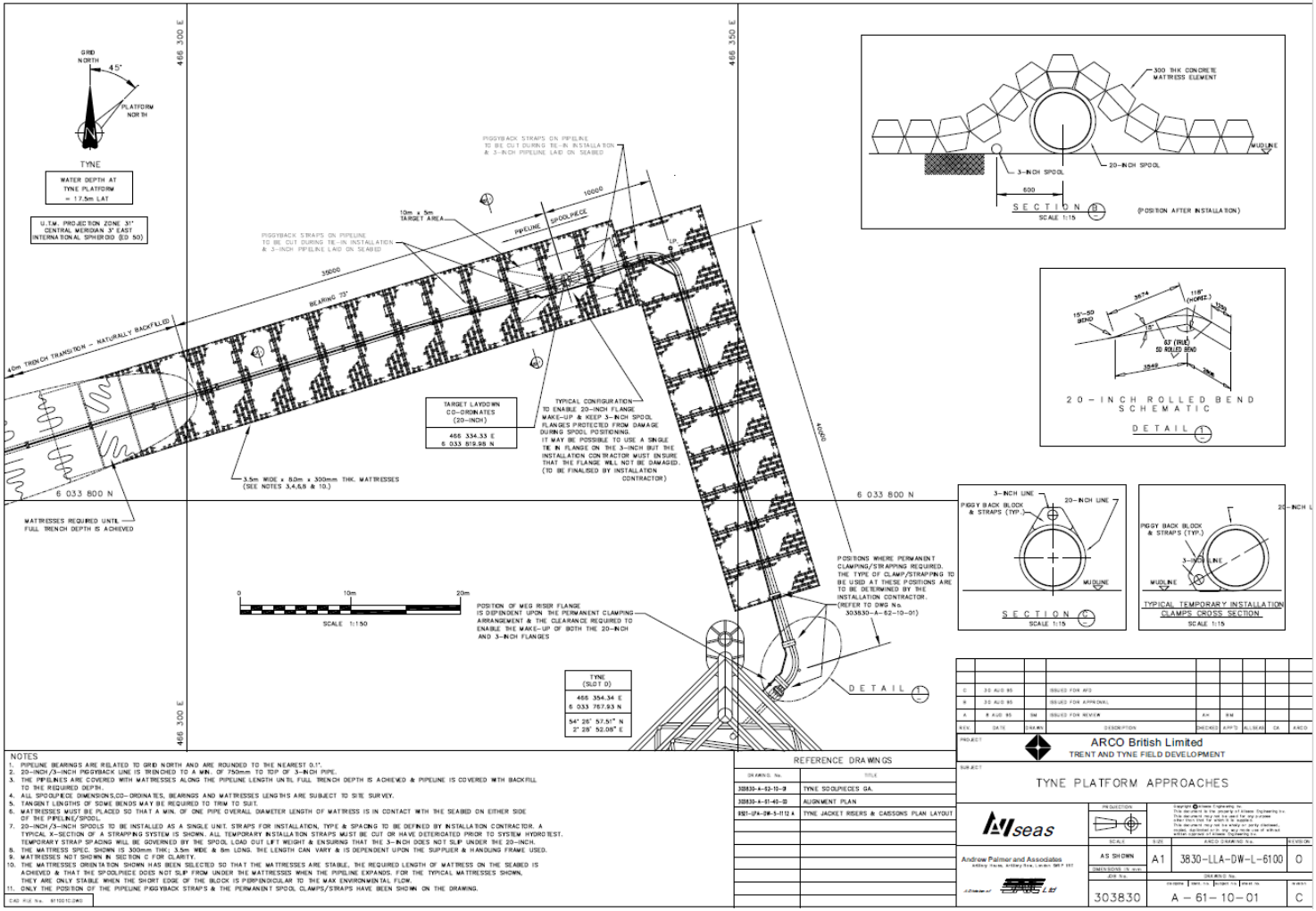
Marine Scotland (2021) Final 2021 effort data by ICES rectangle. https://data.marine.gov.scot/dataset/2020-scottish-sea-fisheries-statistics-fishing-effort-and-quantity-and-value-landings-ices [Accessed July 2023].

BEIS (2018). Guidance notes - Decommissioning of Offshore Oil and Gas Installations and Pipelines.

OEUK (2015). Guidelines for Comparative Assessment, Issue 1, October 2015.

10. APPENDICES

Appendix A: Drawings of Pipelines and Pipeline Stabilisation Features



24-INCH EXPORT LINE FROM TRENT TO ETS

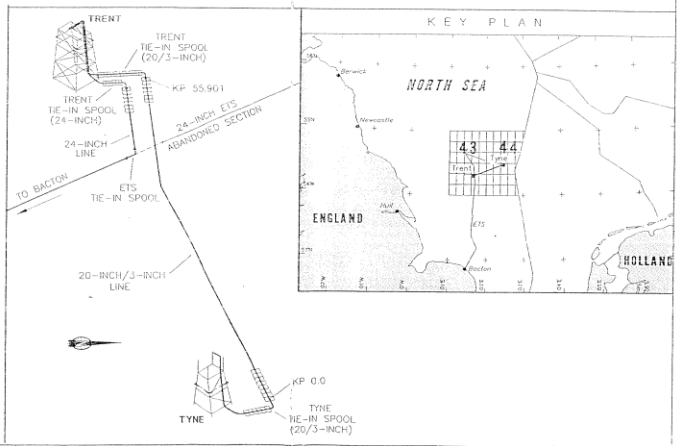
	TRENT TIE-IN SPOOL	PIPELINE	ETS TIE-IN SPOOL
MATERIAL TYPE	API - 5L	API - 5L	API - 5L
GRADE	X65	X65	X65
MANUFACTURING PROCESS	SAW	SAW	SAW
WALL THICKNESS (mm)	19.0	16.0	19.0
OUTSIDE DIAMETER (mm)	609.6	609.6	609.6
BEND RADIUS	5D	N/A	5D
BEND WALL THICKNESS (mm)	21.0	N/A	21.0
CORROSION ALLOWANCE (mm)	1.5	1.5	1.5
CORROSION PROTECTION / MATERIAL	AL-ZN-IN ANODES	AL-ZN-IN ANODES	AL-ZN-IN ANODES
ANTI-CORROSION COATING	5mm ASPHALT ENAMEL GR 2B (SEE NOTE 1.)	5mm ASPHALT ENAMEL GR 2B (SEE NOTE 1.)	5mm ASPHALT ENAMEL GR 2B (SEE NOTE 1.)
CONCRETE COATING THICKNESS (mm)	40	40	40
CONCRETE DENSITY (kg/m ^{3})	3400	3400	3400
FLANGE CLASS	1500	1500	1500
TRENCHED/UNTRENCHED	UNTRENCHED	TRENCHED (0.3m COVER)	UNTRENCHED
DESIGN TEMPERATURE RANGE	+60.0°C TO -30.0°C	+60.0°C TO -30.0°C	+60.0°C TO -30.0°C
DESIGN PRESSURE	139.3 BARG (2020 PSIG)	139.3 BARG (2020 PSIG)	139.3 BARG (2020 PSIG)
HYDROTEST PRESSURE	209.0 BARG (3030 PSIG)	209.0 BARG (3030 PSIG)	209.0 BARG (3030 PSIG)

3-INCH MEG LINE FROM TRENT TO TYNE

	TRENT TIE-IN SPOOL	PIPELINE	TYNE TIE-IN SPOOL
MATERIAL TYPE	API - 5L	API - 5L	API - 5L
GRADE	X52	X52	X52
MANUFACTURING PROCESS	SEAMLESS	SEAMLESS	SEAMLESS
WALL THICKNESS (mm)	10.0	10.0	10.0
OUTSIDE DIAMETER (mm)	88.9	88.9	88.9
BEND RADIUS	3D (SEE NOTE 2.)	N/A	3D (SEE NOTE 2.)
BEND WALL THICKNESS (mm)	10.0	N/A	10.0
CORROSION ALLOWANCE (mm)	0	0	0
CORROSION PROTECTION / MATERIAL	N/A	N/A	N/A
ANTI-CORROSION COATING	0.5mm FBE	0.5mm FBE	0.5mm FBE
CONCRETE COATING THICKNESS (mm)	N/A	N/A	N/A
CONCRETE DENSITY (kg/m ^{3})	N/A	N/A	N/A
FLANGE CLASS	1500	1500	1500
TRENCHED/UNTRENCHED	UNTRENCHED	TRENCHED	UNTRENCHED
PIGGYBACK SUPPORT SPACING (m)	6	6	6
DESIGN TEMPERATURE RANGE	+50.0°C TO +2.0°C	+50.0°C TO +2.0°C	+50.0°C TO +2.0°C
DESIGN PRESSURE	165 BARG (2393 PSIG)	165 BARG (2393 PSIG)	165 BARG (2393 PSIG)
HYDROTEST PRESSURE	247.5 BARG (3589 PSIG)	247.5 BARG (3589 PSIG)	247.5 BARG (3589 PSIG)

20-INCH EXPORT LINE FROM TYNE TO TRENT

	TYNE TIE-IN SPOOL	PIPELINE KP 0.0 TO KP 7.0	PIPELINE KP 7.0 TO KP 10.0	PIPELINE KP 10.0 TO KP 28.0	PIPELINE KP 28.0 TO KP 55.991	TRENT TIE-IN SPOOL
MATERIAL TYPE	API - 5L	API - 5L	API - 5L	API - 5L	API - 5L	API - 5L
GRADE	X65	X65	X65	X65	X65	X65
MANUFACTURING PROCESS	SAW	SAW	SAW	ERW	ERW	SAW
WALL THICKNESS (mm)	21.0	18.0	18.0	15.0	15.0	21.0
OUTSIDE DIAMETER (mm)	508	508				508
BEND RADIUS	5D	N/A				5D
BEND WALL THICKNESS (mm)	23.0	N/A				23.0
CORROSION ALLOWANCE (mm)	6.0	6.0	6.0	3.0	3.0	3.0
CORROSION PROTECTION / MATERIAL	AL-ZN-IN ANODES	AL-ZN-IN ANODES				AL-ZN-IN ANODES
ANTI-CORROSION COATING	5mm CTE GR 120/SS	5mm CTE GR 120/SS	5mm ASPHALT ENAMEL GRADE 2B (SEE NOTE 1.)			5mm ASPHALT ENAMEL GRADE 2B (SEE NOTE 1.)
CONCRETE COATING THICKNESS (mm)	75	75	50	50	40	40
CONCRETE DENSITY (kg/m ^{3})	3400	3400				3400
FLANGE CLASS	1500	1500	N/A		1500	1500
TRENCHED/UNTRENCHED	UNTRENCHED	TRENCHED (0.75m COVER TO TOP OF 3-INCH LINE)				UNTRENCHED
DESIGN TEMPERATURE RANGE	+94.0°C TO -10.0°C	+94.0°C TO -10.0°C				+94.0°C TO -10.0°C
DESIGN PRESSURE	139.3 BARG (2020 PSIG)	139.3 BARG (2020 PSIG)				139.3 BARG (2020 PSIG)
HYDROTEST PRESSURE	209.0 BARG (3030 PSIG)	209.0 BARG (3030 PSIG)				209.0 BARG (3030 PSIG)



NOTES
1. AS AN ALTERNATIVE TO ASPHALT ENAMEL, 5mm OF COAL TAR ENAMEL GRADE 105/B, MAY BE USED.
2. 1.5D ELBOWS MAY BE USED AS AN ALTERNATIVE TO 3D INDUCTION BENDS.

Andrew Palmer and Associates
Artillery House, Artillery Row, London SW1P 1RT
A Division of SAIC Ltd

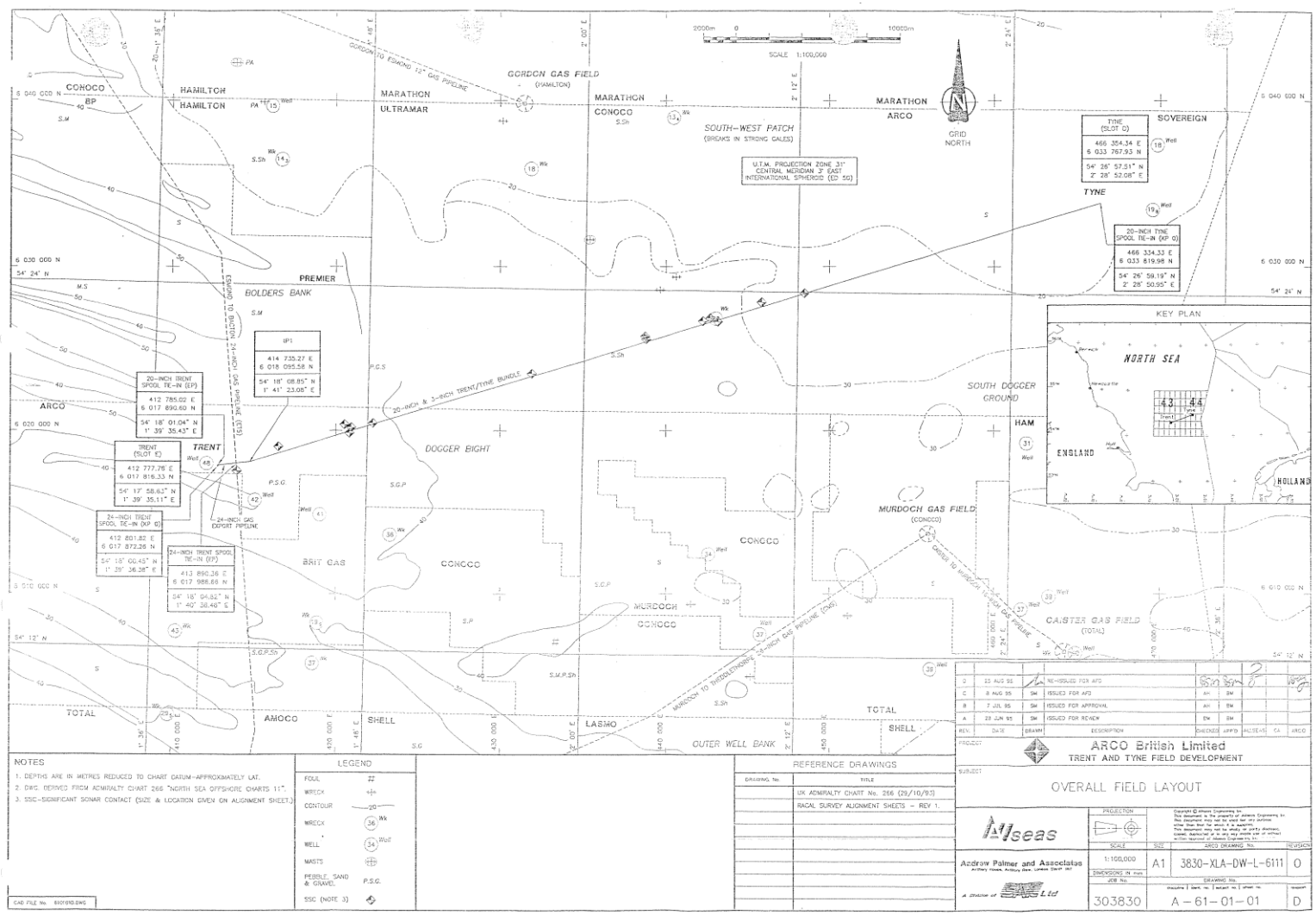
ARCO British Limited
Allseas

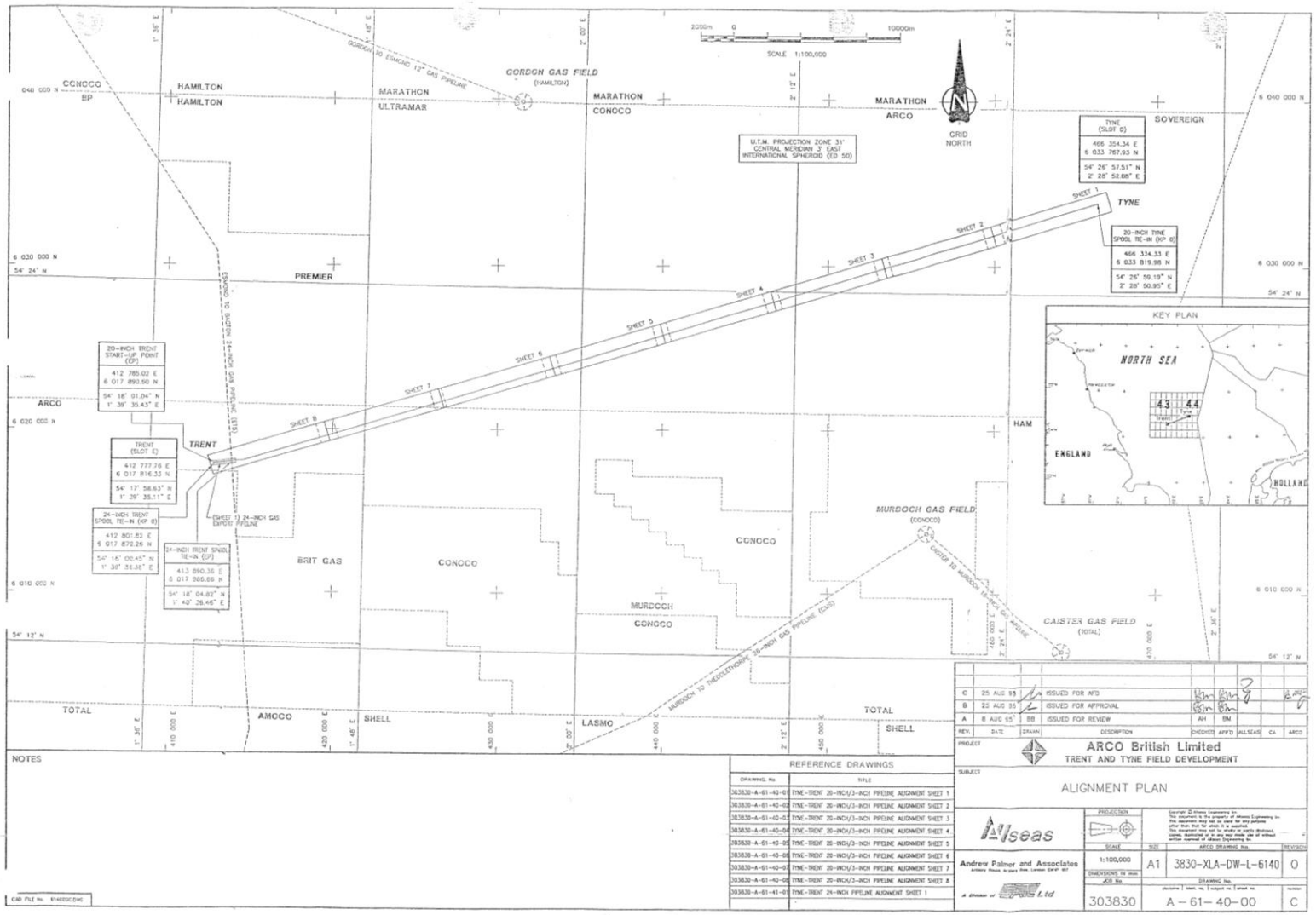
TRENT AND TYNE FIELD DEVELOPMENT

TITLE: PIPELINE DATA SUMMARY SHEET

DOCUMENT No: 3830/DC-PD/D090-01

FIGURE No: 1.1


GORDON GAS FIELD
(HAMILTON)
SOUTH-WEST PATCH
(BREAKS IN STRONG GALES)
GRID NORTH
U.T.M. PROJECTION ZONE 31°
CENTRAL MERIDIAN 3° EAST
INTERNATIONAL SPHEROID (ED 50)
TYNE (SLOT 0)
466 354.34 E
6 033 767.93 N
54° 26' 57.51" N
2° 28' 52.08" E
TYNE
20-INCH TYNE SPOOL TIE-IN (KP 0)
466 334.33 E
6 033 819.98 N
54° 26' 59.19" N
2° 28' 50.95" E
SOVEREIGN
PREMIER
BOLDERS BANK
20-INCH & 3-INCH TRENT/TYNE BUNDLE
SOUTH DOGGER GROUND
DOGGER BIGHT
TRENT
TRENT (SLOT E)
412 777.76 E
6 017 816.33 N
54° 17' 58.62" N
1° 39' 35.11" E
20-INCH TRENT SPOOL TIE-IN (EP)
412 785.02 E
6 017 890.60 N
54° 18' 01.04" N
1° 39' 35.43" E
EP1
414 735.27 E
6 018 095.58 N
54° 18' 08.85" N
1° 41' 23.08" E
24-INCH TRENT SPOOL TIE-IN (KP 0)
412 801.82 E
6 017 872.26 N
54° 18' 00.49" N
1° 39' 36.28" E
24-INCH TRENT SPOOL TIE-IN (FP)
413 890.36 E
6 017 986.66 N
54° 18' 04.32" N
1° 40' 38.46" E
24-INCH GAS EXPORT PIPELINE
BRIT GAS
CONOCO
MURDOCH GAS FIELD
(CONOCO)
MURDOCH TO THEDDLETHORPE 24-INCH GAS PIPELINE (DOG)
CAISTER GAS FIELD
(TOTAL)
HAM
ENGLAND
HOLLAND
NORTH SEA
KEY PLAN
AMOCO
SHELL
LASMO
TOTAL
OUTER WELL BANK
NOTES
1. DEPTHS ARE IN METRES REDUCED TO CHART DATUM—APPROXIMATELY LAT.
2. DWG. DERIVED FROM ADMIRALTY CHART 266 "NORTH SEA OFFSHORE CHARTS 11".
3. SSC—SIGNIFICANT SONAR CONTACT (SIZE & LOCATION GIVEN ON ALIGNMENT SHEET.)
LEGEND
FOUL
WRECK
CONTOUR
WRECK
WELL
MASTS
PEBBLE, SAND & GRAVEL
SSC (NOTE 3)
REFERENCE DRAWINGS
DRAWING No.
TITLE
UK ADMIRALTY CHART No. 266 (29/10/93)
RACAL SURVEY ALIGNMENT SHEETS – REV 1.
ARCO British Limited
TRENT AND TYNE FIELD DEVELOPMENT
OVERALL FIELD LAYOUT
Andrew Palmer and Associates
SCALE 1:100,000
SIZE A1
ARCO DRAWING No. 3830-XLA-DW-L-6111
REVISION O
JOB No. 303830
DRAWING No. A – 61 – 01 – 01
REVISION D


GORDON GAS FIELD
(HAMILTON)
MURDOCH GAS FIELD
(CONOCO)
CAISTER GAS FIELD
(TOTAL)
TYNE
TRENT
U.T.M. PROJECTION ZONE 31°
CENTRAL MERIDIAN 3° EAST
INTERNATIONAL SPHEROID (ED 50)
GRID NORTH
SCALE 1:100,000
KEY PLAN
NORTH SEA
ENGLAND
HOLLAND
CONOCO
BP
HAMILTON
MARATHON
ULTRAMAR
ARCO
SOVEREIGN
PREMIER
HAM
BRIT GAS
MURDOCH
LASMO
AMOCO
SHELL
TOTAL
NOTES
REFERENCE DRAWINGS
ISSUED FOR AFD
ISSUED FOR APPROVAL
ISSUED FOR REVIEW
ARCO British Limited
TRENT AND TYNE FIELD DEVELOPMENT
ALIGNMENT PLAN
Andrew Palmer and Associates
1:100,000
A1
3830-XLA-DW-L-6140
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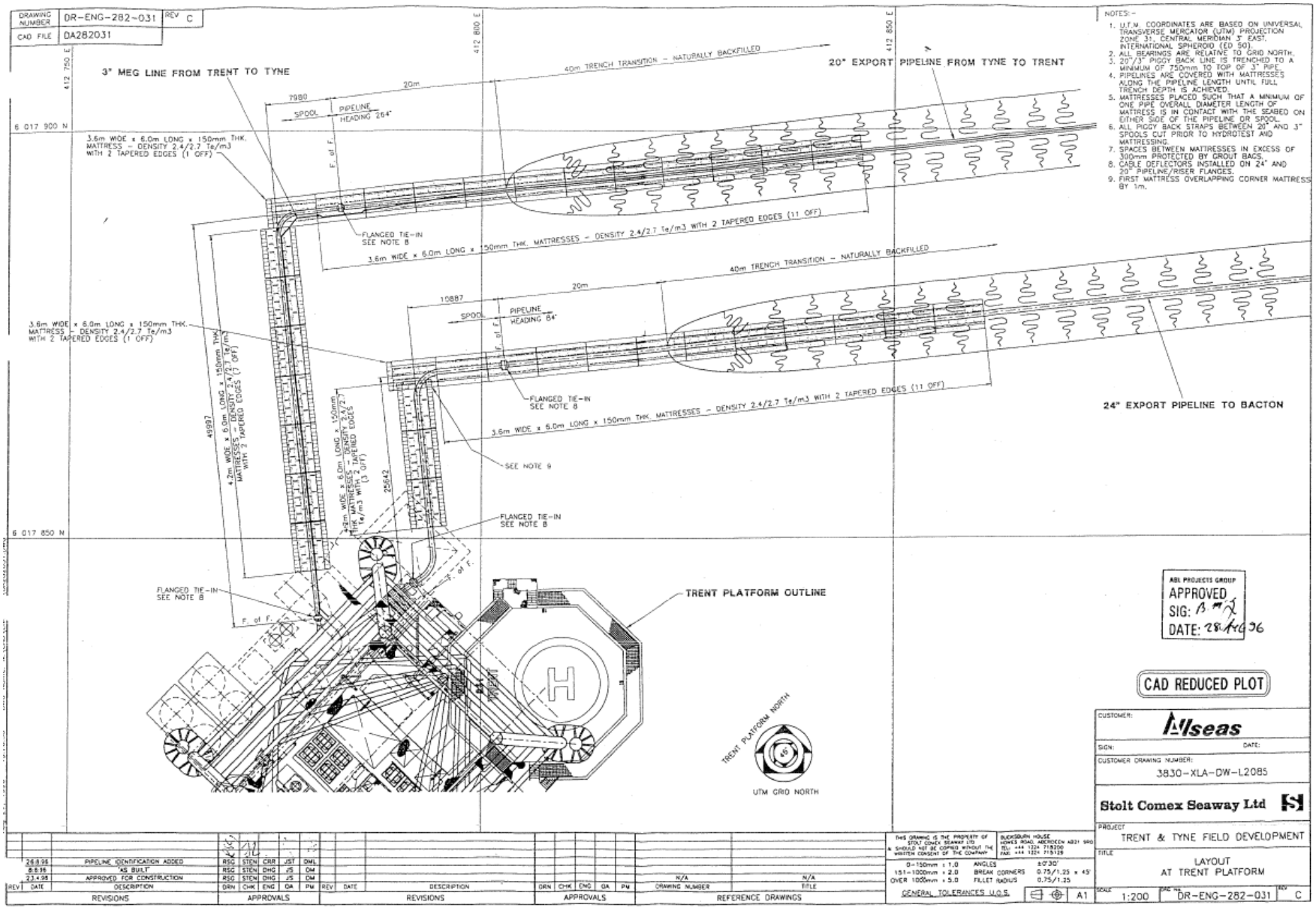
DRAWING NUMBER DR-ENG-282-031 REV C
CAD FILE 0A282031
3" MEG LINE FROM TRENT TO TYNE
20" EXPORT PIPELINE FROM TYNE TO TRENT
24" EXPORT PIPELINE TO BACTON
40m TRENCH TRANSITION - NATURALLY BACKFILLED
20m
7980
10887
SPOOL
PIPELINE HEADING 264°
PIPELINE HEADING 84°
F. of F.
FLANGED TIE-IN SEE NOTE 8
3.6m WIDE x 6.0m LONG x 150mm THK. MATTRESS - DENSITY 2.4/2.7 Te/m3 WITH 2 TAPERED EDGES (1 OFF)
3.6m WIDE x 6.0m LONG x 150mm THK. MATTRESSES - DENSITY 2.4/2.7 Te/m3 WITH 2 TAPERED EDGES (11 OFF)
4.2m WIDE x 6.0m LONG x 150mm THK. MATTRESSES - DENSITY 2.4/2.7 Te/m3 WITH 2 TAPERED EDGES (3 OFF)
49997
25642
SEE NOTE 9
TRENT PLATFORM OUTLINE
TRENT PLATFORM NORTH
UTM GRID NORTH
412 750 E
412 800 E
412 850 E
6 017 900 N
6 017 850 N
NOTES:-
1. U.T.M. COORDINATES ARE BASED ON UNIVERSAL TRANSVERSE MERCATOR (UTM) PROJECTION ZONE 31, CENTRAL MERIDIAN 3° EAST, INTERNATIONAL SPHEROID (ED 50).
2. ALL BEARINGS ARE RELATIVE TO GRID NORTH.
3. 20"/3" PIGGY BACK LINE IS TRENCHED TO A MINIMUM OF 750mm TO TOP OF 3" PIPE.
4. PIPELINES ARE COVERED WITH MATTRESSES ALONG THE PIPELINE LENGTH UNTIL FULL TRENCH DEPTH IS ACHIEVED.
5. MATTRESSES PLACED SUCH THAT A MINIMUM OF ONE PIPE OVERALL DIAMETER LENGTH OF MATTRESS IS IN CONTACT WITH THE SEABED ON EITHER SIDE OF THE PIPELINE OR SPOOL.
6. ALL PIGGY BACK STRAPS BETWEEN 20" AND 3" SPOOLS CUT PRIOR TO HYDROTEST AND MATTRESSING.
7. SPACES BETWEEN MATTRESSES IN EXCESS OF 300mm PROTECTED BY GROUT BAGS.
8. CABLE DEFLECTORS INSTALLED ON 24" AND 20" PIPELINE/RISER FLANGES.
9. FIRST MATTRESS OVERLAPPING CORNER MATTRESS BY 1m.
ABL PROJECTS GROUP
APPROVED
SIG:
DATE: 28/11/96
CAD REDUCED PLOT
CUSTOMER: Allseas
SIGN: DATE:
CUSTOMER DRAWING NUMBER: 3830-XLA-DW-L2085
Stolt Comex Seaway Ltd
PROJECT TRENT & TYNE FIELD DEVELOPMENT
TITLE LAYOUT AT TRENT PLATFORM
SCALE 1:200
DRG No DR-ENG-282-031
REV C
REVISIONS
APPROVALS
REFERENCE DRAWINGS
GENERAL TOLERANCES U.O.S.
A1