BRAE AREA:
CENTRAL BRAE, WEST BRAE, AND SEDGWICK SUBSEA INSTALLATIONS PIPELINES, AND UMBILICALS; COMPARATIVE ASSESSMENT

April 2026 – Consultation Draft

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ABBREVIATIONS

Abbreviation	Meaning
500m Safety Zone	A zone established around an offshore installation that vessels cannot enter without the permission of the offshore installation manager.
BEIS	Department for Business, Energy, and Industrial Strategy (Formerly DECC – Department of Energy and Climate Change)
Brae Area	The offshore area encompassing the Brae platforms, and the associated subsea facilities and export pipelines.
CA	Comparative Assessment
Decommissioning	The process of taking facilities out of use and re-using, recycling, or disposing of them.
FBE	Fusion Bonded Epoxy
Grout Bag	Stabilisation and protection features consisting of a bag containing sand, aggregate, or cement grout. The bag may be small; sandbag sized, or large; “1 tonne bag” or mattress sized.
IPR	Interim Pipeline Regime
KP	Kilometre Point
LLC	Limited Liability Corporation
Manifold	A subsea system that marshals the production fluids from a number of wells or other subsea facilities
Mattress (Concrete)	A series of concrete blocks linked by a wire or synthetic fibre rope matrix forming a flexible structure approximately 2m by 3m which is used for protection or stabilisation of subsea facilities.
MEG	Monoethylene Glycol
OEUK	Offshore Energies UK
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
OSPAR	Oslo Paris Convention
PL	Pipeline as in Pipeline Number
PLU	Pipeline Umbilical as in Umbilical Number
Preferred Option	The decommissioning option that offers the best balance when assessed against the CA criteria
PWA	Pipeline Works Authorisation
Riser	The section of a pipeline that runs from the topsides of an offshore platform to the seabed. Normally this is supported by the platform substructure.
SDU	(Sedgwick) Subsea Distribution Unit
Span	An unsupported length of pipeline that potentially presents a snagging hazard for fishermen’s nets, or a hazard to pipeline integrity. Spans occur where the seabed is eroded from beneath the pipeline by the action of tides or other currents. Spans can occur on surface laid pipelines or, more unusually on buried pipelines.
Subsea Asset	A collective term for items of subsea equipment including, pipelines, wells and wellheads, manifolds, pipeline valves, etc.
TAQA	TAQA Bratani Limited
TEE (Pipeline)	A “T” junction in a subsea pipeline.
Template	A subsea structure that acts as a base for drilling wells and supporting subsea wellheads and Xmas trees.

Abbreviation	Meaning
UK	United Kingdom
Umbilical	A collection of hydraulic lines, electrical cables, fibre optics, and chemical injection hoses bound together into a single large hose-like assembly connecting an offshore platform to a subsea facility, or a subsea facility to another piece of subsea equipment.

1 Executive Summary

1.1 Overview

TAQA operates the Central Brae, West Brae, and Sedgwick subsea facilities, which are located in the UK sector of the North Sea. The oil and gas fields in the Brae Area are reaching the end of their lives and TAQA commenced decommissioning the Brae Bravo facilities in 2018 and plans to complete decommissioning the remaining facilities by 2032.

This report describes TAQA's Comparative Assessment (CA) of options for decommissioning the Central Brae, West Brae and Sedgwick pipelines, umbilicals and the associated stabilisation and protection features. The CA determined the preferred decommissioning options for each of these assets.

The Central Brae, West Brae and Sedgwick subsea pipelines and umbilicals originally formed part of the scope of an overall Brae Area Subsea Facilities CA. This was conducted in 2016 as part of the preparation of the draft Brae Alpha, Brae Bravo Central Brae, West Brae, and Sedgwick Decommissioning Programme by Marathon Oil, which was the Brae Area operator at that time. Subsequently, TAQA has become the Operator for the Brae Area. The original DP covering the Brae Alpha, Brae Bravo and connected subsea facilities has now been superseded by a number of separate DPs to better align with the decommissioning schedule and contracting strategy. Consequently, TAQA has prepared a separate Decommissioning Programme for Brae Alpha Topsides, Central Brae, West Brae, and Sedgwick. Therefore, TAQA has also prepared a standalone CA covering these subsea facilities, which is presented in the current document.

The Central Brae West Brae and Sedgwick assets also include the Central Brae template the West Brae and West Brae extension manifold structures, the West Brae, West Brae extension and Sedgwick wellhead structures and the Sedgwick Subsea Distribution Unit (SDU) structure. These structures and any associated protection and stabilisation features are outside the scope of the CA.

There is also no requirement for a CA of the Brae Alpha topsides as these will be removed in accordance with regulatory and OSPAR requirements. This current CA takes cognisance of technical developments since the original CA, and continuing dialogue with the Offshore Petroleum Regulator for the Environment and Decommissioning (OPRED) regarding the Brae facilities and TAQA's other Central North Sea and Northern North Sea assets.

1.2 Comparative Assessment Process

TAQA will decommission the subsea facilities as part of the overall Brae Area decommissioning programme. Guidance [1] published by the Department for Business Energy and Industrial Strategy (BEIS) requires TAQA to complete a CA to determine the preferred options for decommissioning and disposal of the Central Brae, West Brae, and Sedgwick subsea facilities.

TAQA's CA process has been developed from the process originally designed by Marathon Oil, which was the previous operator of the Brae Area. The CA process for the subsea pipelines and umbilicals consisted of the following main steps:

1. Compiling a list of the Brae Area subsea pipelines and umbilicals, and associated protection and stabilisation features.

2. Defining a set of generic equipment “segments” that encompasses all the subsea pipelines and umbilicals. For example, the set of segments may include pipelines laid on the seabed, pipelines trenched into the seabed, protective features, etc.
3. Conducting a CA of the decommissioning options for each generic segment to determine a list of the preferred decommissioning solutions for the generic segments.
4. Dividing each subsea pipeline and umbilical into its constituent segments, and determining the preferred decommissioning option for each part of the pipeline or umbilical by reference to the list of preferred decommissioning options for the generic segments.
5. Conducting a specific CA for any pipelines, umbilicals or parts of pipelines and umbilicals that are not captured by the generic segments.

Steps 1, 2, and 3 of the CA process, are described in the Brae Area Subsea Assets Decommissioning CA Methodology report [2].

This report describes Step 4 of the process; dividing the Central Brae, West Brae and Sedgwick subsea facilities into constituent segments and determining of the preferred decommissioning options. There are no Central Brae, West Brae, or Sedgwick facilities that require a Step 5 specific assessment.

The pipelines and umbilicals from the Central Brae, West Brae, and Sedgwick installations terminate at the Brae Alpha platform. In 2017 a separate CA was conducted for the Brae Alpha platform Footings. This determined that the preferred option for the Footings is to leave them in place. TAQA may therefore apply for a derogation from OSPAR 98/3 to leave the Footings in situ.

The configuration of the subsea equipment around the Brae Alpha platform is congested, including multiple pipeline crossings, protection, and stabilisation features and SSIVs and the associated structures and umbilicals.
If derogation is granted, it is proposed to leave portions of pipelines and umbilicals that are in close proximity to the Footings in situ. This will significantly reduce the risk to decommissioning personnel, disturbance to the seabed and the consumption of resources, without appreciably increasing the risk to fishing vessel crews. For the purposes of decommissioning subsea assets adjacent to derogated Footings, “close proximity” is defined as within 75 m of the Footings. This 75 m distance is a maximum, and if there are logical break points in pipelines and umbilicals that are closer to the Footings than this, such as flanges or trench transitions, the facilities will be removed up to these points if it is practicable to do so.

TAQA will mitigate snagging risks to fishing vessels and their crews from the Footings by providing information to relevant bodies to allow promulgation of warnings of the hazards via the FishSAFE system and Admiralty charts.

There are two further subsea assets in the Brae Area. These are Braemar and Devenick. Both these assets tie back to the East Brae platform. Summaries of the CAs for these assets are set out in the relevant Decommissioning Programmes [3] [4]. The conclusions of these CAs align with the preferred decommissioning options for the Central Brae, West Brae and Sedgwick pipelines and umbilicals determined by the current CA.

1.3 Conclusions

The overall conclusions of the Central Brae, West Brae and Sedgwick pipelines and umbilicals decommissioning CA are;

1. The majority of surface laid pipelines and umbilicals that are not rock covered will be removed to shore for reuse, recycling, or disposal.
2. Any mattresses or grout bags, etc. protecting or stabilising surface laid pipelines will be removed to shore for reuse, recycling, or disposal.
3. If derogation to leave the Brae Alpha jacket Footings in place is granted, the pipelines, umbilicals and protection and stabilisation features in close proximity to the Footings may be decommissioned in place. "Close proximity" is defined as within 75 m of the Footings. The aggregated length of "close proximity" lines is 600 m or less. This equates to ~1%of the total length of Central Brae and West Brae pipelines and umbilicals, which is approximately 42,000 m.
4. All of the pipeline and umbilical jumpers between the West Brae manifold and West Brae extension manifold and the associated wells will be removed to shore for reuse, recycling, or disposal. The mattresses and grout bags on these lines will either be used to remediate the seabed at West Brae following the removal of the manifolds, or returned to shore for reuse, recycling, or disposal.
5. Trenched and buried portions of pipelines and umbilicals will be decommissioned in situ.
6. Rock covered trenched and surface laid pipelines and umbilicals will be decommissioned in situ.

In accordance with guidance [1], all of the subsea structures at the Central Brae, West Brae and Sedgwick installations, pipelines and umbilicals will be removed. These subsea structures are outwith the scope of the CA.

2 Background to Central Brae, West Brae, and Sedgwick Subsea Facilities Decommissioning Comparative Assessment

The extraction of oil and gas in the Brae Area in the UK sector of the North Sea has been achieved using three production platforms and a number of subsea facilities, ranging from relatively complex subsea manifolds and template structures to pipelines and umbilicals, and various pipeline protection and stabilisation features. The Brae Area assets include the Central Brae, West Brae and Sedgwick subsea installations shown in Figure 1. These facilities were installed over the period from the late 1980s to 2019.

The Brae Area is approaching the end of its productive life. Once production ceases there will be no further use for the Central Brae, West Brae, and Sedgwick subsea facilities, and it is anticipated that they will be decommissioned over a period from around 2025 to 2030.

There are a number of options for decommissioning these facilities. TAQA must ensure that decommissioning is carried out safely and in an environmentally responsible manner, considering both the decommissioning operations themselves and any potential risks or liabilities following decommissioning.

TAQA has used a CA process to balance the advantages and disadvantages of the various decommissioning alternatives and arrive at the preferred options for decommissioning the Central Brae, West Brae and Sedgwick pipelines and umbilicals. In this context “preferred option” is used in the same sense as in BEIS guidance [1], where a preferred option is one that represents the best balance of safety, environmental, and societal impacts taking account of technical feasibility and cost.

Five criteria were used in the CA, in line with BEIS guidance [1]:

- Health and Safety – of both the personnel carrying out decommissioning work, and others that may be impacted, for example fishing vessel crews.
- Environmental Impact – in terms of both short term and long term impacts.
- Technical Feasibility – i.e. demonstrable successful implementation of decommissioning options
- Socio-Economic Impact – in terms of positive and negative impacts offshore and onshore
- Cost – this was not a determining factor in the CA. It is an avatar for the level of effort required for decommissioning, and is therefore generally proportionate to the level of safety risk, impact on flora, fauna and habitats, and resource usage.

The Central Brae, West Brae, and Sedgwick CA is largely qualitative and compares the relative scale of impacts of proposed options. The CA did not quantify all impacts in absolute terms since there are insufficient definitive data to enable a fully quantified approach. However, some aspects, such as resource usage and risks to decommissioning personnel and other sea users were quantified to provide a sense of the scale of impacts. Thus, the approach adopted is broadly in line with the “Type A” assessment described in Offshore Energies UK (OEUK) guidance [5], supplemented by the inclusion of some aspects of the OEUK “Type B” approach.

The timescale for planning the Central Brae, West Brae and Sedgwick subsea facilities decommissioning extends beyond 2025. The original CA conducted by Marathon in 2017 was based on the understanding of the condition of the Central Brae, West Brae and Sedgwick subsea facilities and feasible decommissioning techniques at that time. The original CA report acknowledged that the facilities, circumstances, and understanding might change in the period between the CA and the start of the

decommissioning operations. Given the length of time elapsed between the original CA and the present TAQA elected to review the CA for the Central Brae, West Brae and Sedgwick pipelines and umbilicals.

This review considered developments in removal techniques since the Brae Area subsea facilities CA toolkit was developed in 2016, and included a general review of the methods used for the CA and its conclusions to ensure that they remain valid.

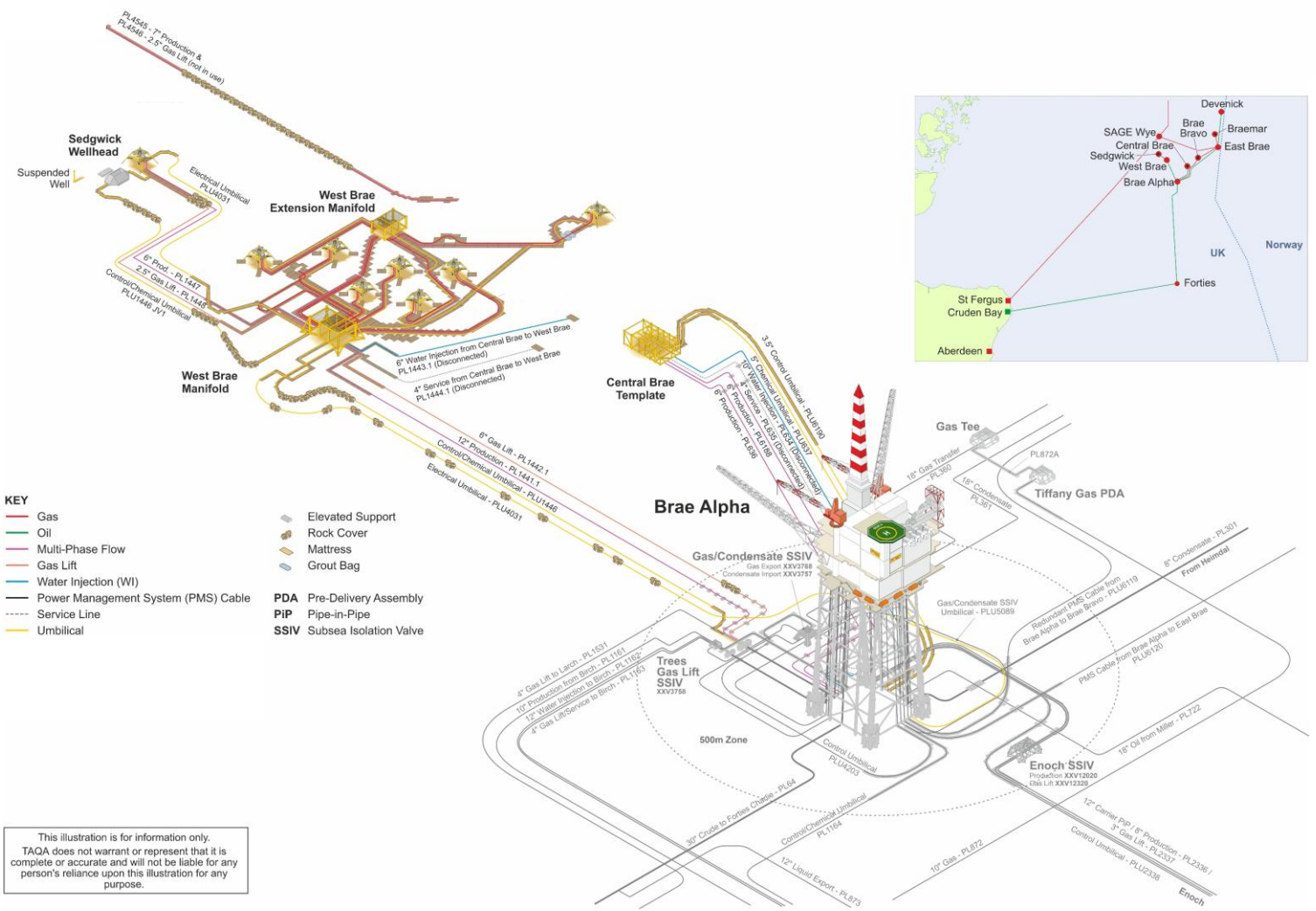


Figure 1 Central Brae, West Brae, and Sedgwick subsea facilities

3 Objective of the Comparative Assessment Process

The overall objective of the Central Brae, West Brae and Sedgwick pipelines, umbilicals and protection and stabilisation features decommissioning CA is to identify preferred decommissioning options that:

- Ensure that risks to personnel carrying out the decommissioning work are tolerable and as low as reasonably practicable.
- Cause minimal practicable disturbance to marine flora and fauna during, and as a result of, decommissioning activities.
- Cause minimal practicable disruption to other users of the sea, for example fishing vessels or merchant shipping.
- Ensure that if any parts of the Central Brae, West Brae and Sedgwick subsea facilities are not recovered to shore any residual risks to the safety of other users of the sea, including fishing vessel crews, merchant shipping and leisure users, are tolerable and as low as reasonably practicable.

4 Scope of Comparative Assessment

The scope of the Central Brae, West Brae and Sedgwick pipelines, umbilicals and protection and stabilisation features CA covers the subsea pipelines umbilicals and associated protection and stabilisation features that are TAQA's responsibility. These pipelines and umbilicals are shown in Figure 1.

Structures including the Central Brae template, the West Brae and West Brae extension manifolds, wellheads, and the Sedgwick SDU and the associated protection features are outside the scope of the CA. These facilities will be removed to shore for reuse, recycling, or disposal in accordance with BEIS guidance [1]. These structures are outwith the scope of the CA.

TAQA is the duty holder for the majority of the facilities in the Brae Area. However, there are other operators' subsea facilities in the Brae Area that are connected to TAQA's Brae Alpha platform; namely, Miller, Enoch, Tiffany, and the Trees facilities. These facilities are referred to as "Third Party" facilities or assets. The connections between the third party facilities and TAQA's installations include flowlines that export the produced fluids from the third party facilities to the Brae Alpha platform, and service lines and umbilicals that provide services and control and communication from the platforms to the third party facilities. Some of the third party lines are fitted with SSIVs which are located in protection structures inside the Brae Alpha 500m safety zone. Responsibilities for decommissioning the third party facilities lie with their respective operators. There are also TAQA operated trunk pipelines connected to Brae Alpha. The third party facilities and TAQA trunk lines are shown in greyscale in Figure 1. The trunk pipelines and third party facilities are outside the scope of this CA.

5 Application of the Comparative Assessment Process

The Central Brae, West Brae and Sedgwick pipelines, umbilicals and associated protection and stabilisation features have been scrutinised and divided into their constituent segments in accordance with the Brae Area subsea facilities decommissioning CA methodology [2]. The appropriate decommissioning option for each segment has then been identified. The full lists of pipelines, umbilicals and their constituent segments and the preferred decommissioning option for each segment are presented in Appendix 1.

5.1 Dividing Facilities Into Segments

This process of dividing a facility into segments and identifying the preferred decommissioning option for each segment is illustrated below using pipeline PL 1443.1 shown in Figure 2 as an example. This is the 6" water injection line from the Central Brae template to the West Brae manifold. Table 1 presents the preferred decommissioning options for the segments that make up PL 1443.1. This pipeline breaks down into five segments:

1. Central Brae template structure (segment type A: Fabricated Steel Structure). This structure is outside the scope of the CA and will be removed to shore for reuse, recycling, or disposal in accordance with BEIS guidance [1].
2. Surface laid pipeline protected by mattresses (segment type B.2.1: Surface Laid Pipeline Mattress / Grout Bag Stabilisation / Protection)
3. Trenched pipeline (segment type B.1.1 / B.1.2: Buried / Trenched Pipeline)
4. Surface laid pipeline protected by mattresses (segment type B.2.1: Surface Laid Pipeline Mattress / Grout Bag Stabilisation / Protection)
5. West Brae Manifold Structure (segment type A: Fabricated Steel Structure). This structure is outside the scope of the CA and will be removed to shore for reuse, recycling, or disposal in accordance with BEIS guidance [1].

5.2 Applying Segment Comparative Assessments

Once a subsea facility has been categorised into segments, the preferred decommissioning options for those segments are identified from the CA methodology report [2]. Following identification of the preferred decommissioning options for all of the segments, these are reviewed to ensure that they are appropriate, and to identify any synergies between segments. For example, if there is one short segment with a preferred option of "decommission in place" amongst many other segments that have "removal" as the preferred option then consideration is given to removal of the "decommission in place" segment.

Since the original CA was conducted in 2017, the potential for wax deposits production flowlines has been discussed with OPRED. During pipeline disconnection operations, reasonable endeavours will be made to remove wax. Where there is potential for wax deposits to remain post-cleaning, the environmental impact of these deposits has been considered in the Wax Management Strategy [6]. No increase to the impacts considered during the original CA has been identified and therefore no amendments to the conclusions of the original CA are required.

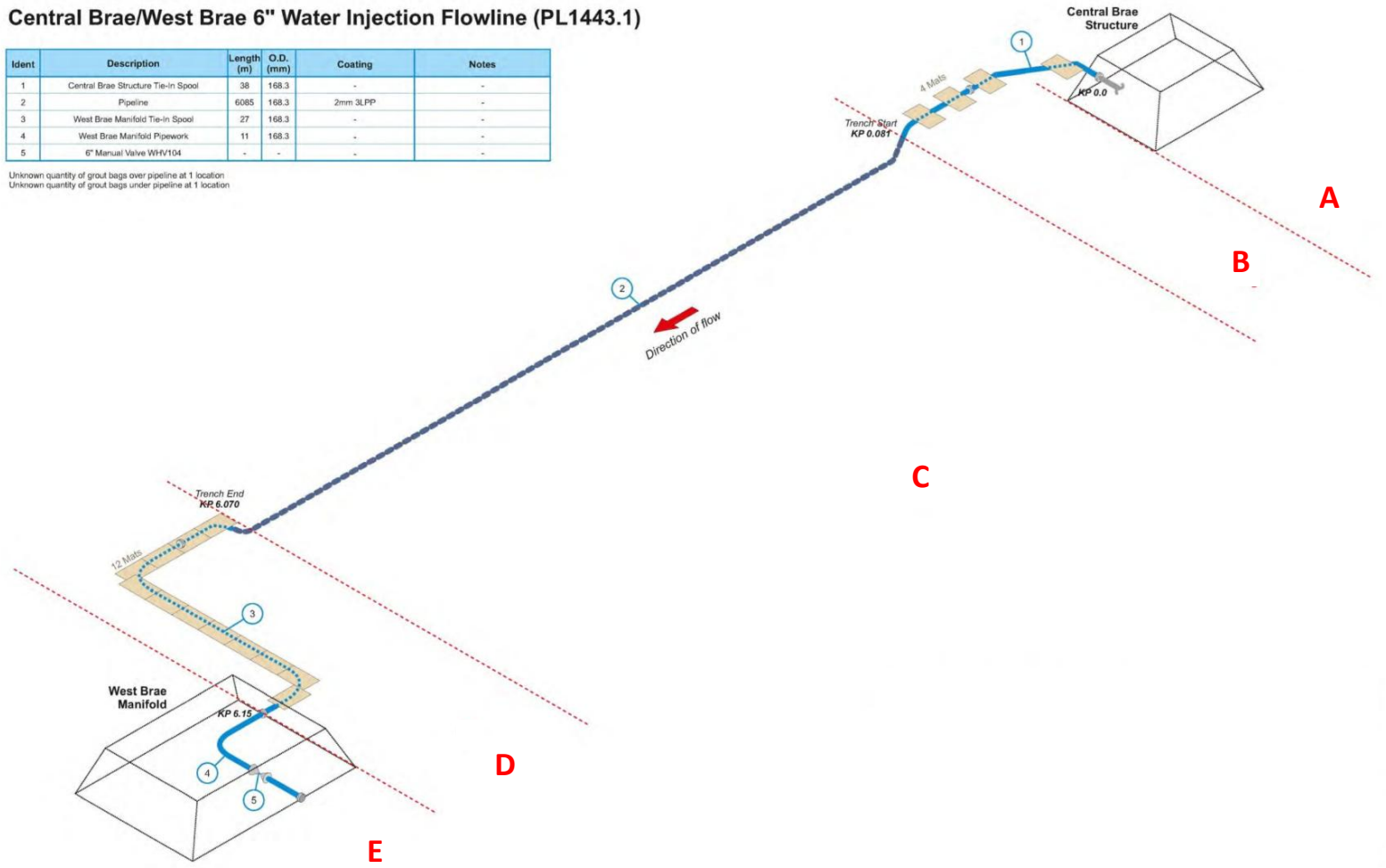


Figure 2 PL1443.1 Segments

Table 1 PL1443.1 Preferred Decommissioning Options

PL1443.1 Central Brae/West Brae 6" Water Injection Flowline							
Segment Label	**Segment Description**	**Segment Type**	**Length (m)**	**KP Start**	**KP End**	**Preferred Decommissioning Option**	**Notes**
A	Central Brae Structure	A: Fabricated Steel Structure	N/A	0	0	Removal to shore for reuse, recycling, or disposal. In accordance with BEIS guidance [1].	
B	PL1443.1	B.2.1.1: Surface Laid Pipeline (Mattress Protection - 4 mattresses)	81	0	0.081	Remove mattresses and pipeline to shore for reuse, recycling, or disposal.	
C	PL1443.1	B.1.1/2: Buried/Trenched Pipeline (Top of Pipeline > < 600mm below seabed)	5989	0.081	6.07	Decommission in situ (Make safe any exposed cut ends)	
D	PL1443.1	B.2.1.1: Surface Laid Pipeline (Mattress Protection - 12 mattresses)	80	6.07	6.15	Remove mattresses. Remove pipeline to shore for reuse, recycling, or disposal.	
E	West Brae Manifold	A: Fabricated Steel Structure	Location Point KP 6.15	6.15	6.15	Removal to shore for reuse, recycling, or disposal. In accordance with BEIS guidance [1].	

SUMMARY:
The preferred options for the segments of PL1443.1, derived from the CA are:
To decommission trenched or buried pipeline in situ;
To remove the West Brae manifold structure to shore;
To move mattresses that protect pipeline to an area where they do not pose a hazard and remove any surface laid pipeline that is exposed to shore.

The Central Brae and West Brae Manifold structures are outside the scope of this CA and will be removed to shore in accordance with BEIS guidance [1].

5.3 Subject Matter Expert Review of Comparative Assessment Conclusions

TAQA Environmental, Safety, and Subsea subject matter experts have reviewed the preferred decommissioning options identified for the constituent segments of each subsea facility. Their views and comments have been incorporated into the options presented in Appendix 1.

6 References

[1] Department for Business Energy & Industrial Strategy, Guidance Notes: Decommissioning of Offshore Oil & Gas Installations and Pipelines, November 2018

[2] Brae Field Decommissioning Comparative Assessment Process, 9000-MIP-99-PM-RT-00003-000, Marathon Oil Decommissioning Services LLC, November 2014

[3] Brae Area, East Brae Topsides and Braemar Decommissioning Programmes, RockRose Energy, July 2020

[4] Brae Area, Devenick Subsea Facilities Decommissioning Programmes, TB-DEVDEC01-X-AD-0001-000, TAQA Bratani Limited, July 2023

[5] Guidelines for Comparative Assessment in Decommissioning Programmes, Oil and Gas UK, October 2015

[6] Pipeline Wax management Strategy, TAQ-SSP-TN-0001, TAQA Bratani Limited, May 2024

Appendix 1 Pipeline and Preferred Decommissioning Options Listings

Appendix Contents

Table A.1: Pipelines & Umbilicals Information									
Description	**Pipeline No. (as per PWA)**	**Length (km)**	**Dia. (inches)**	**Description of Component Parts**	**Product Conveyed**	**From - To**	**Burial Status**	**Status**	**Current Content**
Brae Alpha to Central Brae Water Injection	PL634	10.75	6.9244	Steel with 2 pack epoxy and FBE coating	Injection water	Brae Alpha ESDV to Central Brae Template Isolation Valve	Part trenched, part surface-laid, part surface-laid and rock covered.	Out of use d	Sea water
Brae Alpha to Central Brae Service Line	PL635	4.5	6.87115	Steel with 2 pack epoxy coating	Chemicals/ Gas	Brae Alpha ESDV to Central Brae Template Isolation Valve	Part trenched, part surface-laid, part surface-laid and rock covered.	Out of	Sea water
Central Brae to Brae Alpha Production Flowline (1)	PL6188	6.7	6.951	Stainless steel, with solid / micro / cellular polyurethane coating	Oil	Brae Central Template to Brae Alpha Platform ESDV	Predominantly trenched and rock covered.	In Service	Oil
Central Brae to Brae Alpha Production Flowline (2)	PL636	6.7	6.898	Stainless steel, with solid / micro / cellular polyurethane coating	Oil	Brae Central Template to Brae Alpha Platform ESDV	Predominantly trenched and rock covered.	In Service	Oil

Table A.1: Pipelines & Umbilicals Information									
Brae Alpha to Central Brae Chemical Injection Umbilical (NB This umbilical has a PL identifier, not PLU).	PL637	5.4	7	Chemical lines, and structural layers of polymer and steel wire	Chemicals	Brae Alpha Platform Distribution Box to Brae Central Template	Part trenched, part surface-laid, part surface-laid and rock covered, part surface-laid and mattress protected.	In Service	Chemicals
Brae Alpha to Central Brae Control Umbilical	PLU6190	3.5	7	Hydraulic lines, electrical lines and structural layers of polymer and steel wire	Hydraulic fluid, Power and Signal	Brae Alpha Platform to Brae Central Template	Part trenched, part surface-laid, part surface-laid and rock covered, part surface-laid and mattress protected.	In Service	Hydraulic Fluid, Power, and Signal
West Brae Manifold to Brae Alpha Production Flowline	PL1441.1	12.75	9.02	Stainless steel with 3 layer polypropylene coating	Production Fluids	West Brae Extension Manifold to Brae Alpha Platform	Part trenched, part surface-laid, part surface-laid and mattress protected	In Service	Production Fluids
W8z to West Brae Manifold Production Jumper	PL1441.2	7.75	0.035	Layers of polymer and steel wire	Production Fluids	Well W8z to West Brae Manifold	Surface-laid mattress protected	In Service	Production Fluids

Table A.1: Pipelines & Umbilicals Information									
W12y to West Brae Manifold Production Jumper	PL1441.3	7.75	0.035	Layers of polymer and steel wire	Production Fluids	W12y to West Brae Manifold	Surface-laid mattress protected	In Service	Production Fluids
W3 to West Brae Manifold Production Jumper	PL1441.4	7.75	0.035	Layers of polymer and steel wire	Production Fluids	W3 to West Brae Manifold	Surface-laid mattress protected	In Service	Production Fluids
W7z/W10y to West Brae Manifold Production Jumper	PL1441.5	7.75	0.1419	Layers of polymer and steel wire	Production Fluids	Disconnected end adjacent to well W7z to Disconnected end adjacent to West Brae Manifold	Surface-laid mattress protected	Out of use	Seawater
W9x to West Brae Manifold Production Jumper	PL1441.6	7.75	0.035	Layers of polymer and steel wire	Production Fluids	W9x to West Brae Manifold	Surface-laid mattress protected	In Service	Production Fluids

Table A.1: Pipelines & Umbilicals Information									
Brae Alpha to West Brae Manifold Gas Lift Flowline. Includes mattress protected pipeline T approximately 7 km from Brae Alpha.	PL1442.1	6.63	9.003	Steel with 3 layer polypropylene coating	Lift Gas	Brae Alpha Platform to West Brae Extension Manifold	Part trenched, part surface-laid, part surface-laid and mattress protected	In Service	Lift Gas
West Brae Manifold to W7z/W10y Gas Lift Jumper	PL1442.2	5.27	0.1392	Layers of polymer and steel wire	Lift Gas	Disconnected end adjacent to West Brae Manifold to Disconnected end adjacent to Well W7z	Surface-laid mattress protected	Out of Use	Seawater
West Brae Manifold to W9x Gas Lift Jumper	PL1442.4	5.27	0.061	Layers of polymer and steel wire	Lift Gas	West Brae Manifold to Well W9x	Surface-laid mattress protected	In Service	Lift Gas
West Brae Manifold to W10y Gas Lift Jumper	PL1442.5	5.27	0.035	Layers of polymer and steel wire	Lift Gas	West Brae Manifold to Well W10y	Surface-laid mattress protected	In Service	Seawater
West Brae Manifold to W3 Gas Lift Jumper	PL1442.6	5.27	0.027	Layers of polymer and steel wire	Lift Gas	West Brae Manifold to Well W3	Surface-laid mattress protected	In Service	Lift Gas

Table A.1: Pipelines & Umbilicals Information									
West Brae Manifold to W12y Gas Lift Jumper	PL1442.7	5.27	0.110	Layers of polymer and steel wire	Lift Gas	Disconnected end adjacent to West Brae Manifold to Disconnected end adjacent to Well W12y	Surface-laid mattress protected	Out of Use	Seawater
West Brae Manifold to W8z Gas Lift Jumper	PL1442.8	5.27	0.035	Layers of polymer and steel wire	Lift Gas	West Brae Manifold to Well W8z	Surface-laid mattress protected	In Service	Lift Gas
Central Brae to West Brae Water Injection Flowline	PL1443.1	6.63	5.757	Steel with 3 layer polypropylene coating	Injection water	Central Brae Subsea Cut to West Brae Subsea Cut	Part trenched, part surface-laid, part surface-laid and mattress protected	Out of Use	Seawater
West Brae manifold to W10y Water Injection Jumper	PL1443.3	8.81	0.06	Layers of polymer and steel wire	Injection water	West Brae Manifold to Well W10y	Surface-laid mattress protected	In Service	Seawater
Central Brae to West Brae Service Flowline	PL1444.1	4	5.73	Steel with 3 layer polypropylene coating	Water and chemicals	Central Brae Subsea Cut to West Brae Subsea Cut	Part trenched, part surface-laid, part surface-laid and mattress protected	Out of Use	Seawater

Table A.1: Pipelines & Umbilicals Information									
Brae Alpha to base of West Brae Production Riser Gas Lift Flowline	PL1445	3	0.165	Stainless steel	Lift Gas	Brae Alpha Platform to Production Pipeline	Not buried	In Service	Lift Gas
Brae Alpha to West Brae Chemical / Control Umbilical	PLU1446	4.84	8.73	Chemical lines, power and signal cores, and structural layers of polymer and steel wire	Chemicals / Hydraulic Fluid	Brae Alpha Platform to West Brae Manifold	Part trenched, part surface-laid and mattress protected, part surface-laid and rock covered	In Service (Power and signal cores out of use)	Various

Table A.1: Pipelines & Umbilicals Information									
West Brae Manifold to W8z Chemical / Control Umbilical	PLU1446.12	0.5	0.035	Chemical lines, and structural layers of polymer and steel wire	Chemicals / Hydraulic Fluid	West Brae Manifold to Well W8z	Part surface-laid and part surface laid, and mattress protected	In Service	Methanol (Product)
	PLU1446.15	0.5	0.035	Chemical lines, and structural layers of polymer and steel wire	Chemicals / Hydraulic Fluid	West Brae Manifold to Well W8z	Part surface-laid and part surface laid, and mattress protected	In Service	Methanol (Product)
West Brae Manifold to W12y Chemical / Control Umbilical	PLU1446.13	0.5	0.035	Chemical lines, and structural layers of polymer and steel wire	Chemicals / Hydraulic Fluid	West Brae Manifold to Well W12y	Part surface-laid and part surface laid, and mattress protected	In Service	Methanol (Product)
	PLU1446.16	0.5	0.035	Chemical lines, and structural layers of polymer and steel wire	Chemicals / Hydraulic Fluid	West Brae Manifold to Well W12y	Part surface-laid and mattress protected	In Service	Methanol (Product)
West Brae Manifold to W3 Chemical/Control Umbilical	PLU1446.14	0.5	0.035	Chemical lines, and structural layers of polymer and steel wire	Chemicals / Hydraulic Fluid	West Brae Manifold to Well W3	Part surface-laid and mattress protected	In Service	Methanol (Product)

Table A.1: Pipelines & Umbilicals Information									
	PLU1446.17	0.5	0.035	Chemical lines, and structural layers of polymer and steel wire	Chemicals / Hydraulic Fluid	West Brae manifold to W3	Part surface-laid and mattress protected	In Service	Methanol (Product)
West Brae Manifold to Sedgwick Chemical/Control Umbilical Includes concrete SDU protection structure at Sedgwick	PLU1446JV1	4.84	2.3	Chemical lines, power and signal cores, and structural layers of polymer and steel wire	Chemicals / Hydraulic Fluid	West Brae Manifold to Sedgwick Well V1	Part trenched, part surface-laid and mattress protected, part surface-laid and rock covered	In Service (Power and signal cores out of use)	Various
Sedgwick to West Brae Manifold Production Flowline	PL1447	6.62	2.37	Stainless steel with 3 layer polypropylene coating	Crude oil	Well V1 to West Brae Manifold	Part trenched, part surface-laid and mattress protected, part surface-laid mattress protected, and rock covered	In Service	Crude Oil
West Brae to Sedgwick Gas Lift Flowline	PL1448	2.9	2.37	Steel with 3 layer polypropylene coating	Lift Gas	West Brae Manifold to Well V1	Part trenched with spot rock cover, part surface-laid and mattress protected, part surface-laid and rock covered	In Service	Lift Gas

Table A.1: Pipelines & Umbilicals Information									
West Brae Manifold to W9x Chemical Jumper	PLU3798	¾ hose and ½ hose	0.035	Chemical lines, and structural layers of polymer and steel wire	Chemicals	West Brae Manifold to Well W9x	Surface-laid mattress protected	In Service	Chemicals
West Brae Manifold to W7z Chemical Jumper	PLU3799	¾ hose and ½ hose	0.058	Chemical lines, and structural layers of polymer and steel wire	Chemicals	West Brae Manifold to Well W7z	Surface-laid mattress protected	In Service	Chemicals
West Brae Manifold to W9x Chemical Jumper	PLU3800	¾ hose and ½ hose	0.035	Chemical lines, and structural layers of polymer and steel wire	Chemicals	West Brae Manifold to Well W9x	Surface-laid mattress protected	In Service	Chemicals
West Brae Manifold to W10y Chemical Jumper	PLU3801	¾ hose and ½ hose	0.04	Chemical lines, and structural layers of polymer and steel wire	Methanol (Product)	West Brae Manifold to Well W10y	Surface-laid mattress protected	In Service	Methanol (Product)
West Brae Manifold to W10y Chemical Jumper	PLU3802	¾ hose and ½ hose	0.04	Chemical lines, and structural layers of polymer and steel wire	Chemicals	West Brae Manifold to Well W10y	Surface-laid mattress protected	In Service	None

Table A.1: Pipelines & Umbilicals Information									
W11 to West Brae Extension Manifold Production Jumper	PL3806	7.95	0.162	Layers of polymer and steel wire	Production Fluids	Well W11 to West Brae Extension Manifold	Surface-laid mattress protected	In Service	Production Fluids
West Brae Extension Manifold to W11 Gas Lift Jumper	PL3809	5.83	0.162	Layers of polymer and steel wire	Lift Gas	West Brae Extension Manifold to Well W11	Surface-laid mattress protected	In Service	Lift Gas
West Brae Manifold to W7z Chemical Jumper	PLU3811	¾ hose and ½ hose	0.058	Layers of polymer and steel wire	Methanol (Product)	West Brae Manifold to Well W7z	Surface-laid mattress protected	In Service	Methanol (Product)
West Brae Manifold to W11 Chemical Jumper	PLU3813	¾ hose and ½ hose	0.2	Layers of polymer and steel wire	Methanol (Product)	West Brae Manifold to Well W11	Surface-laid mattress protected	In Service	Methanol (Product)
Brae Alpha to West Brae Manifold and Sedgwick Electrical Umbilical	PLU4031	2.8	11.95	Electrical quads and steel wire armour	Others	Brae Alpha Platform to Sedgwick Well V1 (via West Brae Manifold)	Trenched and partially rock covered	In Service	Others

Table A.1: Pipelines & Umbilicals Information									
West Brae Manifold to W7z Electrical Flying Lead	PLU4131	1	0.058	Copper conductor, steel wire armour, insulation	Electric Power	West Brae Manifold to Well W7z Control Module	Surface-laid mattress protected	Out of use	Various
West Brae Manifold to W7z Electrical Flying Lead	PLU4132	1	0.072	Copper conductor, steel wire armour, insulation	Various	West Brae Manifold to W7z Control Module	Surface-laid mattress protected	In Service	Various
West Brae Manifold to W8z Electrical Flying Lead	PLU4133	1	0.060	Copper conductor, steel wire armour, insulation	Electric Power	West Brae Manifold to W8z Control Module	Surface-laid mattress protected	Out of	Various
West Brae Manifold to W8z Electrical Flying Lead	PLU4134	1	0.072	Copper conductor, steel wire armour, insulation	Various	West Brae Manifold to W8z Control Module	Surface-laid mattress protected	Operational	Various
West Brae Manifold to W9x Electrical Flying Lead	PLU4135	1	0.086	Copper conductor, steel wire armour, insulation	Electric Power	West Brae Manifold to W9x Control Module	Surface-laid mattress protected	Out of use	Various
West Brae Manifold to W9x Electrical Flying Lead	PLU4136	1	0.102	Copper conductor, steel wire armour, insulation	Various	West Brae Manifold to W9x Control Module	Surface-laid mattress protected	In Service	Various

Table A.1: Pipelines & Umbilicals Information									
West Brae Manifold to W12y Electrical Flying Lead	PLU4137	1	0.040	Copper conductor, steel wire armour, insulation	Electric Power	West Brae Manifold to W12y Control Module	Surface-laid mattress protected	Out of use	None
West Brae Manifold to W12y Electrical Flying Lead	PLU4138	1	0.072	Copper conductor, steel wire armour, insulation	Various	West Brae Manifold to W12y	Surface-laid mattress protected	In Service	Various
W7z to West Brae Extension Manifold Production Jumper	PL4242	7.75	0.042	Layers of polymer and steel wire	Production fluids	Well W7z to West Brae Extension Manifold	Surface-laid mattress protected	In Service	Production Fluids
W10y to West Brae Extension Manifold Production Jumper	PL4243	7.75	0.073	Layers of polymer and steel wire	Production fluids	Well W10y to West Brae Extension Manifold	Surface-laid mattress protected	In Service	Production Fluids
West Brae Extension Manifold to West Brae Manifold Test Production Jumper	PL4244	7.75	0.055	Layers of polymer and steel wire	Production fluids	West Brae Extension Manifold to West Brae Manifold	Surface-laid mattress protected	In Service	Production Fluids

Table A.1: Pipelines & Umbilicals Information									
West Brae Extension Manifold to W7z Gas Lift Jumper	PL4245	5.27	0.042	Layers of polymer and steel wire	Lift gas	West Brae Extension Manifold to well W7z	Surface-laid mattress protected	In Service	Lift Gas
West Brae Extension Manifold to W10y Gas Lift Jumper	PL4246	5.27	0.064	Layers of polymer and steel wire	Lift gas	West Brae Extension Manifold to well W10y	Surface-laid mattress protected	In Service	Lift Gas
West Brae Extension Manifold to W12y Gas Lift Jumper	PL4247	5.27	0.03	Layers of polymer and steel wire	Lift gas	West Brae Manifold to well W12y	Surface-laid mattress protected	In Service	Lift Gas
W7z to West Brae Extension Manifold Control Jumper	PLU4248	3.54	0.043	Bundle of 6 low pressure hydraulic hoses	Hydraulic fluids	Well W7z to West Brae Extension Manifold	Surface-laid mattress protected	In Service	Hydraulic Fluids
W10y to West Brae Extension Manifold Control Jumper	PLU4249	3.54	0.06	Bundle of 6 low pressure hydraulic hoses	Hydraulic fluids	Well W10y to West Brae Extension Manifold	Surface-laid mattress protected	In Service	Hydraulic Fluids

Table A.1: Pipelines & Umbilicals Information									
West Brae Manifold to West Brae Extension Manifold Hydraulic Umbilical	PLU4250	2.5	0.056	Bundle of 2 low pressure hydraulic hoses	Hydraulic fluids	West Brae Extension Manifold to West Brae Manifold	Surface-laid mattress protected	In Service	Hydraulic Fluids
West Sedgwick Production Flowline to West Brae Extension Manifold	PL4545	9.73	6.288	Layers of polymer and steel wire	Production Fluids	Flowline Flange Adjacent to West Brae Wellhead V2 to Flowline Flange Adjacent to West Brae Extension Manifold	Rock Covered	Out of use (Never brought into use)	Various
West Sedgwick Gas Lift Flow Line from West Brae Extension Manifold	PL4546	4.66	6.291	Layers of polymer and steel wire	Hydrocarbon Lift Gas	Flowline Flange Adjacent to West Brae Extension Manifold to Flowline Flange Adjacent to West Brae Wellhead V2	Rock Covered	Out of use	Various

Table A-2: Pipelines & Umbilicals Protection and Stabilisation Features				
Protection / Stabilisation Feature	**Approximate Number**	**Weight (Te)**	**Location(s)**	**Exposed Buried Condition**
Concrete Mattresses	2	14	On umbilical PL637 adjacent to Brae Alpha 2 Mattresses between KP 0.002 and KP 0.015	1 Mattress predominantly buried in good condition (KP 0.002 to KP 0.008) 1 Mattress exposed in good condition (KP 0.008 to KP 0.015)
Concrete Mattresses	7	49	On umbilical PL637 adjacent to Central Brae structure 7 Mattresses between KP 6.759 to KP 6.850	1 Mattress partially buried in good condition (KP 6.759 to KP 6.771) 3 Mattresses exposed in good condition (KP 6.771 to KP 6.817) 3 Mattresses predominantly buried (KP 6.817 to KP 6.850) Note: In this area, the mattresses are made up of hexagonal sections and measure 12m each in length. (In this area, the mattresses are 12m long and are made up of hexagonal blocks).
Concrete Mattresses	8	56	On control umbilical PLU6190 adjacent to Brae Alpha sub-structure	4 mattresses partially buried by drill cuttings. 4 mattresses exposed.
Concrete Mattresses	33	231	On control umbilical PLU6190 adjacent to Central Brae structure	3 Mattresses buried. 30 mattresses exposed.
Concrete Mattresses	33	231	On PL1441.1 11 Mattresses between KP 0.000 to KP 0.298 22 Mattresses between KP 8.642 to KP 8.781	14 Mattresses exposed in good condition (KP 0.014 to KP 0.016, KP 0.040 to KP 0.042, KP 0.140 to KP 0.142, KP 0.165 to KP 0.167, KP 0.183 to KP 0.186, KP 0.218 to KP 0.220, KP 8.730 to KP 8.776) 15 Mattresses partially buried in good condition (KP 0.118 to KP 0.120, KP 8.646 to KP 8.730) 4 Mattresses predominantly buried in good condition (KP 0.062 to KP 0.065, KP 0.090 to KP 0.093, KP 0.121 to KP 0.124, KP 0.238 to KP 0.240)

Table A-2: Pipelines & Umbilicals Protection and Stabilisation Features				
Protection / Stabilisation Feature	**Approximate Number**	**Weight (Te)**	**Location(s)**	**Exposed Buried Condition**
Concrete Mattresses	50	350	On PL1442.1 6 Mattresses between KP 0.007 to KP 0.162 24 Mattresses between KP 6.681 to KP 6.816 (On tie in tee). 20 Mattresses between KP 8.687 to KP 8.781	12 Mattresses exposed in good condition (KP 0.038 to KP 0.131, KP 6.749 to KP 6.751) 28 Mattresses partially buried in good condition (KP 0.160 to KP 0.162, KP 6.694 to KP 6.705, KP 6.717 to KP 6.749, KP 6.751 to KP 6.803, KP 8.704 to KP 8.754, KP 8.752 to KP 8.781) 10 Mattresses predominantly buried in good condition (KP 0.007 to KP 0.013, KP 6.681 to KP 6.694, KP 6.705 to KP 6.717, KP 6.803 to KP 6.816, KP 8.687 to KP 8.704)
Concrete Mattresses	25	147	On PL1443.1 4 Mattresses between KP 0.005 to KP 0.082 17 Mattresses between KP 6.067 to 6.141 2 mattresses deposited at cut location at Central Brae 2 mattresses deposited at cut location at West Brae	12 Mattresses exposed in good condition (KP 0.005 to KP 0.082, KP 6.087 to KP 6.104, KP 6.127 to KP 6.141) 7 Mattresses partially buried in good condition (KP 6.075 to KP 6.087, KP 6.104 to KP 6.127) 2 Mattresses predominantly buried in good condition (KP 6.067 to KP 6.075)
Concrete Mattresses	28	168	On PL1444.1 6 Mattresses between KP -0.075 to KP 0.046 18 Mattresses between KP 5.996 to KP 6.084 2 mattresses deposited at cut location at Central Brae 2 mattresses deposited at cut location at West Brae	14 Mattresses exposed in good condition (KP -0.075 to KP 0.046, KP 6.013 to KP 6.049, KP 6.075 to KP 6.083) 8 Mattresses partially buried in good condition (KP 6.008 to KP 6.013, KP 6.049 to KP 6.075, KP 6.083 to KP 6.084) 2 Mattresses predominantly buried in good condition (KP 5.996 to KP 6.008)

Table A-2: Pipelines & Umbilicals Protection and Stabilisation Features				
Protection / Stabilisation Feature	**Approximate Number**	**Weight (Te)**	**Location(s)**	**Exposed Buried Condition**
Concrete Mattresses	46	322	On PLU1446 24 Mattresses between KP 0.007 to KP 0.149 22 Mattresses between KP 8.728 to KP 8.840	20 Mattresses exposed in good condition (KP 8.739 to KP 8.840) 3 Mattresses partially buried in good condition (KP 0.007 to KP 0.024) 20 Mattresses predominantly buried in good condition (KP 0.026 to KP 0.149) 1 Mattress predominantly buried and torn (KP 0.024 to KP 0.026) 2 Mattresses predominantly rock covered in good condition (KP 8.728 to KP 8.739)
Concrete Mattresses	25	175	On PLU1446JV1: 12 Mattresses between KP 0.005 to KP 0.067 13 Mattresses between KP 2.250 to KP 2.317	15 Mattresses exposed in good condition (KP 0.005 to KP 0.007, KP 0.025 to KP 0.037, KP 0.049 to KP 0.061, KP 2.270 to KP 2.307, KP 2.308 to KP 2.317) 7 Mattresses partially buried in good condition (KP 0.007 to KP 0.025, KP 5 to KP 0.049, KP 2.257 to KP 2.270) 3 Mattresses partially rock covered in good condition (KP 0.061 to KP 0.067, KP 2.250 to KP 2.257)
Concrete Mattresses	14	98	Umbilical SDU Foundation at Sedgwick	14 Mattresses buried
Concrete Mattresses	52	364	On PL1447: 26 Mattresses between KP 0.002 to KP 0.104 26 Mattresses between KP 2.067 to KP 2.224	24 Mattresses exposed in good condition (KP 0.002 to KP 0.017, KP 0.026 to KP 0.047, KP 2.128 to KP 2.187) 15 Mattresses partially buried in good condition (KP 0.017 to KP 0.032, KP 0.038 to KP 0.075, KP 2.095 to KP 2.100, KP 2.125 to KP 2.128, KP 2.187, KP 2.224) 12 Mattresses predominantly buried in good condition (KP 0.075 to KP 0.104, KP 2.074 to KP 2.095, KP 2.100 to KP 2.125) 1 Mattress predominantly buried with rock cover in good condition (KP 2.067 to KP 2.074)

Table A-2: Pipelines & Umbilicals Protection and Stabilisation Features				
Protection / Stabilisation Feature	**Approximate Number**	**Weight (Te)**	**Location(s)**	**Exposed Buried Condition**
Concrete Mattresses	32	224	On PL1448: 12 Mattresses between KP 0.002 to KP 0.066 20 Mattresses between KP 2.100 to KP 2.245	11 Mattresses exposed in good condition (KP 0.002 to KP 0.012, KP 0.0244 to KP 0.033, KP 0.041 to KP 0.048, KP 2.102 to KP 2.120, KP 2.157 to KP 2.166) 18 Mattresses partially buried in good condition (KP 0.012 to KP 0.024, KP 0.033 to KP 0.041, KP 2.102 to KP 2.103, KP 2.120 to KP 2.158, KP 2.166 to KP 2.245) 2 Mattresses predominantly buried in good condition (KP 0.048 to KP 0.066) 1 Mattress predominantly buried with rock cover in good condition (KP 2.100 to KP 2.102)
Concrete Mattresses	45	315	On PLU4031	Total of 45 Mattresses exposed in good condition at Brae Alpha (KP 0 to KP 0.34), West Brae Manifold (KP 9.14 to KP 9.23, KP 9.23 to KP 9.91) and at Sedgwick (KP 11.865 to KP 11.895)
Concrete Mattresses	178	1246	Mattresses on surface-laid jumpers at West Brae	Mattresses are in multiple layers. Visible mattresses are in good condition.
Concrete Mattresses	56	392	Mattresses on surface-laid pipelines and umbilical at Sedgwick	9 mattresses partially or fully buried by rock cover. Some mattresses partially buried by sediment.
Concrete Mattresses	3	21	Mattresses on surface laid PL4138 between West Brae manifold and well W12y	
Concrete Mattresses	24	168	Mattresses on surface laid portions PL4545 and PL4546 at well WPOZ (16/06a-V2)	24 mattresses exposed in good condition adjacent to West Brae Extension Manifold (KP 0 to KP 0.144) and adjacent to .
Concrete Mattresses	16	112	Mattresses on surface laid portions PL4545 and PL4546 at West Brae Extension Manifold.	16 mattresses exposed in good condition.
Grout Bags	600	60	Grout bags associated with jumpers at West Brae	Grout bags are inter-layered with mattresses on pipelines and umbilical jumpers.
Frond Mats	None			

Table A-2: Pipelines & Umbilicals Protection and Stabilisation Features				
Protection / Stabilisation Feature	**Approximate Number**	**Weight (Te)**	**Location(s)**	**Exposed Buried Condition**
Formwork – Pipeline Ballast Support Structures/SDU Concrete Structure	14	≈ 135	14 Ballast/Support Structures on PL6188 in Brae Alpha safety zone intermittently between KP 0.045 to KP 0.436	7 Ballast/Support Structures exposed in good condition. (KP 0.226 to KP 0.436) 7 Ballast/Support Structures partially buried in good condition. (KP 0.045 to KP 0.196)
	17	≈ 165	17 Ballast/Support Structures on PL636 in Brae Alpha safety zone intermittently between KP 0.054 to KP 0.452	12 Ballast/Support Structures exposed in good condition. (KP 0.112 to KP 0.452) 2 Ballast/Support Structures partially buried in good condition. (KP 0.079 to KP 0.086) 3 Ballast/Support Structures predominantly buried in good condition. (KP 0.054 to KP 0.072)
	16	≈ 100	16 Ballast/Support Structures on PL635 in Brae Alpha safety zone intermittently between KP 0.070 to KP 0.452	15 Ballast/Support Structures exposed in good condition. (KP 0.095 to KP 0.452) 1 Ballast/Support Structure partially buried in good condition. (KP 0.070 to KP 0.073)
	1	≈ 160	SDU Concrete Structure at Sedgwick located on PLU1446JV1 line between KP 2.308 to KP 2.317	SDU Concrete Structure at Sedgwick in good condition
Insulation Shells	6	≈ 0.5	At Brae Alpha, 3 installed on PL636, 3 installed on PL6188	-
Half Shells	440	≈ 3	At Brae Alpha installed on PLU4031, covering the line to approximately 150m from the plan centre of the Brae Alpha Footings.	Half shells present in good condition. The half shells overlap one another to form around 330m of ducting
Rock Cover	4.2km of cover	N/A	Between KP 1.283 and 5.494 on PL6188	Rock cover present
Rock Cover	4.2km of cover	N/A	Between KP1.284 and 5.502 on PL636	Rock cover present
Rock Cover	0.26km of cover	N/A	Between KP 4.816 and 5.072 on umbilical PL637	Rock cover present

Table A-2: Pipelines & Umbilicals Protection and Stabilisation Features				
Protection / Stabilisation Feature	**Approximate Number**	**Weight (Te)**	**Location(s)**	**Exposed Buried Condition**
Rock Cover	0.32km of cover	N/A	Between KP 4.83 and 5.15 on PLU6190	Rock cover present
Rock Cover	0.020km of cover	N/A	Between KP 14.465 and 14.485 on umbilical PL894.1	Rock cover present
Rock Cover	0.004km of cover	N/A	Between KP 0.058 and 0.062 on PL1442.1	Rock cover present
Rock Cover	0.102km of cover	N/A	Between KP 8.639 and 8.741on umbilical PLU1446	Rock cover present
Rock Cover	0.119km of cover	N/A	Between KP 1.856 to KP 1.886 and KP 1.981 to KP 2.070 on umbilical PL1447	Rock Cover present
Rock Cover	0.5km of cover	N/A	Between KPs 1.4 and 1.5, 1.6 and 1.9, 1.98 and 2.02, and 2.03 and 2.1 on PL1448 West Brae to Sedgwick gas lift flowline	Rock Cover present
Rock Cover	Intermittent	N/A	Between KP 0.477 and 5.636 on PLU4031 Brae Alpha to West Brae and Sedgwick Electrical Umbilical	Rock Cover present
Rock Cover	6.1 km of cover	≈ 100,000	Between ≈ KP 0.1 and ≈ KP 6.2 on PL4545 and PL 4546 from well WPOZ (16/06a-V2) to West Brae Extension Manifold.	Rock Cover present

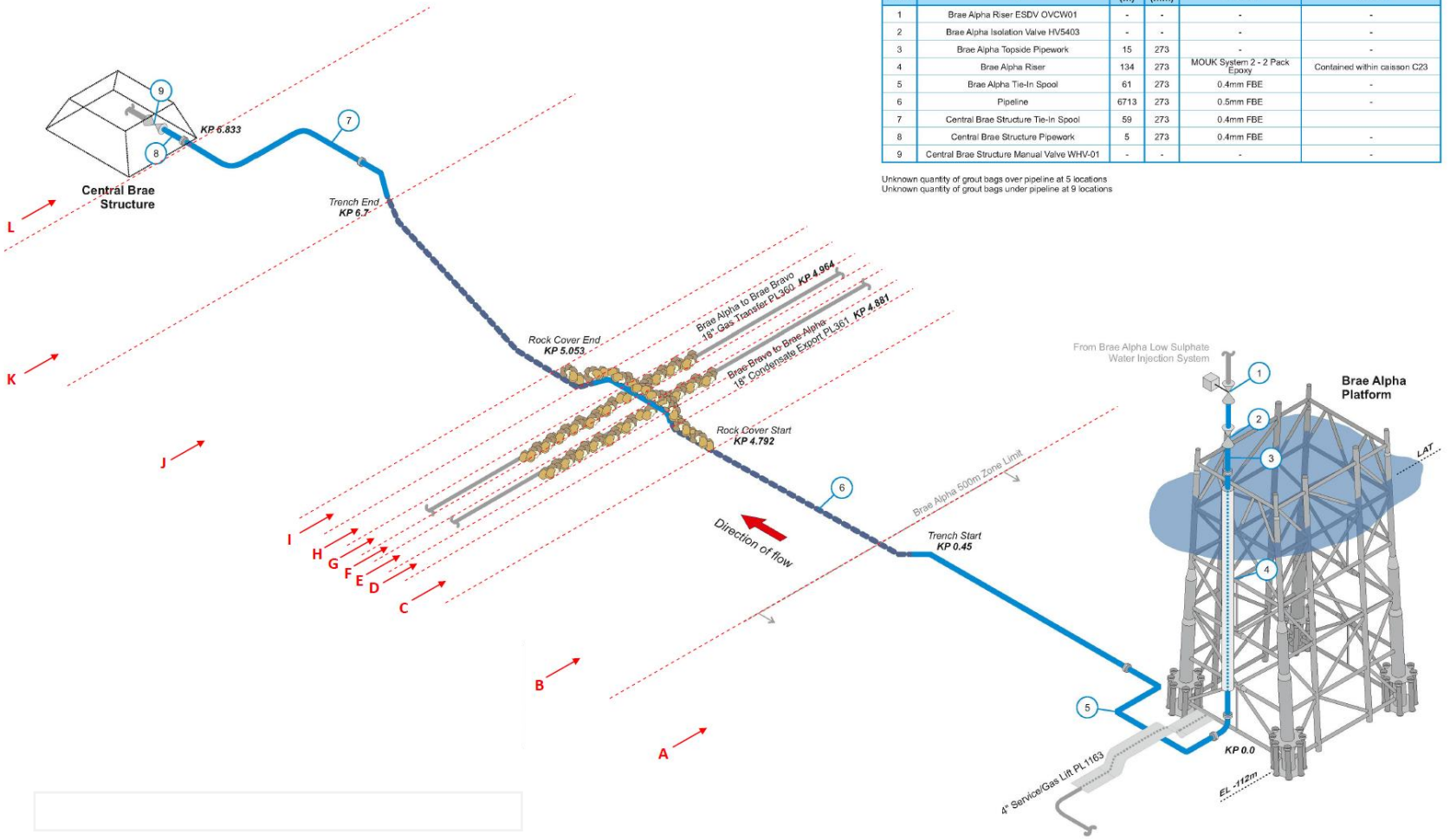
A1.1 Preferred Decommissioning Options for Pipelines and Umbilicals Between: Brae A and Central Brae; Brae A and West Brae; Central Brae and West Brae, and; West Brae and Sedgwick

The pipelines between Brae Alpha and Central Brae, Brae Alpha and West Brae, Central Brae and West Brae and West Brae and Sedgwick are shown in the schematics below. Each schematic is annotated to show its constituent segments. A table is included below each schematic that lists the preferred decommissioning option for the segments that make up each line.

Central Brae 10" Water Injection Pipeline (PL634)

Ident	Description	Length (m)	O.D. (mm)	Coating	Notes
1	Brae Alpha Riser ESDV OVCW01	-	-	-	-
2	Brae Alpha Isolation Valve HV5403	-	-	-	-
3	Brae Alpha Topside Pipework	15	273	-	-
4	Brae Alpha Riser	134	273	MOUK System 2 - 2 Pack Epoxy	Contained within caisson C23
5	Brae Alpha Tie-In Spool	61	273	0.4mm FBE	-
6	Pipeline	6713	273	0.5mm FBE	-
7	Central Brae Structure Tie-In Spool	59	273	0.4mm FBE	
8	Central Brae Structure Pipework	5	273	0.4mm FBE	-
9	Central Brae Structure Manual Valve WHV-01	-	-	-	-

Unknown quantity of grout bags over pipeline at 5 locations
Unknown quantity of grout bags under pipeline at 9 locations



PL634 Central Brae 10" Water Injection Pipeline

Summary:

The preferred options for the segments of PL634, derived from the CA are:

- To decommission trenched or buried pipeline in situ;
- To decommission rock covered pipeline in situ;
- To decommission rock covered crossings in place.
- To trench spans as they occur in surface laid line segments, which will be trenched.
- The Central Brae structure is subject to a specific ~~comparative assessment~~CA, as there are technical and safety challenges associated with its removal.

PL634 Central Brae 10" Water Injection Pipeline

Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
A	PL 634 Brae Alpha 500m Zone	Brae Alpha 500 m Zone – B2.2: Surface Laid Pipeline (No Protection)	450	0	0.45	Remove pipeline to shore unless derogation is granted. In which case leave line in close proximity to Footings in place and remove balance.	
A	PL 634 Brae Alpha 500m Zone	Brae Alpha 500 m Zone – B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed)	50	0.45	0.5	Decommission in situ (Make safe any exposed cut ends)	Trench starts within the 500m zone at KP 0.45
B	PL634	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed)	4292	0.5	4.792	Decommission in situ (Make safe any exposed cut ends)	

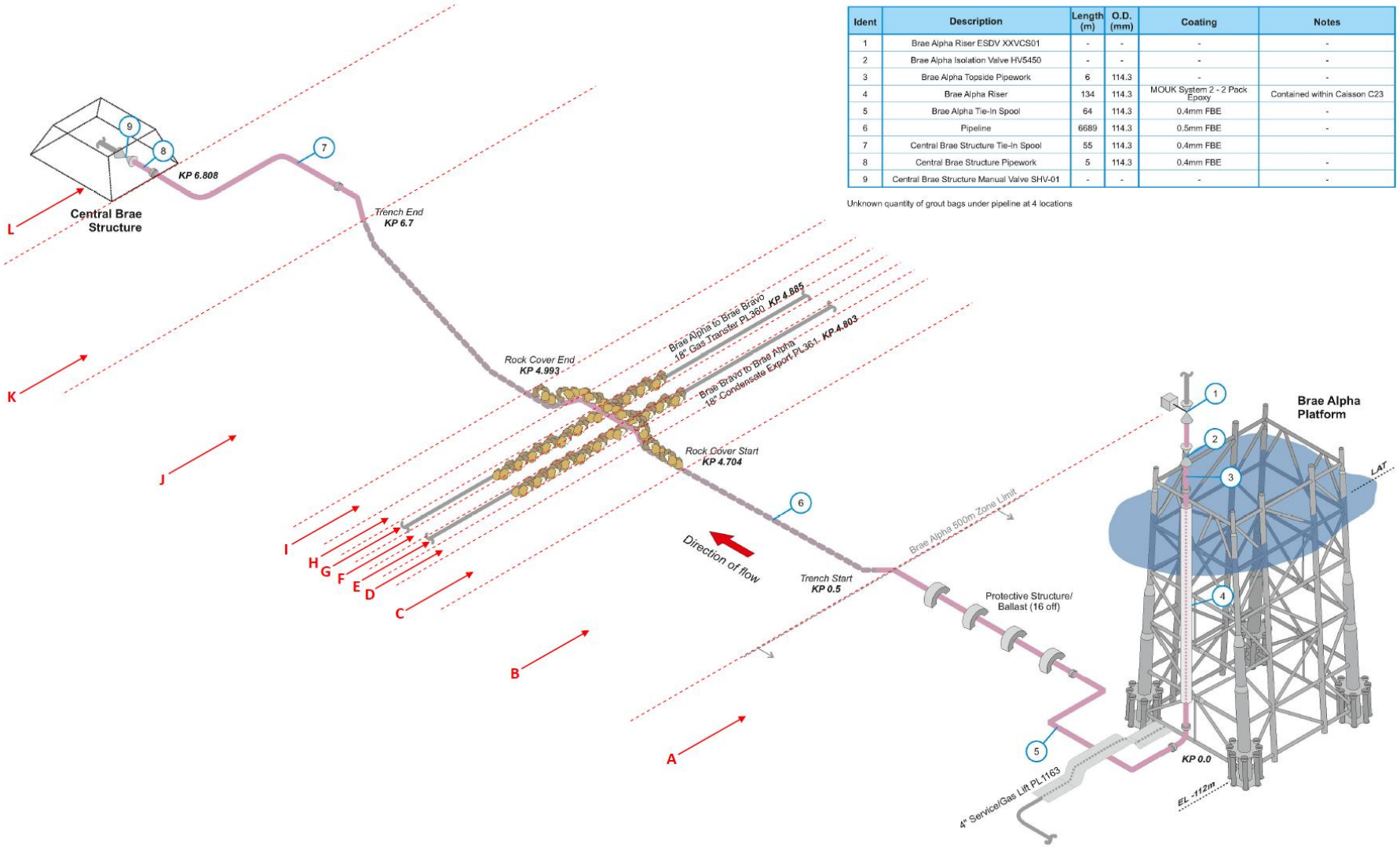
PL634 Central Brae 10" Water Injection Pipeline							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
C	PL634	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed) (There is Rock Cover Protection on Top of the Buried/Trenched Pipeline)	33	4.792	4.825	Decommission in situ (Make safe any exposed ends)	KP end estimated from survey chart
D	PL634	B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	56	4.825	4.881	Decommission in situ (Make safe any exposed cut ends)	KP start estimated from survey chart
E	PL0634 Crossing Over Brae Bravo to Brae Alpha 18" Condensate PL361	F.2: Dead Crossing (All Lines in Crossing are Dead: Over – Rock Covered) B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	Crossing Location Point KP 4.881	4.881	4.881	Treat crossing components as per the preferred options for the individual components of the crossing. Decommission in situ (Make safe any exposed cut ends)	
F	PL634	B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	83	4.881	4.964	Decommission in situ (Make safe any exposed cut ends)	
G	PL0634 Crossing Over Brae Alpha to Brae Bravo 18" Gas Transfer PL360	F.2: Dead Crossing (All Lines in Crossing are Dead: Over – Rock Covered) B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	Crossing Location Point KP 4.964	4.964	4.964	Treat crossing components as per the preferred options for the individual components of the crossing. Decommission in situ (Make safe any exposed cut ends)	

PL634 Central Brae 10" Water Injection Pipeline							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
H	PL634	B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	66	4.964	5.030		
I	PL634	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed) (There is Rock Cover Protection on Top of the Buried/Trenched Pipeline)	23	5.030	5.053		
J	PL634	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed)	1647	5.053	6.7		
K	PL634	B.2.2: Surface Laid Pipeline (No protection)	133	6.7	6.833	Remove to shore. (Make safe any exposed cut ends)	
L	Central Brae Structure	Outside CA scope. Remove to shore for reuse, recycling, or disposal.					

Central Brae 4" Service Pipeline (PL635)

Ident	Description	Length (m)	O.D. (mm)	Coating	Notes
1	Brae Alpha Riser ESDV XXVCS01	-	-	-	-
2	Brae Alpha Isolation Valve HV5450	-	-	-	-
3	Brae Alpha Topside Pipework	6	114.3	-	-
4	Brae Alpha Riser	134	114.3	MOUK System 2 - 2 Pack Epoxy	Contained within Caisson C23
5	Brae Alpha Tie-In Spool	64	114.3	0.4mm FBE	-
6	Pipeline	6689	114.3	0.5mm FBE	-
7	Central Brae Structure Tie-In Spool	55	114.3	0.4mm FBE	
8	Central Brae Structure Pipework	5	114.3	0.4mm FBE	-
9	Central Brae Structure Manual Valve SHV-01	-	-	-	-

Unknown quantity of grout bags under pipeline at 4 locations



PL635 Central Brae 4" Service Pipeline
Summary: The preferred options for the segments of PL635, derived from the CA are: • To decommission trenched or buried pipeline in situ. • To decommission rock covered pipeline in situ. • To remove unprotected surface laid pipeline to shore. • To decommission rock covered crossings in place. • To trench spans as they occur in surface laid line segments, which will be trenched.

PL635 Central Brae 4" Service Pipeline							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
A	PL 635 Brae Alpha 500m Zone	B2.1.1: Surface Laid Pipeline (16 off ballast / protection structures)	500	0	0.5	Remove pipeline and protective structures to shore unless derogation is granted. In which case decommission equipment in close proximity to Footings in place and remove balance. (Make safe any exposed ends)	
B	PL635	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed)	4204	0.5	4.704	Decommission in situ (Make safe any exposed ends)	

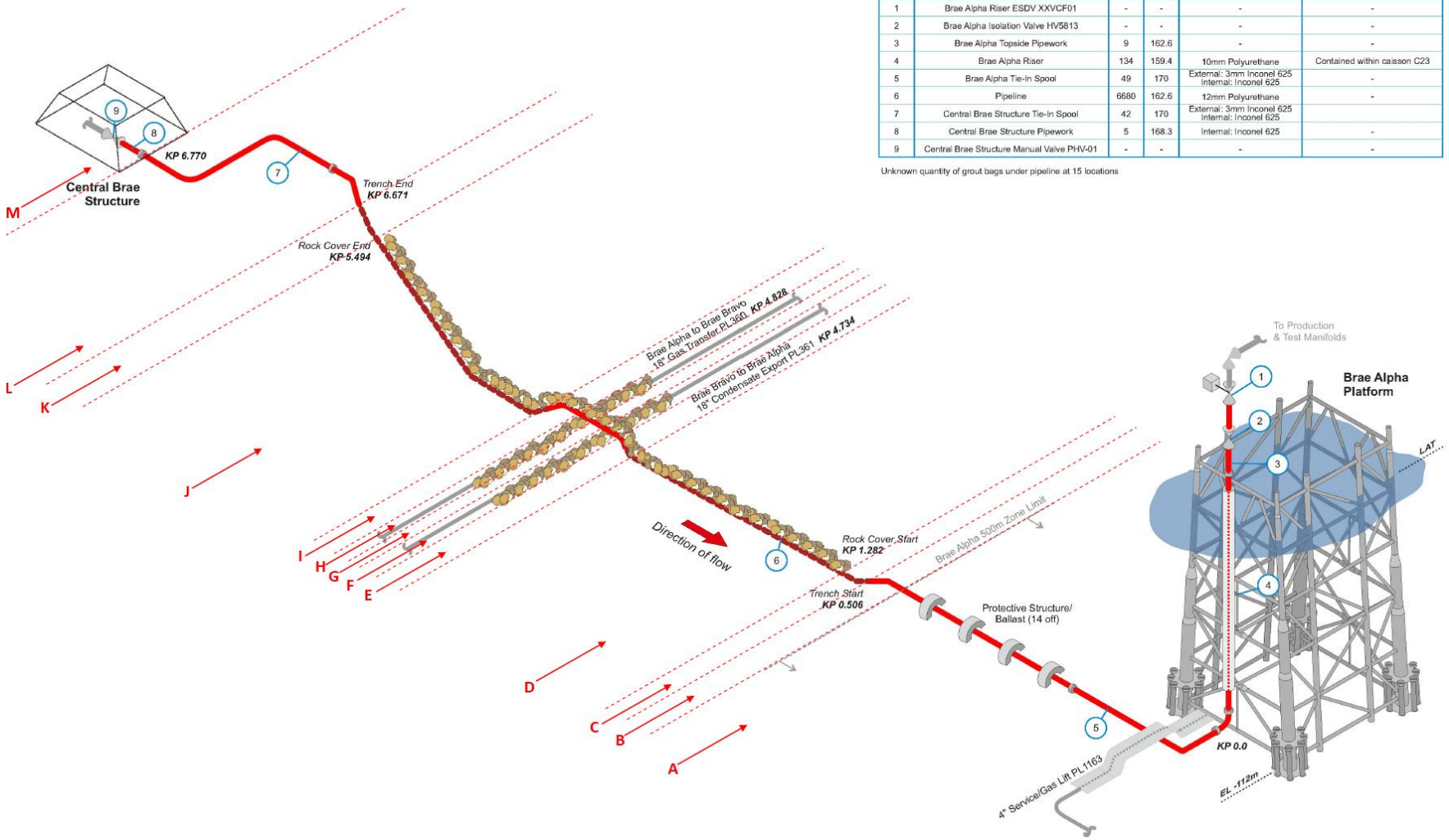
PL635 Central Brae 4" Service Pipeline							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
C	PL635	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed) (There is Rock Cover Protection on Top of the Buried/Trenched Pipeline)	46	4.704	4.750	Decommission in situ (Make safe any exposed ends)	KP end estimated from survey chart
D	PL635	B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	53	4.750	4.803	Decommission in situ (Make safe any exposed ends)	KP start estimated from survey chart
E	PL635 PL361 Crossing	F.2: Dead Crossing (All Lines in Crossing are Dead: Over – Rock Covered) B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	Crossing Location Point KP 4.803	4.803	4.803	Treat crossing components as per the preferred options for the individual components of the crossing. Decommission in situ (Make safe any exposed ends)	.
F	PL635	B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	82	4.803	4.885	Decommission in situ (Make safe any exposed ends)	
G	PL635 PL360 Crossing	F.2: Dead Crossing (All Lines in Crossing are Dead: Over – Rock Covered) B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	Crossing Location Point KP 4.885	4.885	4.885	Treat crossing components as per the preferred options for the individual components of the crossing. Decommission in situ (Make safe any exposed ends)	

PL635 Central Brae 4" Service Pipeline							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
H	PL635	B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	35	4.885	4.920	Decommission in situ (Make safe any exposed ends)	KP end estimated from survey chart
I	PL635	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed) (There is Rock Cover Protection on Top of the Buried/Trenched Pipeline)	73	4.920	4.993	Decommission in situ (Make safe any exposed ends)	KP start estimated from survey chart
J	PL635	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed)	1707	4.993	6.700	Decommission in situ (Make safe any exposed ends)	
K	PL635	B.2.2: Surface Laid Pipeline (No Protection)	108	6.700	6.808	Remove to shore	
L	Central Brae Structure	A: Fabricated Steel Structure	Location Point KP 6.833	6.833	6.833	Remove to Shore (See specific Central Brae CA).	

Central Brae 6" Production Pipeline - P1 (PL6188)

Ident	Description	Length (m)	O.D. (mm)	Coating	Notes
1	Brae Alpha Riser ESDV XXVCF01	-	-	-	-
2	Brae Alpha Isolation Valve HV5813	-	-	-	-
3	Brae Alpha Topside Pipework	9	162.6	-	-
4	Brae Alpha Riser	134	159.4	10mm Polyurethane	Contained within caisson C23
5	Brae Alpha Tie-In Spool	49	170	External: 3mm Inconel 625 Internal: Inconel 625	-
6	Pipeline	6680	162.6	12mm Polyurethane	-
7	Central Brae Structure Tie-In Spool	42	170	External: 3mm Inconel 625 Internal: Inconel 625	
8	Central Brae Structure Pipework	5	168.3	Internal: Inconel 625	-
9	Central Brae Structure Manual Valve PHV-01	-	-	-	-

Unknown quantity of grout bags under pipeline at 15 locations



PL6188 Central Brae 6" Production Pipeline 1
Summary: The preferred options for the segments of PL6188, derived from the CA are: • To remove unprotected surface laid pipeline to shore • To decommission trenched or buried pipeline in situ. • To decommission rock covered pipeline in situ. • To decommission rock covered crossings in place. • To trench spans as they occur in surface laid lengths of line that will be trenched.

PL6188 Central Brae 6" Production Pipeline 1							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
A	PL6188	B2.1.1: Surface Laid Pipeline (14 off ballast / protection structures)	500	0	0.5	Remove pipeline and protection structures to shore unless derogation is granted. In which case decommission equipment in close proximity to Footings in place and remove balance. (Make safe any exposed ends)	
B	PL6188	B.2.2: Surface laid Pipeline (No Protection)	6	0.500	0.506	Remove to shore for reuse, recycling, or disposal.	
C	PL6188	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed)	776	0.506	1.282	Decommission in situ (Make safe any exposed ends)	

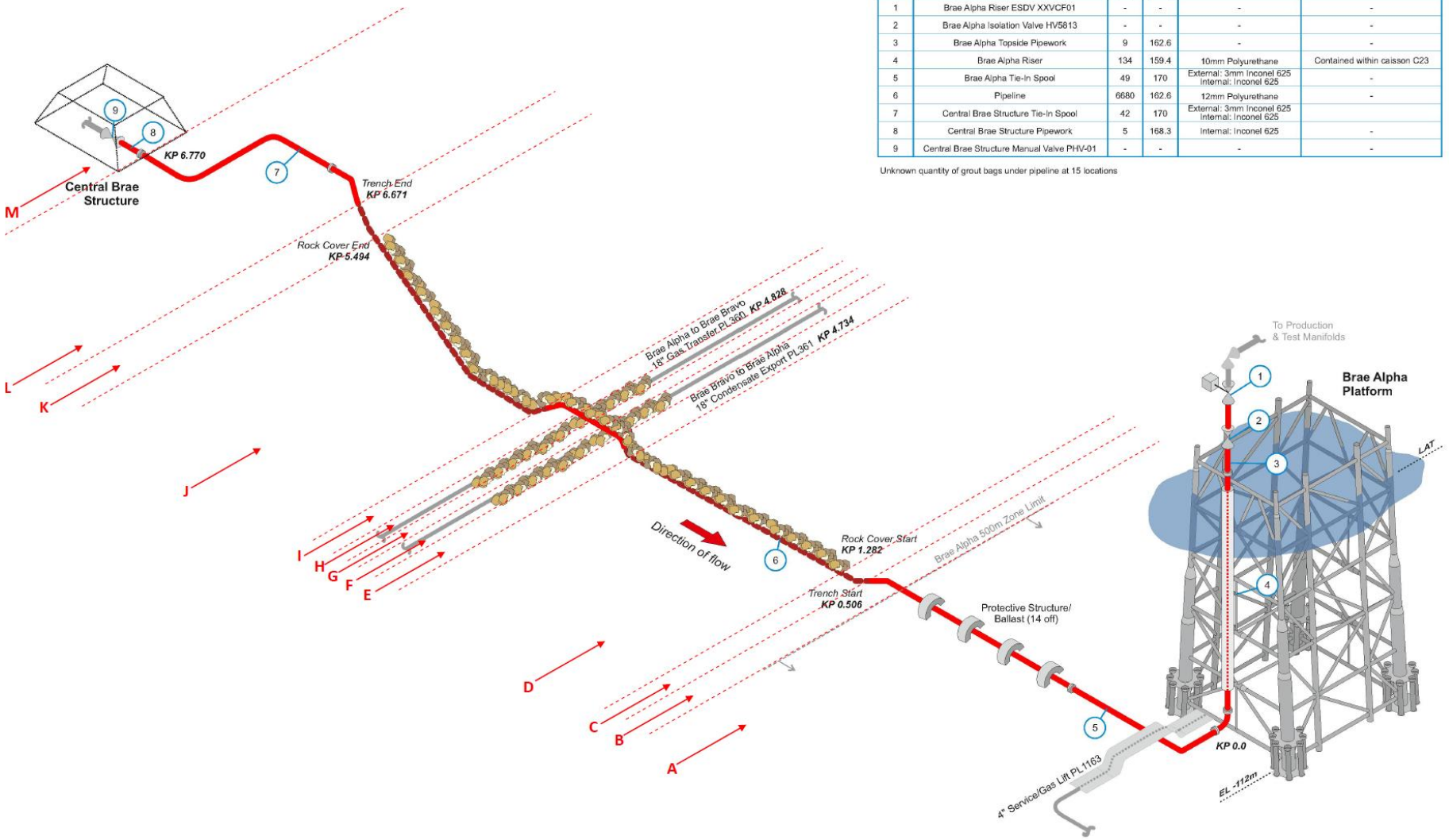
PL6188 Central Brae 6" Production Pipeline 1							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
D	PL6188	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed) (There is Rock Cover Protection on top of the Buried/Trenched Pipeline).	3481	1.282	4.700	Decommission in situ (Make safe any exposed ends)	
E	PL6188	B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	34	4.700	4.734	Decommission in situ (Make safe any exposed ends)	
F	PL6188 PL361 Crossing	F.2: Dead Crossing (All Lines in Crossing are Dead: Over – Rock Covered) B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	Crossing Location Point KP 4.734	4.734	4.734	Treat crossing components as per the preferred options for the individual components of the crossing. Decommission in situ (Make safe any exposed cut ends))	
G	PL6188	B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	94	4.734	4.828	Decommission in situ (Make safe any exposed ends)	
H	PL6188 PL360 Crossing	F.2: Dead Crossing (All Lines in Crossing are Dead: Over – Rock Covered) B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	Crossing Location Point KP 4.828	4.828	4.828	Treat crossing components as per the preferred options for the individual components of the crossing. Decommission in situ (Make safe any exposed cut ends)	.

PL6188 Central Brae 6" Production Pipeline 1							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
I	PL6188	B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	10	4.828	4.838	Decommission in situ (Make safe any exposed cut ends)	
J	PL6188	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed) (There is Rock Cover Protection on Top of the Buried/Trenched Pipeline)	656	4.838	5.494	Decommission in situ (Make safe any exposed cut ends)	
K	PL6188	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed)	1177	5.494	6.671	Decommission in situ (Make safe any exposed cut ends)	
L	PL6188	B.2.2: Surface Laid Pipeline (No Protection)	99	6.671	6.770	Remove to shore	
M	Central Brae Structure	A: Fabricated Steel Structure	Location Point KP 6.833	6.770	6.770	Remove to Shore (See specific Central Brae CA).	

Central Brae 6" Production Pipeline - P2 (PL636)

Ident	Description	Length (m)	O.D. (mm)	Coating	Notes
1	Brae Alpha Riser ESDV XXVCF01	-	-	-	-
2	Brae Alpha Isolation Valve HV5813	-	-	-	-
3	Brae Alpha Topside Pipework	9	162.6	-	-
4	Brae Alpha Riser	134	159.4	10mm Polyurethane	Contained within caisson C23
5	Brae Alpha Tie-In Spool	49	170	External: 3mm Inconel 625 Internal: Inconel 625	-
6	Pipeline	6680	162.6	12mm Polyurethane	-
7	Central Brae Structure Tie-In Spool	42	170	External: 3mm Inconel 625 Internal: Inconel 625	
8	Central Brae Structure Pipework	5	168.3	Internal: Inconel 625	-
9	Central Brae Structure Manual Valve PHV-01	-	-	-	-

Unknown quantity of grout bags under pipeline at 15 locations



PL636 Central Brae 6" Production Pipeline 2
Summary: The preferred options for the segments of PL636, derived from the CA are: • To remove unprotected surface laid pipeline to shore for reuse recycling or disposal • To decommission trenched or buried pipeline in situ. • To decommission rock covered pipeline in situ. • To decommission rock covered crossings in place.

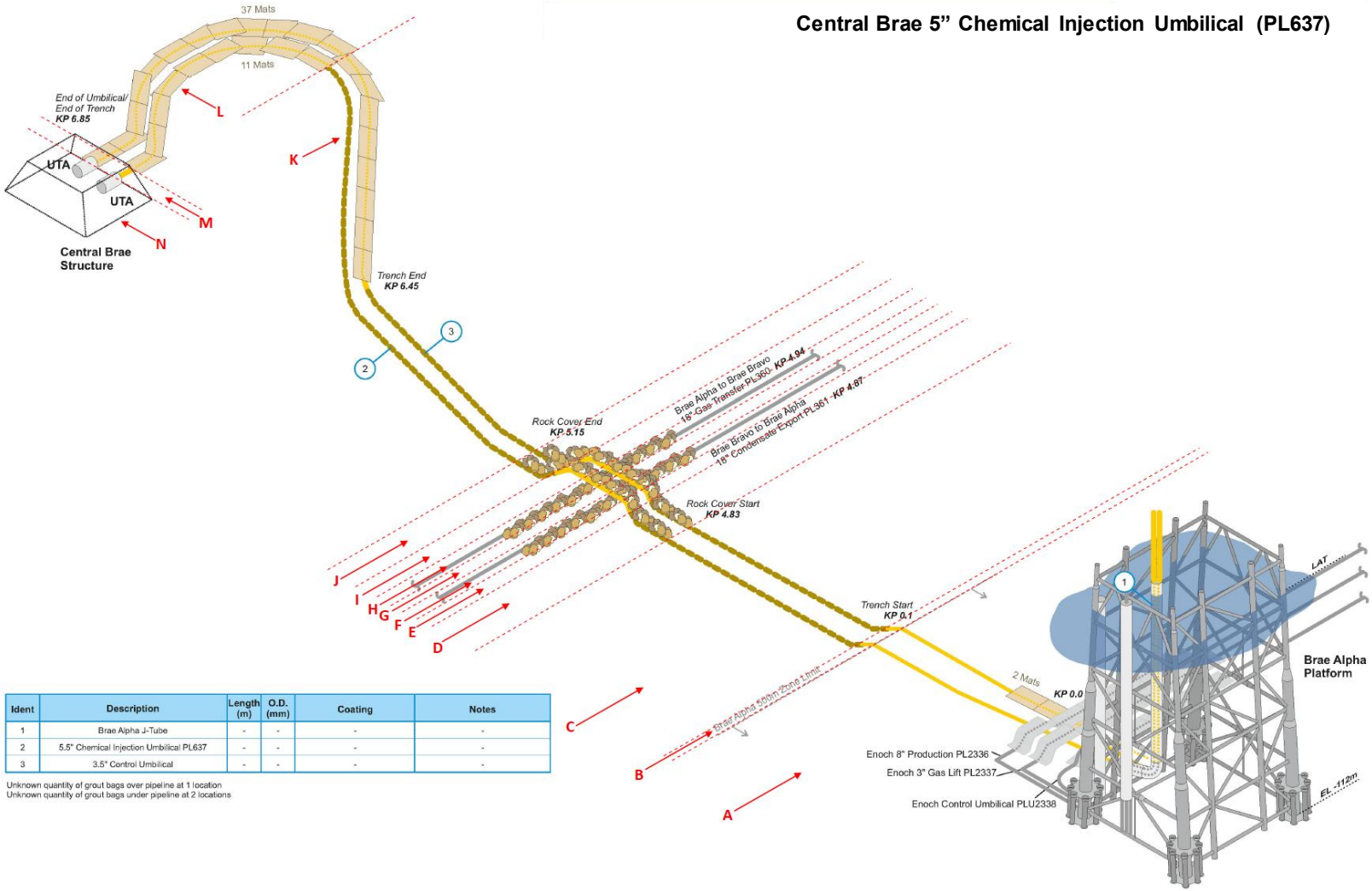
PL636 Central Brae 6" Production Pipeline 2							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
A	PL6188	B2.1.1: Surface Laid Pipeline (14 off ballast / protection structures)	500	0	0.5	Remove pipeline and protection structures to shore unless derogation is granted. In which case decommission equipment in close proximity to Footings in place and remove balance. (Make safe any exposed ends)	
B	PL636	B.2.2: Surface laid Pipeline (No Protection)	10	0.500	0.510	Remove to Shore (Make safe any exposed ends)	
C	PL636	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed)	778	0.510	1.288	Decommission in situ (Make safe any exposed ends)	

PL636 Central Brae 6" Production Pipeline 2							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
D	PL636	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed) (There is Rock Cover Protection on top of the Buried/Trenched Pipeline).	3337	1.288	4.625	Decommission in situ (Make safe any exposed ends)	KP End estimated from survey chart
E	PL636	B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	31	4.625	4.656	Decommission in situ (Make safe any exposed ends)	KP Start estimated from survey chart
F	PL636 PL361 Crossing	F.2: Dead Crossing (All Lines in Crossing are Dead: Over – Rock Covered) B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	Crossing Location Point KP 4.656	4.656	4.656	Treat crossing components as per the preferred options for the individual components of the crossing. Decommission in situ (Make safe any exposed ends))	
G	PL636	B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	103	4.656	4.759	Decommission in situ (Make safe any exposed ends)	
H	PL636 PL360 Crossing	F.2: Dead Crossing (All Lines in Crossing are Dead: Over – Rock Covered) B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	Crossing Location Point KP 4.759	4.759	4.759	Treat crossing components as per the preferred options for the individual components of the crossing. Decommission in situ (Make safe any exposed ends)	.

PL636 Central Brae 6" Production Pipeline 2							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
I	PL636	B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	41	4.759	4.800	Decommission in situ (Make safe any exposed ends)	KP end estimated from survey chart
J	PL636	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed) (There is Rock Cover Protection on Top of the Buried/Trenched Pipeline)	701	4.800	5.501	Decommission in situ (Make safe any exposed ends)	KP start estimated from survey chart
K	PL636	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed)	1170	5.501	6.671	Decommission in situ (Make safe any exposed ends)	
K.1	PL636 Free-span greater than critical span length – Class C (Length = 14.5 m; Height = 0.14 m)	C.2: Integrity critical Span	15	5.888	5.903	Trench in Situ / Rock Cover in Situ / Cut out and remove to shore. (Make Safe any exposed ends)	The preferred option will depend on whether it is more efficient to cut out the span and remediate the cu ends, or rock cover or trench the entire length of the span.
K.2	PL636 Free-span greater than critical span length – Class C (Length = 13.5 m; Height = 0.11 m)	C.2: Integrity critical Span	14	5.912	5.926	Trench in Situ / Rock Cover in Situ / Cut out and remove to shore. (Make Safe any exposed ends)	The preferred option will depend on whether it is more efficient to cut out the span and remediate the cu ends, or rock cover or trench the entire length of the span.

PL636 Central Brae 6" Production Pipeline 2							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
L	PL636	B.2.2: Surface Laid Pipeline (No Protection)	81	6.671	6.752	Remove to Shore	
M	Central Brae Structure	A: Fabricated Steel Structure	Location Point KP 6.833	6.752	6.752	Remove to Shore	

Central Brae 5” Chemical Injection Umbilical (PL637)



Ident	Description	Length (m)	O.D. (mm)	Coating	Notes
1	Brae Alpha J-Tube	-	-	-	-
2	5.5" Chemical Injection Umbilical PL637	-	-	-	-
3	3.5" Control Umbilical	-	-	-	-

Unknown quantity of grout bags over pipeline at 1 location
Unknown quantity of grout bags under pipeline at 2 locations

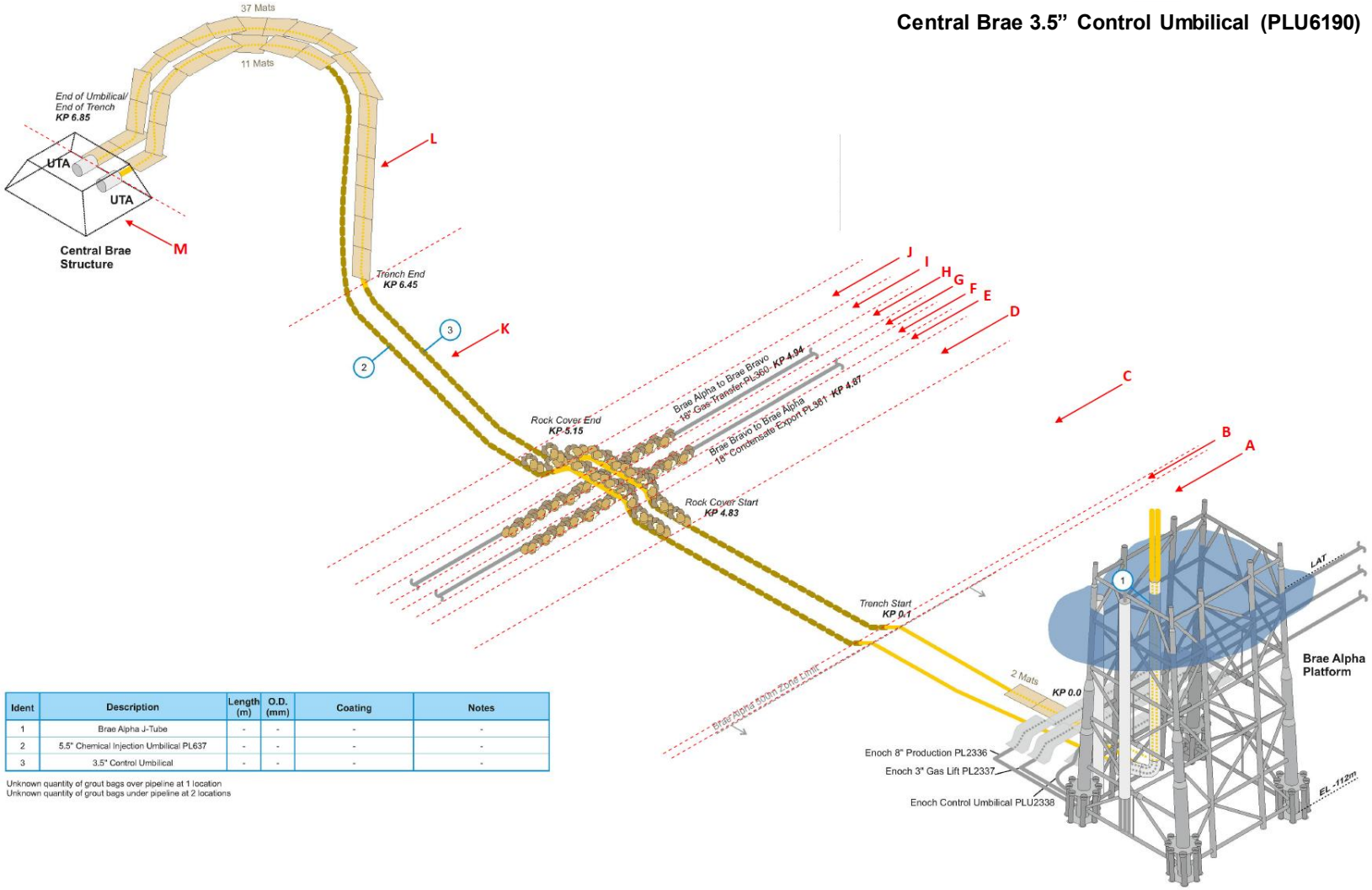
PL637 Central Brae 5" Chemical Injection Umbilical
Summary: The preferred options for the segments of PL637, derived from the CA are: • To decommission trenched or buried umbilical in situ. • To remove surface laid umbilical to shore. • To decommission rock covered umbilical in situ. • To move mattresses that protect the umbilical and use them for seabed remediation, or return them to shore for disposal.

PL637 Central Brae 5" Chemical Injection Umbilical							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
A	PL637	E.2.3: Surface laid Umbilical (No Protection)	100	0	0.1	Remove umbilical to shore unless derogation is granted. In which case decommission equipment in close proximity to Footings in place and remove balance. (Make safe any exposed ends)	
B	PL637	E.2.3: Surface laid Umbilical (No Protection)	100	0.1	0.600	Remove to shore	
C	PL637	E.1: Buried/Trenched Umbilical (Top of Umbilical below seabed)	4230	0.600	4.830	Decommission in situ (Make safe any exposed ends)	

PL637 Central Brae 5" Chemical Injection Umbilical							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
D	PL637	E.1: Buried/Trenched Umbilical (Top of Umbilical below seabed) (There is Rock Cover Protection on top of the Buried/Trenched Umbilical).	30	4.830	4.860	Decommission in situ (Make safe any exposed ends)	
E	PL637	E.2.2: Surface Laid Umbilical (Rock Cover Protection)	10	4.860	4.870	Decommission in situ (Make safe any exposed ends)	
F	PL637 PL361 Crossing	F.2: Dead Crossing (All Lines in Crossing are Dead: Over – Rock Covered) E.2.2: Surface Laid Umbilical (Rock Cover Protection)	Crossing Location Point KP 4.870	KP 4.870	KP 4.870	Treat crossing components as per the preferred options for the individual components of the crossing. Decommission in situ (Make safe any exposed cut ends))	
G	PL637	E.2.2: Surface Laid Umbilical (Rock Cover Protection)	70	4.870	4.940	Decommission in situ (Make safe any exposed ends)	
H	PL637 PL360 Crossing	F.2: Dead Crossing (All Lines in Crossing are Dead: Over – Rock Covered) E.2.2: Surface Laid Umbilical (Rock Cover Protection)	Crossing Location Point KP 4.940	4.940	4.940	Treat crossing components as per the preferred options for the individual components of the crossing. Decommission in situ (Make safe any exposed cut ends)	

PL637 Central Brae 5" Chemical Injection Umbilical							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
I	PL637	E.2.2: Surface Laid Umbilical (Rock Cover Protection)	10	4.940	4.950	Decommission in situ (Make safe any exposed cut ends)	
J	PL637	E.1: Buried/Trenched Umbilical (Top of Umbilical below seabed) (There is Rock Cover Protection on Top of the Buried/Trenched Umbilical)	200	4.950	5.150	Decommission in situ (Make safe any exposed cut ends)	
K	PL637	E.1: Buried/Trenched Umbilical (Top of Umbilical below seabed)	1640	5.150	6.790	Decommission in situ (Make safe any exposed cut ends)	KP End estimated from survey chart
L	PL637	E.2.1: Surface Laid Umbilical (Mattress Protection) (There are 11 mattresses on top of the Umbilical).	50	6.790	6.840	Move mattresses and use for seabed remediation, or remove to shore. Remove surface laid umbilical to shore.	KP Start and End estimated from survey chart
M	PL637	E.2.3: Surface Laid Umbilical (No Protection)	10	6.840	6.850	Remove Umbilical to Shore	KP Start estimated from survey chart
N	Central Brae Structure	A: Fabricated Steel Structure	Location Point KP 6.850	6.850	6.850	Remove to Shore (See specific Central Brae CA).	

Central Brae 3.5” Control Umbilical (PLU6190)



Ident	Description	Length (m)	O.D. (mm)	Coating	Notes
1	Brae Alpha J-Tube	-	-	-	-
2	5.5" Chemical Injection Umbilical PL637	-	-	-	-
3	3.5" Control Umbilical	-	-	-	-

Unknown quantity of grout bags over pipeline at 1 location
Unknown quantity of grout bags under pipeline at 2 locations

PLU6190 Central Brae Electro Hydraulic 3.5" Control Umbilical
Summary: The preferred options for the segments of PLU6190, derived from the CA are: • To decommission trenched or buried umbilical in situ. • To decommission surface laid umbilical to shore. • To decommission rock covered umbilical in situ. • To move mattresses that protect the umbilical and use them for seabed remediation or return them to shore for disposal.

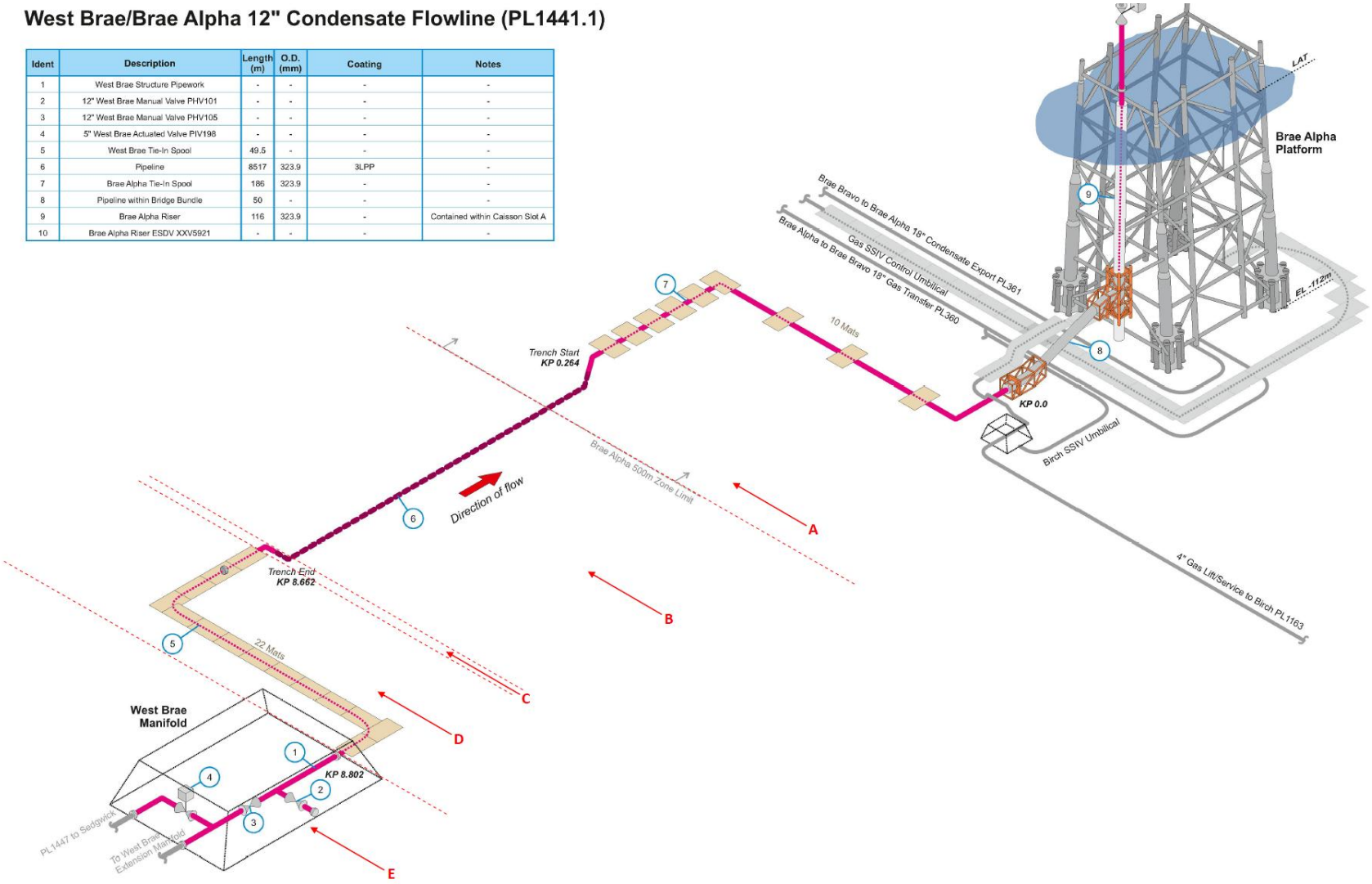
PLU6190 Central Brae Electro Hydraulic 3.5" Control Umbilical							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
A	PLU6190	Brae Alpha 500m Zone	500	0	0.5	Remove umbilical to shore unless derogation is granted. In which case decommission equipment in close proximity to Footings in place and remove balance. (Make safe any exposed ends)	
B	PLU6190	E.2.3: Surface laid Umbilical (No Protection)	100	0.500	0.600	Remove to shore	
C	PLU6190	E.1: Buried/Trenched Umbilical (Top of Umbilical below seabed)	4230	0.600	4.830	Decommission in situ (Make safe any exposed ends)	

PLU6190 Central Brae Electro Hydraulic 3.5" Control Umbilical							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
D	PLU6190	E.1: Buried/Trenched Umbilical (Top of Umbilical below seabed) (There is Rock Cover Protection on top of the Buried/Trenched Umbilical).	30	4.830	4.860	Decommission in situ (Make safe any exposed ends)	
E	PLU6190	E.2.2: Surface Laid Umbilical (Rock Cover Protection)	10	4.860	4.870	Decommission in situ (Make safe any exposed ends)	
F	PLU6190 PL361 Crossing	F.2: Dead Crossing (All Lines in Crossing are Dead: Over – Rock Covered) E.2.2: Surface Laid Umbilical (Rock Cover Protection)	Crossing Location Point KP 4.870	KP 4.870	KP 4.870	Treat crossing components as per the preferred options for the individual components of the crossing. Decommission in situ (Make safe any exposed cut ends))	
G	PLU6190	E.2.2: Surface Laid Umbilical (Rock Cover Protection)	70	4.870	4.940	Decommission in situ (Make safe any exposed ends)	
H	PLU6190 PL360 Crossing	F.2: Dead Crossing (All Lines in Crossing are Dead: Over – Rock Covered) E.2.2: Surface Laid Umbilical (Rock Cover Protection)	Crossing Location Point KP 4.940	4.940	4.940	Treat crossing components as per the preferred options for the individual components of the crossing. Decommission in situ (Make safe any exposed cut ends)	

PLU6190 Central Brae Electro Hydraulic 3.5" Control Umbilical							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
I	PLU6190	E.2.2: Surface Laid Umbilical (Rock Cover Protection)	10	4.940	4.950	Decommission in situ (Make safe any exposed cut ends)	
J	PLU6190	E.1: Buried/Trenched Umbilical (Top of Umbilical below seabed) (There is Rock Cover Protection on Top of the Buried/Trenched Umbilical)	200	4.950	5.150	Decommission in situ (Make safe any exposed cut ends)	
K	PLU6190	E.1: Buried/Trenched Umbilical (Top of Umbilical below seabed)	1640	5.150	6.790	Decommission in situ (Make safe any exposed cut ends)	
L	PLU6190	E.2.1: Surface Laid Umbilical (Mattress Protection) (There are 11 mattresses on top of the Umbilical).	50	6.790	6.840	Move mattresses and use for seabed remediation, or remove to shore. Remove surface laid umbilical to shore.	
M	PLU6190	E.2.3: Surface Laid Umbilical (No Protection)	10	6.840	6.850	Remove umbilical to shore	
N	Central Brae Structure	A: Fabricated Steel Structure	Location Point KP 6.850	6.850	6.850	Remove to Shore (See specific Central Brae CA).	

West Brae/Brae Alpha 12" Condensate Flowline (PL1441.1)

Ident	Description	Length (m)	O.D. (mm)	Coating	Notes
1	West Brae Structure Pipework	-	-	-	-
2	12" West Brae Manual Valve PHV101	-	-	-	-
3	12" West Brae Manual Valve PHV105	-	-	-	-
4	5" West Brae Actuated Valve PIV198	-	-	-	-
5	West Brae Tie-In Spool	49.5	-	-	-
6	Pipeline	8517	323.9	3LPP	-
7	Brae Alpha Tie-In Spool	186	323.9	-	-
8	Pipeline within Bridge Bundle	50	-	-	-
9	Brae Alpha Riser	116	323.9	-	Contained within Caisson Slot A
10	Brae Alpha Riser ESDV XXV5921	-	-	-	-



PL1441.1 West Brae to Brae Alpha 12" Condensate Pipeline

Summary:
The preferred options for the segments of PL636, derived from the CA are:

- To decommission trenched or buried pipeline in situ.
- To remove unprotected surface laid pipeline to shore.
- To remove West Brae Manifold to shore.
- To move mattresses that protect surface laid pipeline to shore and to trench the resulting exposed pipelines.

PL1441.1 West Brae to Brae Alpha 12" Condensate Pipeline

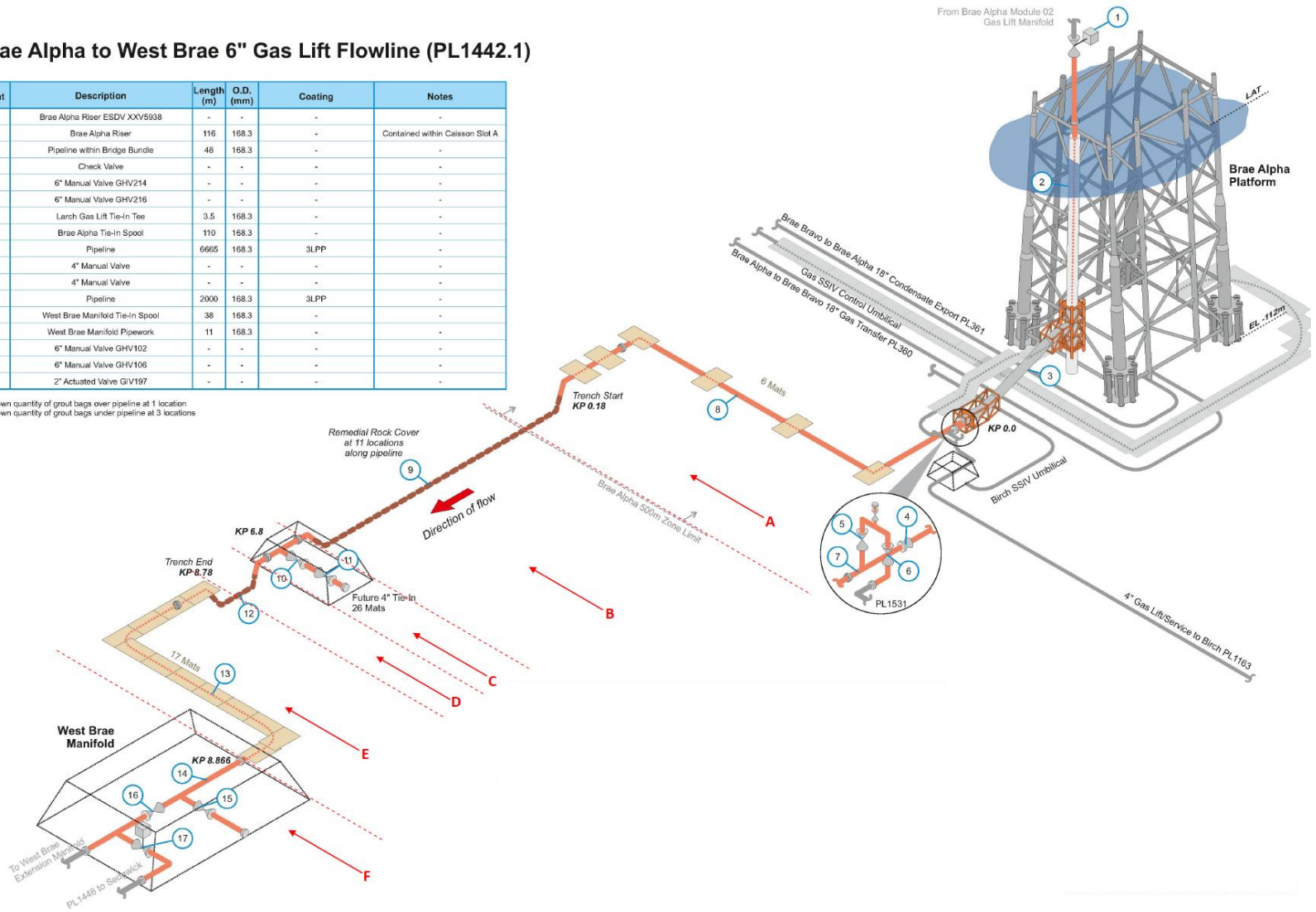
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
A	PL1441.1	Brae Alpha 500m Zone	500	0	0.5	Remove pipeline to shore unless derogation is granted. In which case decommission equipment in close proximity to Footings in place and remove balance. (Make safe any exposed ends)	
B	PL1441.1	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed)	8162	0.500	8.662	Decommission in situ (Make safe any exposed ends)	
C	PL1441.1	B.2.2: Surface laid Pipeline (No Protection)	3	8.662	8.665	Trench in situ	KP End estimated from survey chart
D	PL1441.1	B.2.1.1: Surface laid Pipeline (Mattress Protection – 22 Mattresses)	137	8.665	8.802	Move mattresses and use for seabed remediation, or remove to shore. Remove surface laid pipeline to shore.	KP Start estimated from survey chart

PL1441.1 West Brae to Brae Alpha 12" Condensate Pipeline							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
E	West Brae Manifold	A: Fabricated Steel Structure	Location KP 8.802	8.802	8.802	Remove to shore.	

Brae Alpha to West Brae 6" Gas Lift Flowline (PL1442.1)

Ident	Description	Length (m)	O.D. (mm)	Coating	Notes
1	Brae Alpha Riser ESDV XXV5938	-	-	-	-
2	Brae Alpha Riser	116	168.3	-	Contained within Caisson Slot A
3	Pipeline within Bridge Bundle	48	168.3	-	-
4	Check Valve	-	-	-	-
5	6" Manual Valve GHV214	-	-	-	-
6	6" Manual Valve GHV216	-	-	-	-
7	Larch Gas Lift Tie-In Tee	3.5	168.3	-	-
8	Brae Alpha Tie-In Spool	110	168.3	-	-
9	Pipeline	6665	168.3	3LPP	-
10	4" Manual Valve	-	-	-	-
11	4" Manual Valve	-	-	-	-
12	Pipeline	2000	168.3	3LPP	-
13	West Brae Manifold Tie-In Spool	38	168.3	-	-
14	West Brae Manifold Pipework	11	168.3	-	-
15	6" Manual Valve GHV102	-	-	-	-
16	6" Manual Valve GHV106	-	-	-	-
17	2" Actuated Valve GIV197	-	-	-	-

Unknown quantity of grout bags over pipeline at 1 location
Unknown quantity of grout bags under pipeline at 3 locations



PL1442.1 Brae Alpha to West Brae 6" Gas Lift Flowline
Summary: The preferred options for the segments of PL1442.1, derived from the CA are: • To remove unprotected surface laid pipeline to shore. • To decommission trenched or buried pipeline in situ. • To Trench or rock cover in line structures, or if in line structures are too large to trench or rock cover, remove to shore. • To move mattresses that protect surface laid pipeline to shore and to remove the resulting exposed pipelines.

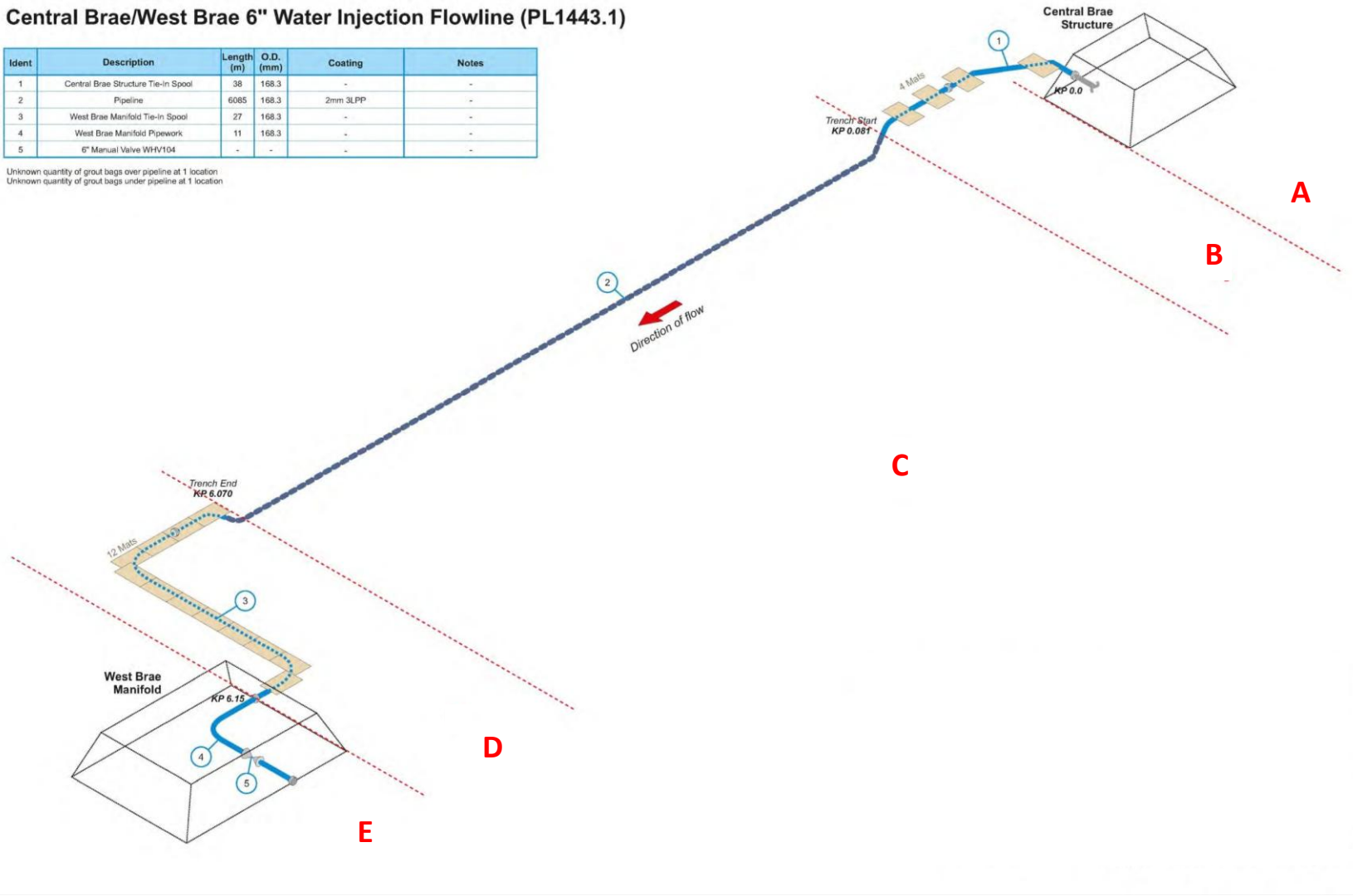
PL1442.1 Brae Alpha to West Brae 6" Gas Lift Flowline							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
A	PL1442.1	Brae Alpha 500m Zone	500	0	0.5	Remove pipeline to shore unless derogation is granted. In which case decommission equipment in close proximity to Footings in place and remove balance. (Make safe any exposed ends)	
B	PL1442.1	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed)	6300	0.500	6.800	Decommission in situ (Make safe any exposed ends)	
C	PL1442.1 Future 4" Tie In	B.2.1.1: Surface laid Pipeline (Mattress Protection – 22 Mattresses)	Location KP 6.800	6.800	6.800	Remove mattresses to shore for disposal. Remove surface laid pipeline to shore for recycling or disposal.	

PL1442.1 Brae Alpha to West Brae 6" Gas Lift Flowline							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
D	PL1442.1	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed)	3	8.662	8.665	Trench in situ	KP End estimated from survey chart
E	PL1442.1	B.2.1.1: Surface laid Pipeline (Mattress Protection – 22 Mattresses)	137	8.665	8.802	Move mattresses and use for seabed remediation, or remove to shore. Remove surface laid pipeline to shore.	KP Start estimated from survey chart
F	West Brae Manifold	This structure is outside the scope of the CA. The structure will be removed to shore for reuse recycling or disposal.					

Central Brae/West Brae 6" Water Injection Flowline (PL1443.1)

Ident	Description	Length (m)	O.D. (mm)	Coating	Notes
1	Central Brae Structure Tie-In Spool	38	168.3	-	-
2	Pipeline	6085	168.3	2mm 3LPP	-
3	West Brae Manifold Tie-In Spool	27	168.3	-	-
4	West Brae Manifold Pipework	11	168.3	-	-
5	6" Manual Valve WHV104	-	-	-	-

Unknown quantity of grout bags over pipeline at 1 location
Unknown quantity of grout bags under pipeline at 1 location



PL1443.1 Central Brae to West Brae 6" Water Injection Flowline

Summary:
The preferred options for the segments of PL1443.1, derived from the CA are:

- To leave trenched or buried pipeline in situ.
- To remove unprotected and mattress protected surface laid pipeline to shore
- To remove West Brae Manifold to shore.
- To move mattresses that protect surface laid pipeline to shore and to remove the resulting exposed pipelines.

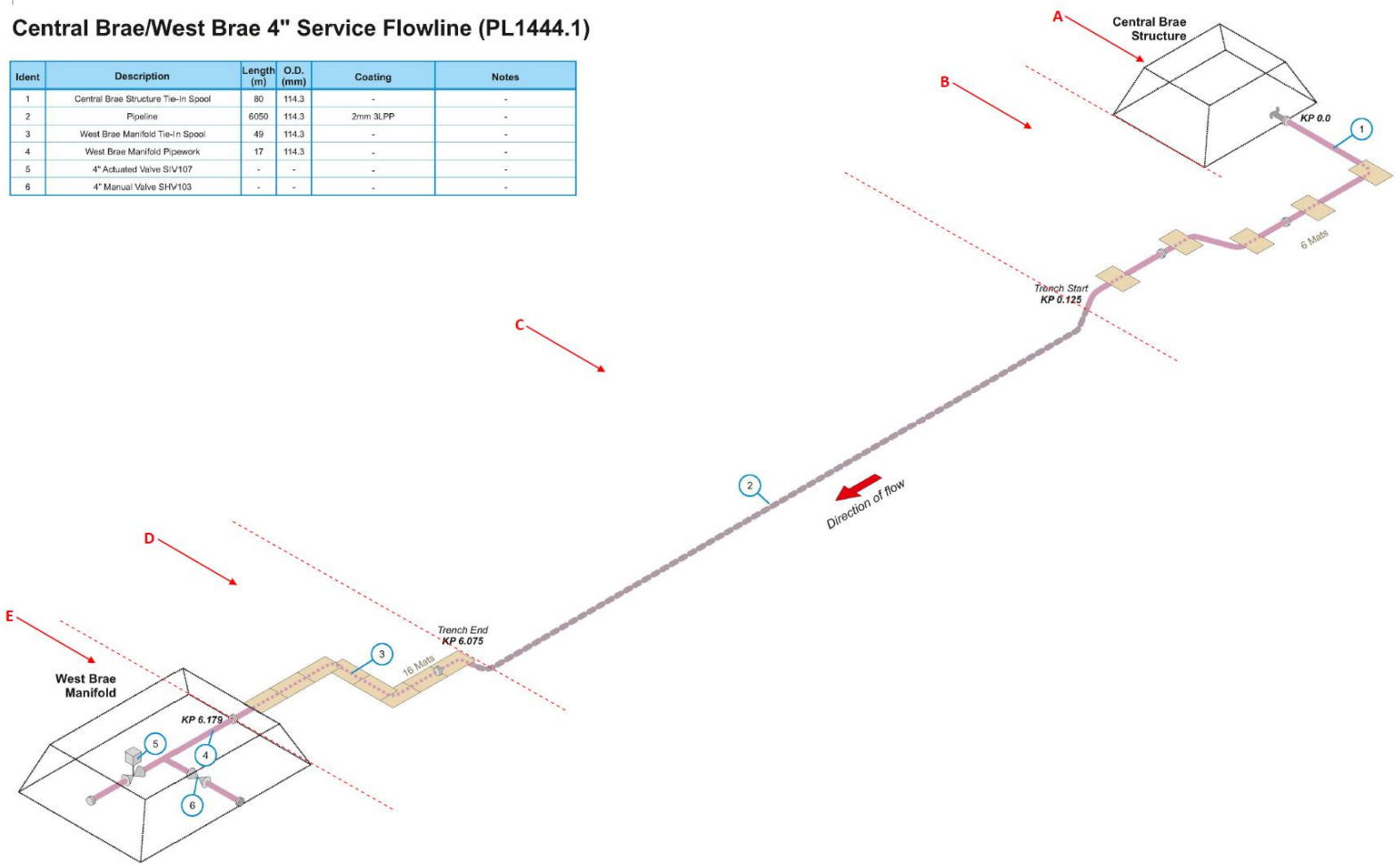
PL1443.1 Central Brae to West Brae 6" Water Injection Flowline

Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
A	PL1443.1	Central Brae Structure	Location KP 0	0	0	Remove Central Brae Structure to Shore	
B	PL1443.1	B.2.1: Surface Laid Pipeline (Mattress Protected – 4 Mattresses)	81	0.000	0.081	Move Mattresses and use to remediate seabed at Central Brae or remove to shore for disposal. Remove pipeline to shore for recycling or disposal. Make safe any cut ends.	
C	PL1443.1	B.1.1/2: Buried/Trenched Pipeline (Top of pipeline > < 600mm below seabed)	5989	0.081	6.070	Decommission in situ (Make safe any cut ends)	
D	PL1443.1	B.2.1.1: Surface laid Pipeline (Mattress Protection – 12 Mattresses)	137	8.665	8.802	Remove mattresses to shore for disposal. Remove surface laid pipeline to shore for recycling or disposal.	

PL1443.1 Central Brae to West Brae 6" Water Injection Flowline							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
E	West Brae Manifold	A: Fabricated Steel Structure	Location KP 8.802	8.802	8.802	Remove to shore for recycling or disposal.	

Central Brae/West Brae 4" Service Flowline (PL1444.1)

Ident	Description	Length (m)	O.D. (mm)	Coating	Notes
1	Central Brae Structure Tie-In Spool	80	114.3	-	-
2	Pipeline	6050	114.3	2mm 3LPP	-
3	West Brae Manifold Tie-In Spool	49	114.3	-	-
4	West Brae Manifold Pipework	17	114.3	-	-
5	4" Actuated Valve SIV107	-	-	-	-
6	4" Manual Valve SHV103	-	-	-	-



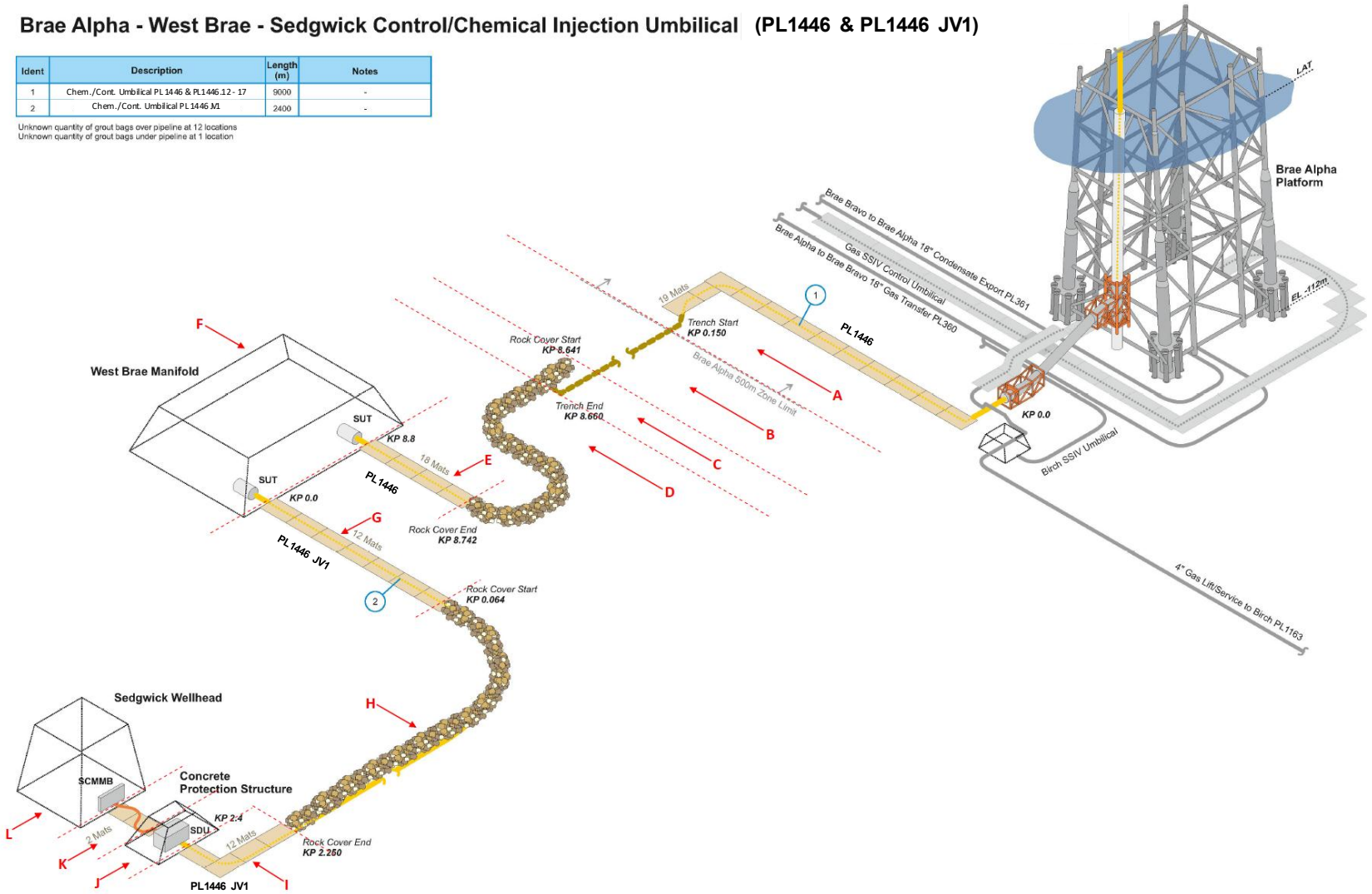
PL1444.1 Central Brae to West Brae 4" Service Flowline
Summary: The preferred options for the segments of PL1444.1, derived from the CA are: • To decommission trenched or buried pipeline in situ. • To move any mattresses that protect surface laid pipeline to shore. • To remove surface laid pipeline to shore.

PL1444.1 Central Brae to West Brae 4" Service Flowline							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
A	Central Brae Template Structure	Outside CA scope. Remove to shore for recycling or disposal.					
B	PL1444.1	B.2.1: Surface Laid Pipeline (Mattress Protected – 6 Mattresses)	125	0.000	0.125	Move Mattresses and use to remediate seabed at Central Brae or remove to shore for disposal. Remove pipeline to shore for recycling or disposal. Make safe any cut ends.	
C	PL1444.1	B.1.1/2: Buried/Trenched Pipeline (Top of pipeline > < 600mm below seabed)	5950	0.125	6.075	Decommission in situ (Make safe any cut ends)	
D	PL1444.1	B.2.1.1: Surface laid Pipeline (Mattress Protection – 16 Mattresses)	104	6.075	6.179	Remove mattresses to shore for disposal. Remove surface laid pipeline to shore for recycling or disposal.	
E	West Brae Manifold Structure	Outside CA scope. Remove to shore for recycling or disposal.					

Brae Alpha - West Brae - Sedgwick Control/Chemical Injection Umbilical (PL1446 & PL1446 JV1)

Ident	Description	Length (m)	Notes
1	Chem./Cont. Umbilical PL1446 & PL1446.12 - 17	9000	-
2	Chem./Cont. Umbilical PL1446 JV1	2400	-

Unknown quantity of grout bags over pipeline at 12 locations
Unknown quantity of grout bags under pipeline at 1 location



PL1446 & PL1446JV1 West Brae and Sedgwick 5" Control / Chemical Injection Umbilical
Summary: The preferred options for the segments of PL1446 and PL1446 JV1, derived from the CA are: • To decommission trenched or buried umbilical in situ. • To remove surface laid umbilical to shore. • To decommission rock covered umbilical in situ. • To move mattresses that protect the umbilical and use them for seabed remediation or return them to shore for disposal.

PL1446 & PL1446JV1 West Brae and Sedgwick 5" Control / Chemical Injection Umbilical							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
A	PL1446 & PL1446.12 -.17	Brae Alpha 500m Zone	500	0.000	0.500	Remove umbilical to shore unless derogation is granted. In which case decommission equipment in close proximity to Footings in place and remove balance. (Make safe any exposed ends)	
B	PL1446 & PL1446.12 -.17	E.1: Buried/Trenched Umbilical (Top of Umbilical below seabed)	8141	0.500	8.641	Decommission in situ (Make safe any exposed ends)	
C	PL1446 & PL1446.12 -.17	E.1: Buried/Trenched Umbilical (Top of Umbilical below seabed) (There is Rock Cover Protection on top of the Buried/Trenched Umbilical).	19	8.641	8.660	Decommission in situ (Make safe any exposed ends)	

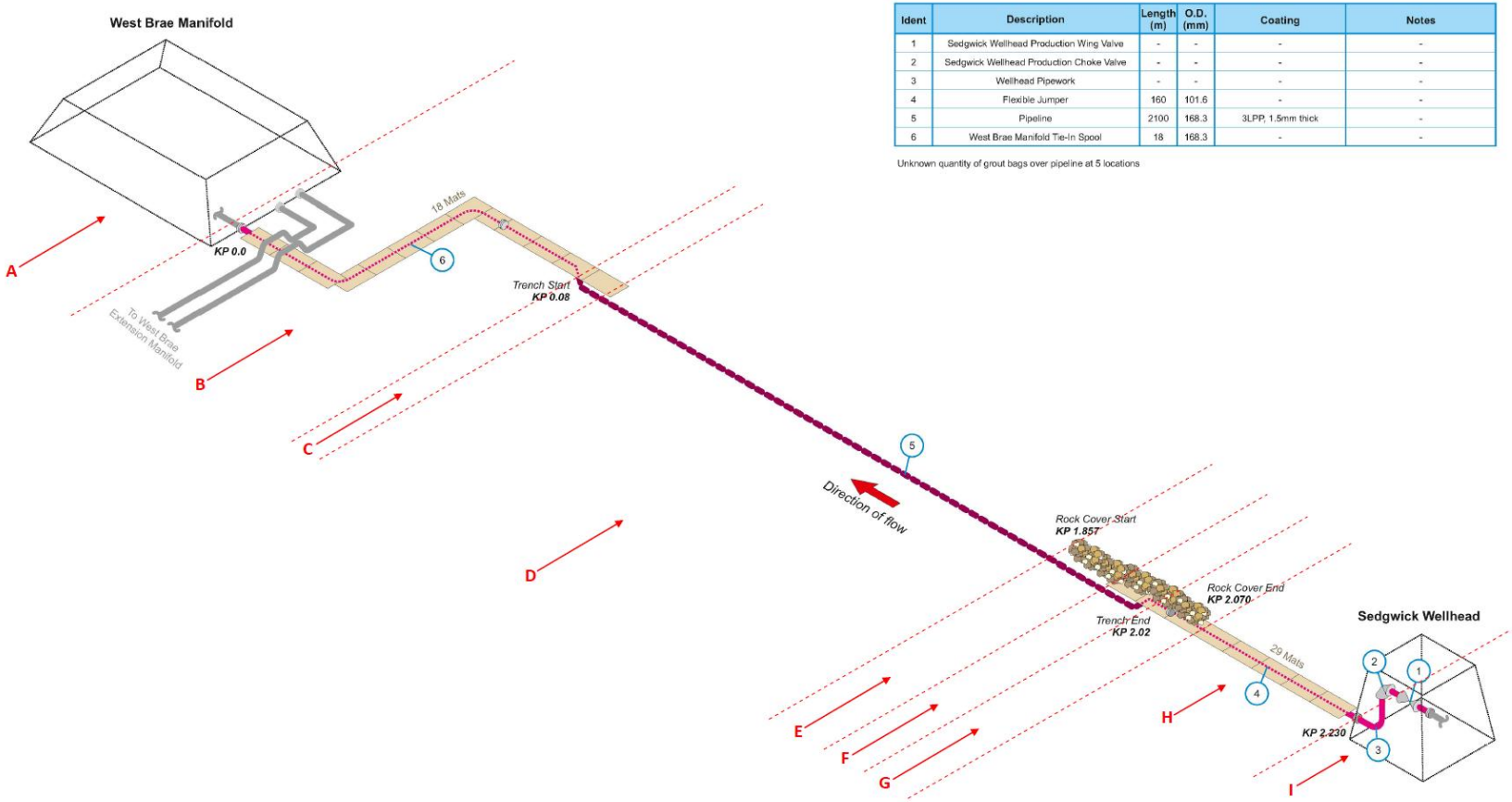
PL1446 & PL1446JV1 West Brae and Sedgwick 5" Control / Chemical Injection Umbilical							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
D	PL1446 & PL1446.12 -.17	E.2.2: Surface Laid Umbilical (Rock Cover Protection)	82	8.660	8.800	Decommission in situ (Make safe any exposed ends)	
E	PL1446 & PL1446.12 -.17	E.2.1: Surface Laid Umbilical (Mattress Protection – 18 Mattresses)	58	8.800	8.858	Remove mattresses to shore for disposal. Remove surface laid umbilical to shore for recycling or disposal.	
F	West Brae Manifold	A: Fabricated Steel Structure	Location Point KP 6.800	6.800	6.800	Remove to shore for recycling or disposal.	
G	PL1446 JV1	E.2.1: Surface Laid Umbilical (Mattress Protection – 18 Mattresses)	64	0	0.064	Remove mattresses to shore for disposal. Remove surface laid umbilical to shore for recycling or disposal.	KP0 resets at West Brae Manifold
H	PL1446 JV1	E.2.2: Surface Laid Umbilical (Rock Cover Protection)	2186	0.064	2.250	Decommission in situ (Make safe any exposed ends)	.
I	PL1446 JV1	E.2.1: Surface Laid Umbilical (Mattress Protection – 12 Mattresses)	150	2.250	2.400	Remove mattresses to shore for disposal. Remove surface laid umbilical to shore for recycling or disposal.	
J	SDU Concrete Protection Structure	G.3 / G.4 Block / Cover / Tunnel / Support	Location KP 2.400	2.400	2.400	Remove to shore for disposal.	
K	PL1446 JV1	E.2.1: Surface Laid Umbilical (Mattress Protection –2 Mattresses)	6	2.400	2.406	Remove mattresses to shore for disposal. Remove surface laid umbilical to shore for recycling or disposal.	KP End estimated from survey chart

PL1446 & PL1446JV1 West Brae and Sedgwick 5" Control / Chemical Injection Umbilical							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
N	Sedgwick Wellhead	Outside CA scope, Remove to Shore					

Sedgwick to West Brae 6" Condensate Import Pipeline (PL1447)

Ident	Description	Length (m)	O.D. (mm)	Coating	Notes
1	Sedgwick Wellhead Production Wing Valve	-	-	-	-
2	Sedgwick Wellhead Production Choke Valve	-	-	-	-
3	Wellhead Pipework	-	-	-	-
4	Flexible Jumper	160	101.6	-	-
5	Pipeline	2100	168.3	3LPP, 1.5mm thick	-
6	West Brae Manifold Tie-In Spool	18	168.3	-	-

Unknown quantity of grout bags over pipeline at 5 locations



PL1447 Sedgwick to West Brae 6" Condensate Pipeline

Summary:
The preferred options for the segments of PL1447, derived from the CA are:

- To decommission trenched or buried pipeline in situ.
- To remove surface laid pipeline to shore.
- To decommission rock covered pipeline in situ.
- To move mattresses that protect the pipeline and use them for seabed remediation or return them to shore for disposal.

PL1447 Sedgwick to West Brae 6" Condensate Pipeline

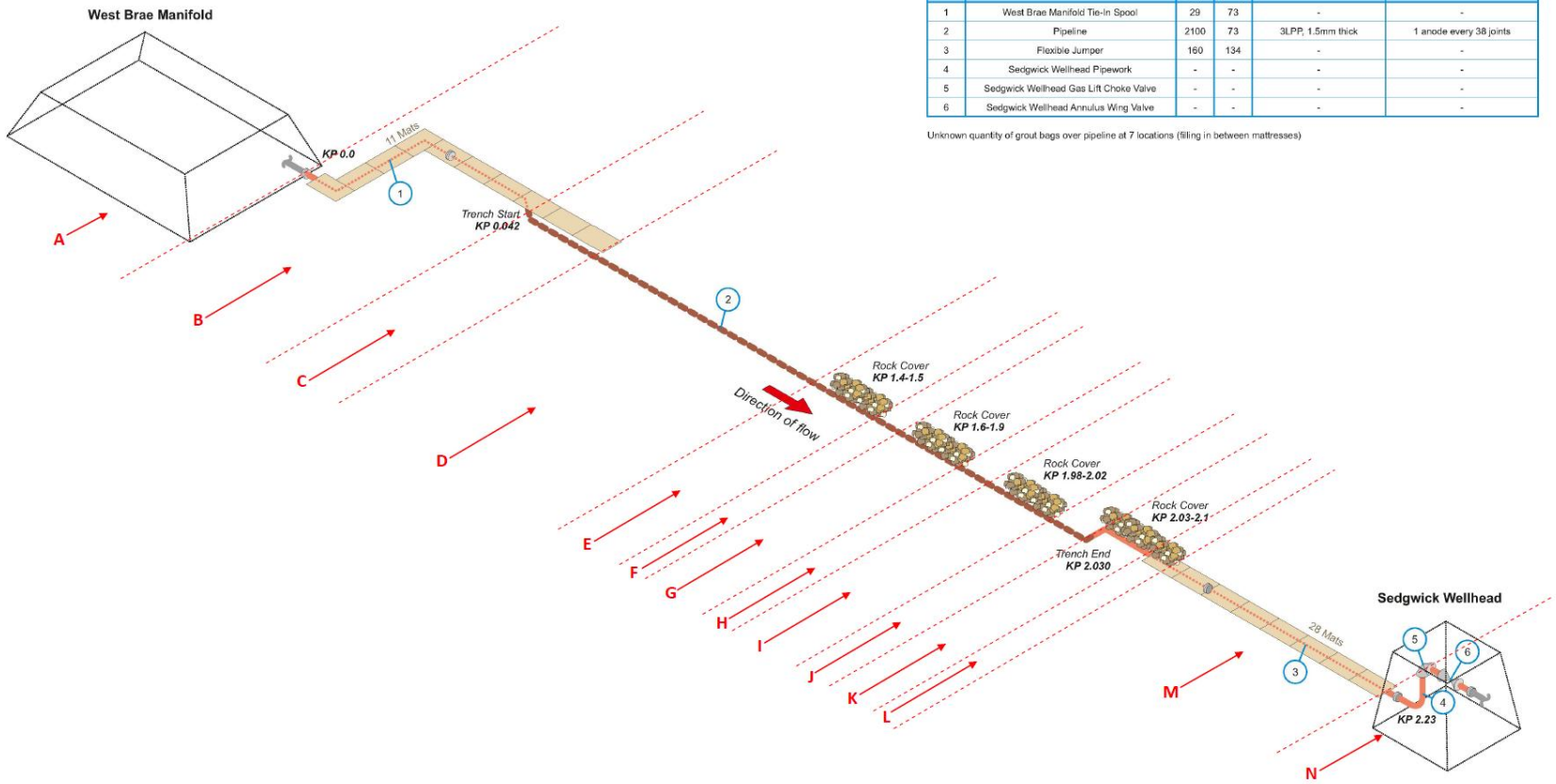
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
A	West Brae Manifold Structure	This structure is outside the scope of the CA. It will be removed to shore for reuse, recycling, or disposal.					
B	Surface laid mattress covered pipeline.	B.2.1: Surface Laid Pipeline (Mattress Protected)	80	0	0.08	Remove pipeline to shore for reuse, recycling, or disposal.	Use mattresses to remediate seabed at West Brae manifold location, or remove to shore for reuse recycling or disposal
C	Trenched and buried pipeline. (NB mattress covered)	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed)	5	0.08	0.085	Decommission in situ.	Use mattresses to remediate seabed at West Brae manifold location, or remove to shore for reuse recycling or disposal.
D	Trenched and buried pipeline.	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed)	1772	0.085	1.857	Decommission in situ.	

PL1447 Sedgwick to West Brae 6" Condensate Pipeline							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
E	Trenched and buried pipeline. (NB rock covered).	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed) (There is Rock Cover Protection on top of the Buried/Trenched Pipeline).	153	1.857	2.01	Decommission in situ.	
F	Trenched and buried pipeline. (NB rock and mattress covered)	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed) (There is Rock Cover Protection on top of the Buried/Trenched Pipeline).	10	2.01	2.02	Decommission in situ.	Decommission mattress is place as it is under rock cover.
G	Surface laid pipeline. (NB rock and mattress covered)	B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	50	2.02	2.07	Decommission in situ.	Decommission mattress is place as it is under rock cover.
H	Surface laid pipeline. (Mattress covered)	B.2.1: Surface Laid Pipeline (Mattress Protected)	160	2.07	2.23	Remove pipeline to shore for reuse, recycling, or disposal.	Use mattresses to remediate seabed at Sedgwick wellhead location, or remove to shore for reuse recycling or disposal.
I	Sedgwick wellhead	This structure is outside the scope of the CA. It will be removed to shore for reuse, recycling, or disposal.					

West Brae to Sedgwick 2.5" Gas Lift Flowline (PL1448)

Ident	Description	Length (m)	O.D. (mm)	Coating	Notes
1	West Brae Manifold Tie-In Spool	29	73	-	-
2	Pipeline	2100	73	3LPP, 1.5mm thick	1 anode every 38 joints
3	Flexible Jumper	160	134	-	-
4	Sedgwick Wellhead Pipework	-	-	-	-
5	Sedgwick Wellhead Gas Lift Choke Valve	-	-	-	-
6	Sedgwick Wellhead Annulus Wing Valve	-	-	-	-

Unknown quantity of grout bags over pipeline at 7 locations (filling in between mattresses)



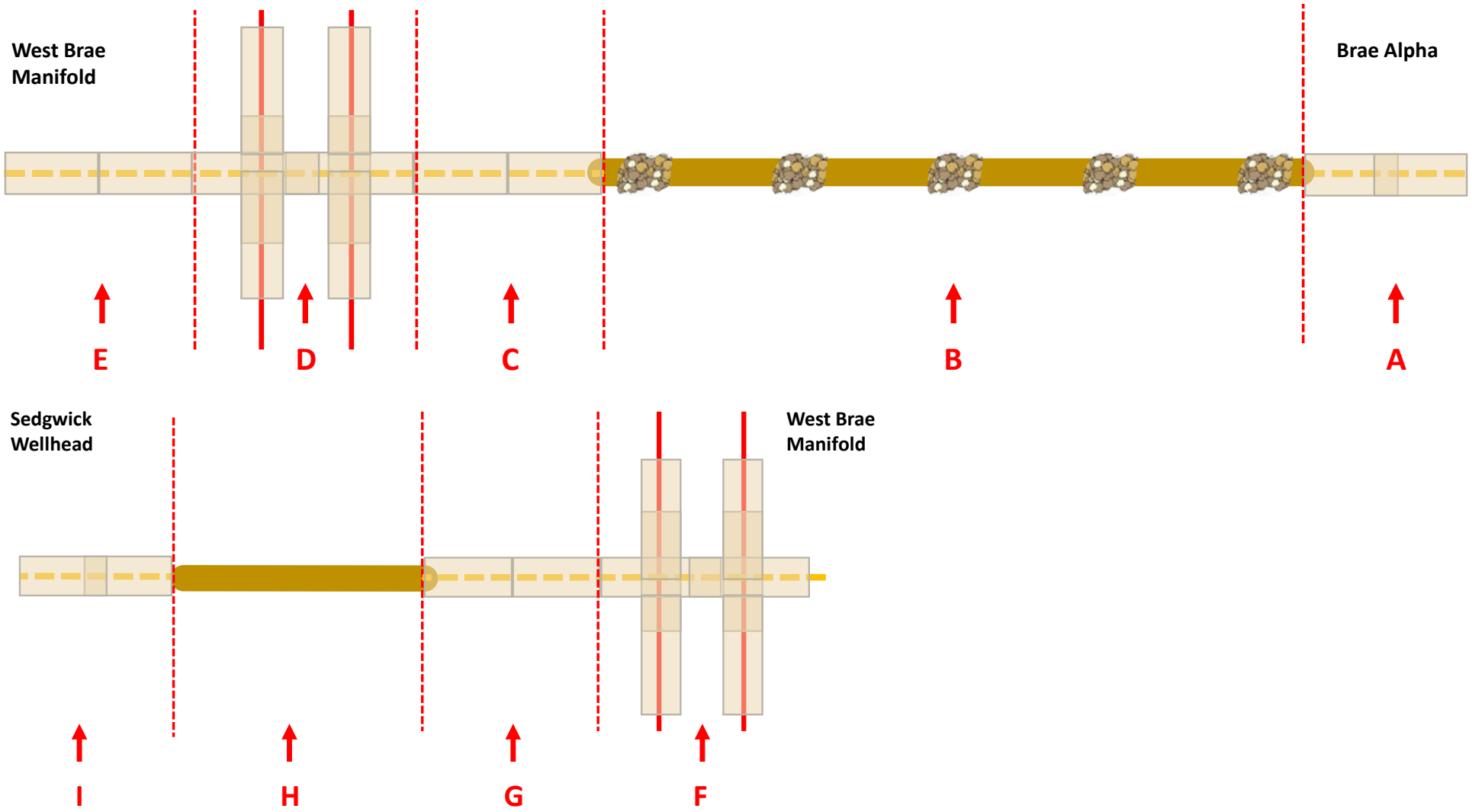
PL1448 West Brae to Sedgwick 2.5" Gas Lift Pipeline
Summary: The preferred options for the segments of PL1448, derived from the CA are: • To decommission trenched or buried pipeline in situ; • To remove surface laid pipeline to shore • To decommission rock covered pipeline in situ; • To move mattresses that protect the pipeline and use them for seabed remediation or return them to shore for disposal.

PL1448 West Brae to Sedgwick 2.5" Gas Lift Pipeline							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
A	West Brae Manifold Structure	This structure is outside the scope of the CA. It will be removed to shore for reuse, recycling, or disposal.					
B	Surface laid mattress covered pipeline.	B.2.1: Surface Laid Pipeline (Mattress Protected)	42	0	0.042	Remove pipeline to shore for reuse, recycling, or disposal.	Use mattresses to remediate seabed at West Brae manifold location, or remove to shore for reuse recycling or disposal
C	Trenched and buried pipeline. (NB mattress covered)	B.1.1/2: Buried/Trenched Pipeline (Top of pipeline > < 600mm below seabed)	62	0.042	0.062	Decommission in situ.	Use mattresses to remediate seabed at West Brae manifold location, or remove to shore for reuse recycling or disposal.
D	Trenched and buried pipeline	B.1.1/2: Buried/Trenched Pipeline (Top of pipeline > < 600mm below seabed)	1338	0.62	1.4	Decommission in situ.	

PL1448 West Brae to Sedgwick 2.5" Gas Lift Pipeline							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
E	Trenched and buried pipeline. (NB rock covered)	B.1.1/2: Buried/Trenched Pipeline (Top of pipeline > < 600mm below seabed)	100	1.4	1.5	Decommission in situ.	
F	Trenched and buried pipeline.	B.1.1/2: Buried/Trenched Pipeline (Top of pipeline > < 600mm below seabed)	100	1.5	1.6	Decommission in situ.	
G	Trenched and buried pipeline. (NB rock covered)	B.1.1/2: Buried/Trenched Pipeline (Top of pipeline > < 600mm below seabed)	300	1.6	1.9	Decommission in situ.	
H	Trenched and buried pipeline.	B.1.1/2: Buried/Trenched Pipeline (Top of pipeline > < 600mm below seabed)	80	1.9	1.98	Decommission in situ.	.
I	Trenched and buried pipeline. (NB rock covered)	B.1.1/2: Buried/Trenched Pipeline (Top of pipeline > < 600mm below seabed)	40	1.98	2.02	Decommission in situ.	
J	Trenched and buried pipeline.	B.1.1/2: Buried/Trenched Pipeline (Top of pipeline > < 600mm below seabed)	10	2.02	2.03	Decommission in situ.	
K	Surface laid pipeline. (Rock covered)	B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	65	2.03	2.095	Decommission in situ.	
L	Surface laid pipeline. (Mattress protected and rock covered)	B.2.1.2: Surface Laid Pipeline (Rock Cover Protection)	5	2.095	2.1	Decommission in situ.	Decommission mattress is place as it is under rock cover.
M	Surface laid pipeline. (Mattress covered)	B.2.1: Surface Laid Pipeline (Mattress Protected)	130	2.1	2.23	Remove pipeline to shore for reuse, recycling, or disposal.	Use mattresses to remediate seabed at Sedgwick wellhead location, or remove to shore for reuse recycling or disposal.

PL1448 West Brae to Sedgwick 2.5" Gas Lift Pipeline							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
N	Sedgwick wellhead	This structure is outside the scope of the CA. It will be removed to shore for reuse, recycling, or disposal.					

PLU4031 – 3” Electrical Umbilical



PLU4031 Brae Alpha to West Brae & Sedgwick 3" Power & Signal Umbilical
Summary: The preferred options for the segments of PLU4031, derived from the CA are: • To decommission trenched, buried and rock covered umbilical in situ. • To remove surface laid umbilical to shore. • To move mattresses that protect the umbilical and use them for seabed remediation or return them to shore for disposal.

PLU4031 Brae Alpha to West Brae & Sedgwick 3" Power & Signal Umbilical							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
A	PLU4031 in close proximity to Brae Alpha Footings	E.2.1: Surface Laid Umbilical (Mattress Protection)	340	0	0.34	Remove umbilical to shore. If derogation for Brae Alpha Footings is granted decommission facilities in close proximity to Footings in situ.	Umbilical is protected by concrete half shells. Multiple crossings in this area
B	PLU4031 trenched and buried umbilical with intermittent rock cover.	E.1: Buried/Trenched Umbilical (Top of Umbilical below seabed)	C 8800	0.34	9.14	Decommission in situ	
C	PLU4031 surface laid and mattress covered	E.2.1: Surface Laid Umbilical (Mattress Protection)	90	9.14	9.23	Move Mattresses and use to remediate seabed at Central Brae or remove to shore for disposal. Remove umbilical to shore for recycling or disposal. Make safe any cut ends	

PLU4031 Brae Alpha to West Brae & Sedgwick 3" Power & Signal Umbilical							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
D	PLU4031 surface laid and mattress covered. With 2 crossings of PLU1446	E.2.1: Surface Laid Umbilical (Mattress Protection)	30	9.23	9.26	Move Mattresses and use to remediate seabed at West Brae or remove to shore for disposal. Remove umbilical to shore for recycling or disposal. Make safe any cut ends.	Crossed pipelines are West Brae jumpers and will be removed.
E	PLU4031 surface laid and mattress covered	E.2.1: Surface Laid Umbilical (Mattress Protection)	100	9.26	9.36	Move Mattresses and use to remediate seabed at West Brae or remove to shore for disposal. Remove umbilical to shore for recycling or disposal. Make safe any cut ends.	
F	PLU4031 surface laid and mattress covered. Multiple crossings.	E.2.1: Surface Laid Umbilical (Mattress Protection)	390	9.36	9.75	Move Mattresses and use to remediate seabed at West Brae or remove to shore for disposal. Remove umbilical to shore for recycling or disposal. Make safe any cut ends.	Crossed pipelines are West Brae jumpers and will be removed.
G	PLU4031 surface laid and mattress covered	E.2.1: Surface Laid Umbilical (Mattress Protection)	160	9.75	9.91	Move Mattresses and use to remediate seabed at West Brae or remove to shore for disposal. Remove umbilical to shore for recycling or disposal. Make safe any cut ends.	
H	PLU4031 trenched and buried umbilical .	E.1: Buried/Trenched Umbilical (Top of Umbilical below seabed)	1955	9.91	11.865	Decommission in situ.	

PLU4031 Brae Alpha to West Brae & Sedgwick 3" Power & Signal Umbilical							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
I	PLU4031 surface laid and mattress covered	E.2.1: Surface Laid Umbilical (Mattress Protection)	30	11.865	11.895	Move Mattresses and use to remediate seabed at West Brae or remove to shore for disposal. Remove umbilical to shore for recycling or disposal. Make safe any cut ends.	

Unused West Brae to West Sedgwick Production and Gas Lift Pipelines PL4545 & PL4546

PL4545 West Sedgwick Wellhead to West Brae Extension Manifold Unused 7" Production Pipeline
Summary: The preferred options for the segments of PL4545, derived from the CA are: • To remove surface laid pipeline to shore. • To decommission trenched rock covered pipeline in situ. • To move mattresses that protect the surface laid pipeline and use them for seabed remediation or return them to shore for disposal.

PL4545 West Sedgwick Wellhead to West Brae Extension Manifold Unused 7" Production Pipeline							
Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
A	PL4545	B.2.1: Surface Laid Pipeline (Mattress Protected – 24 Mattresses)	c 144	0	0.144	Move Mattresses and use to remediate seabed at West Brae or remove to shore for disposal. Remove pipeline to shore for recycling or disposal. Make safe any cut ends	Mattresses also protect PL4546
B	PL4545	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed) (There is Rock Cover Protection on top of the Buried/Trenched Pipeline).	c 5,300	0.144	5.444	Decommission in situ (Make safe any exposed ends)	
C	PL4545	B.2.1: Surface Laid Pipeline (Mattress Protected – 16 Mattresses)	c 126	5.444	5.570	Move Mattresses and use to remediate seabed at West Brae or remove to shore for disposal. Remove pipeline to shore for recycling or disposal. Make safe any cut ends	Mattresses also protect PL4546

PL4546 West Brae Extension Manifold to West Sedgwick Wellhead Unused 2.5" Gas Lift Pipeline

Summary:
The preferred options for the segments of PL4545, derived from the CA are:

- To remove surface laid pipeline to shore.
- To decommission trenched rock covered pipeline in situ.
- To move mattresses that protect the surface laid pipeline and use them for seabed remediation or return them to shore for disposal.

PL4546 West Brae Extension Manifold to West Sedgwick Wellhead Unused 2.5" Gas Lift Pipeline

Segment Label	Segment Description	Segment Type	Length (m)	KP Start	KP End	Preferred Decommissioning Option	Notes
A	PL4546	B.2.1: Surface Laid Pipeline (Mattress Protected – 24 Mattresses)	c 144	0	0.144	Move Mattresses and use to remediate seabed at West Brae or remove to shore for disposal. Remove pipeline to shore for recycling or disposal. Make safe any cut ends	Mattresses also protect PL4546
B	PL4546	B.1.1/2: Buried/Trenched Pipeline (Top of Pipe > < 600mm below seabed) (There is Rock Cover Protection on top of the Buried/Trenched Pipeline).	c 5,300	0.144	5.444	Decommission in situ (Make safe any exposed ends)	
C	PL4546	B.2.1: Surface Laid Pipeline (Mattress Protected – 16 Mattresses)	c 126	5.444	5.570	Move Mattresses and use to remediate seabed at West Brae or remove to shore for disposal. Remove pipeline to shore for recycling or disposal. Make safe any cut ends	Mattresses also protect PL4546

A1.2: Pipelines and Umbilicals Without Specific Assessment

The following pipeline and umbilical jumpers connect the West Brae wells to the West Brae Manifold or West Brae Extension Manifold. These lines are surface laid, and protected by mattresses and grout bags. The lines have been laid over a period of time, and the lines and mattresses are imbricated. Given the complexity of this arrangement and the proposed decommissioning solution of complete removal, there is no merit in presenting schematics of these lines. All of these lines, and the associated mattresses, grout bags and any other protection and stabilisation features will be removed and returned to shore for re-use, recycling, or disposal.

The following pipelines and umbilicals fall into this category:

#	DESCRIPTION	PL NUMBER	CONDITION
1	W8z to West Brae Manifold Production Jumper	PL1441.2	Surface-laid mattress protected
2	W12y to West Brae Manifold Production Jumper	PL1441.3	Surface-laid mattress protected
3	W3 to West Brae Manifold Production Jumper	PL1441.4	Surface-laid mattress protected
4	W7z/W10y to West Brae Manifold Production Jumper	PL1441.5	Surface-laid mattress protected
5	W9x to West Brae Manifold Production Jumper	PL1441.6	Surface-laid mattress protected
6	West Brae Manifold to W7z / W10y Gas Lift Jumper	PL1442.2	Surface-laid mattress protected
7	West Brae Manifold to W9x Gas Lift Jumper	PL1442.4	Surface-laid mattress protected
8	West Brae Manifold to W10y Gas Lift Jumper	PL1442.5	Surface-laid mattress protected

#	DESCRIPTION	PL NUMBER	CONDITION
9	West Brae Manifold to W3 Gas Lift Jumper	PL1442.6	Surface-laid mattress protected
10	West Brae Manifold to W12y Gas Lift Jumper	PL1442.7	Surface-laid mattress protected
11	West Brae Manifold to W8z Gas Lift Jumper	PL1442.8	Surface-laid mattress protected
12	West Brae manifold to W10y Water Injection Jumper	PL1443.3	Surface-laid mattress protected
13	West Brae manifold to W8z chemical umbilical	PLU1446.12	Surface-laid mattress protected
14	West Brae manifold to W8z chemical umbilical	PLU1446.15	Surface-laid mattress protected
15	West Brae manifold to W12y chemical umbilical	PLU1446.13	Surface-laid mattress protected
16	West Brae manifold to W12y chemical umbilical	PLU1446.16	Surface-laid mattress protected
17	West Brae manifold to W3 chemical umbilical	PLU1446.14	Surface-laid mattress protected
18	West Brae manifold to W3 chemical umbilical	PLU1446.17	Surface-laid mattress protected
19	West Brae Manifold to W9x Chemical Jumper	PLU3798	Surface-laid mattress protected
20	West Brae Manifold to W7z Chemical Jumper	PLU3799	Surface-laid mattress protected

#	DESCRIPTION	PL NUMBER	CONDITION
21	West Brae Manifold to W9x Chemical Jumper	PLU3800	Surface-laid mattress protected
22	West Brae Manifold to W10y Chemical Jumper	PLU3801	Surface-laid mattress protected
23	West Brae Manifold to W10y Chemical Jumper	PLU3802	Surface-laid mattress protected
24	W11 to West Brae Extension Manifold Production Jumper	PL3806	Surface-laid mattress protected
25	West Brae Extension Manifold to W11 Gas Lift Jumper	PL3809	Surface-laid mattress protected
26	West Brae Manifold to W7z Chemical Jumper	PLU3811	Surface-laid mattress protected
27	West Brae Manifold to W11 Chemical Jumper	PLU3813	Surface-laid mattress protected
28	West Brae Manifold to W7 Electrical Flying Lead	PLU4131	Surface-laid mattress protected
29	West Brae Manifold to W7 Electrical Flying Lead	PLU4132	Surface-laid mattress protected
30	West Brae Manifold to W8 Electrical Flying Lead	PLU4133	Surface-laid mattress protected
31	West Brae Manifold to W8 Electrical Flying Lead	PLU4134	Surface-laid mattress protected
32	West Brae Manifold to W9 Electrical Flying Lead	PLU4135	Surface-laid mattress protected

#	DESCRIPTION	PL NUMBER	CONDITION
33	West Brae Manifold to W9 Electrical Flying Lead	PLU4136	Surface-laid mattress protected
34	West Brae Manifold to W12 Electrical Flying Lead	PLU4137	Surface-laid mattress protected
35	West Brae Manifold to W12 Electrical Flying Lead	PLU4138	Surface-laid mattress protected
36	W7z to West Brae Extension Manifold Production Jumper	PL4242	Surface-laid mattress protected
37	W10y to West Brae Extension Manifold Production Jumper	PL4243	Surface-laid mattress protected
38	West Brae Extension Manifold to West Brae Manifold Test Production Jumper	PL4244	Surface-laid mattress protected
39	West Brae Extension Manifold to W7z Gas Lift Jumper	PL4245	Surface-laid mattress protected
40	West Brae Extension Manifold to W10y Gas Lift Jumper	PL4246	Surface-laid mattress protected
41	West Brae Extension Manifold to W12y Gas Lift Jumper	PL4247	Surface-laid mattress protected
42	W7z to West Brae Extension Manifold Control Jumper	PLU4248	Surface-laid mattress protected
43	W10y to West Brae Extension Manifold Control Jumper	PLU4249	Surface-laid mattress protected

#	DESCRIPTION	PL NUMBER	CONDITION
44	West Brae Manifold to West Brae Extension Manifold Hydraulic Umbilical	PLU4250	Surface-laid mattress protected
45	West Sedgwick Production Flowline to West Brae Extension Manifold	PL4545	Rock Covered
46	West Sedgwick Gas Lift Flow Line from West Brae Extension Manifold	PL4546	Rock Covered

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