

Shell U.K. Limited



Gannet Subsea Wells GB01S1 and GF01S1 Decommissioning Programme

Submitted to the Offshore Petroleum Regulator for Environment and Decommissioning

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Abbreviations and Glossary	
CoP	Cessation of Production
EAJ	Environmental Assessment Justification
HSE	Health and Safety Executive
LWIV	Light Well Intervention Vessel
NSTA	North Sea Transition Authority
OEUK	Offshore Energies United Kingdom
OPRED	Offshore Petroleum Regulator for Environment & Decommissioning
P&A	Plug and Abandonment
P&L	Plug and Lubricate
SCAP	Supply Chain Action Plan
UKCS	United Kingdom Continental Shelf
WI	Water Injection
XT	Christmas Tree

HOLDS:

1. HOLD 1 – statutory consultee comments to be added to approval revision
2. HOLD 2 – partners’ letters of support to be added to approval revision

1 EXECUTIVE SUMMARY

1.1 Decommissioning Programme

This document contains the Decommissioning Programme for two Gannet wells: 21/30-28 (GF01S1), and 21/25-B1Z (GB01S1). The individual wells have ceased production and are required to be fully decommissioned in accordance with regulatory timelines, consisting of Plug and Lubricate (P&L), Plug and Abandon (P&A) and Wellhead Severance (WHS) scopes. Production will continue from the wider Gannet Field, and Field Decommissioning Programmes will be issued as the Field approaches Cessation of Production (CoP).

1.2 Requirement for Decommissioning Programme

Installation(s):

In accordance with the Petroleum Act 1998, the Section 29 notice holders of the Gannet A, Gannet B, Gannet C, Gannet D, Gannet F and Gannet G Installations (Table 1-2), listed on a single Section 29 Notice, are applying to the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) to obtain approval for the removals associated with decommissioning of two Gannet wells, described fully in Section 2 of this programme (see also Section 8 – Section 29 Notice Holder Letters of Support).

In conjunction with stakeholder and regulatory consultation, the decommissioning programme is submitted in compliance with national and international regulations and OPRED guidelines. The schedule outlined in this document is for a nine-year decommissioning project that commenced in 2019. Individual scopes to P&L, P&A or cut and remove wellheads are expected to take up to a maximum of 31 days. However, execution is performed across multiple campaigns and removal activities are assigned to the appropriate campaign to maximise project efficiency. Therefore, windows are provided within which each scope may be executed.

The offshore scope outlined within this Programme is expected to be completed by the end of 2027.

1.3 Introduction

The Gannet Field is located within Blocks 21/25, 21/30, 22/21 and 22/26a in the Central North Sea (CNS). The development comprises one platform, Gannet Alpha (A), which produces from the Gannet A Field via platform wells and five subsea satellite tiebacks: Gannet B, C, D, F and G. The subject of this Decommissioning Programme is the Plug and Lubricate (P&L), Xmas Tree (XT) removal, Plug and Abandon (P&A), and wellhead severance (WHS) of the Gannet wells GF01S1 and GB01S1.

A summary of each well is provided below. No other infrastructure will be recovered to shore as part of this scope.

GF01S1

The Gannet GF01S1 well is located on the Gannet F Field located in Block 21/30. Gannet F comprises a four-well subsea development tied back to the Gannet A production platform, approximately 1km

to the north-east. Gannet F is circa 170km from the Scottish coastline (Peterhead) and circa 82km from the United Kingdom (UK) / Norway median line (Figure 1-1), with water depth of circa 98m.

The GF01S1 well failed to produce following its initial drilling and has been shut-in since 2020. The associated jumpers and spools were disconnected in July 2023, noting that nothing was removed from the seabed as part of the disconnection campaign.

In February 2024, P&L was executed from the Ocean Endeavor, with a further visit in July 2024 from a Light Well Intervention Vessel (LWIV) to unlatch and recover the XT. The XT and tree cap have been recovered to shore for dismantling, re-use, recycling and disposal (see Sect 2.3 for potential XT and cap re-use option). The P&A of GF01S1 will be completed in 2025.

Severance and removal of the GF01S1 wellhead has been tendered as part of a wider Shell portfolio campaign. This campaign is scheduled to be completed before the end of 2026. The recovered wellhead and flowbase will be recovered to shore for dismantling, recycling and disposal.

There is no Wellhead Protection Structure at GF01S1.

GB01S1

The Gannet 21/25-B1 (GB01S1) well was drilled and completed by Shell in 1991.

In September 2019, the well was P&L'd. In September 2022, the Hydraulic/Electrical/Production jumpers were flushed and disconnected and XT was removed.

In July 2023, Stena Don semi-submersible rig P&A'd the well. The well is currently awaiting wellhead severance, scheduled for completion before the end of 2026.

A Wellhead Protection Structure (WHPS) is in place at the GB01S1 well location. This WHPS (16.5m x 16.5m x 8.5m, 61.6Te in air excluding the piles) will remain in place to protect the remaining infrastructure. The WHPS is not in scope of this DP and will be included in the wider Gannet Field Decommissioning Programmes that will be issued as the Field approaches CoP.

1.4 Overview of Installation(s) Being Decommissioned

Table 1-1: Installations Being Decommissioned			
Field(s)	Gannet Field	Production Type	Oil
Water Depth (m)	98m	UKCS block	21/25, 21/30, 22/21 & 22/26a
Distance to median (km)	82 (Norway)	Distance from nearest UK coastline (km)	170 (Peterhead)
Subsea Installation(s)		Number of Wells	
Number	Type	Platform	Subsea
7	2-off XT 2-off Wellhead 2-off flowbase 1-off temporary guide bases	0	2
Drill Cuttings Pile(s)		Distance to Median (km)	Distance from nearest UK coastline (km)
Number of Piles	Total Estimated Volume (m ³)		
N/A	N/A	82	170

Note that Table 1-1 has been completed for the scope of this Decommissioning Programme only; the numbers are not intended to reflect the scope of the wider Gannet Field. Decommissioning Programmes will be prepared and submitted for the Gannet Field at a later date when the Field is approaching Cessation of Production.

Table 1-2: Installation(s) Section 29 Notice Holders' Details		
Section 29 Notice Holders	Registration Number	Equity Interest (%)
Shell U.K. Limited	00140141	50
NEO Energy Petroleum Limited	03288689	50
Esso Exploration and Production UK Limited	00207426	0
NEO Energy (SNS) Limited	SC291165	0
NEO Energy Natural Resources Limited	13018823	0

1.5 Summary of Proposed Decommissioning Programme

Table 1-3: Summary of Decommissioning Programme		
Selected Option	Reason for Selection	Proposed Decommissioning Solution
1. Subsea Installation(s)		
XTs, flowbases, wellheads and temporary guide base at wells GF01S1 and GB01S1	To leave a clear seabed	Fully removed for dismantling, re-use, recycling and disposal
2. Wells		
Wells GF01S1 and GB01S1 will be decommissioned in accordance with the Offshore Energy UK (OEUK) Well Decommissioning Guidelines (Issue 7, November 2022). This will include removal of the associated XTs, wellheads, flowbases and the temporary guide base at GB01S1.	Meets HSE and NSTA regulatory requirements	Permit submissions under the relevant regulations will be submitted, or have been submitted, in support of works to be executed. Wellheads will be removed to a target depth of 3m below seabed. All removed equipment will be returned to shore for re-use, recycling or disposal.
3. Interdependencies		
The associated pipeline spools and jumpers have been flushed and disconnected from the XTs to allow the wells to be decommissioned and XTs removed. The disconnected spools and jumpers will remain in situ until the Gannet Field commences decommissioning.		

1.6 Field Location Including Field Layout and Adjacent Facilities

Figure 1-1: Location of the Gannet Field

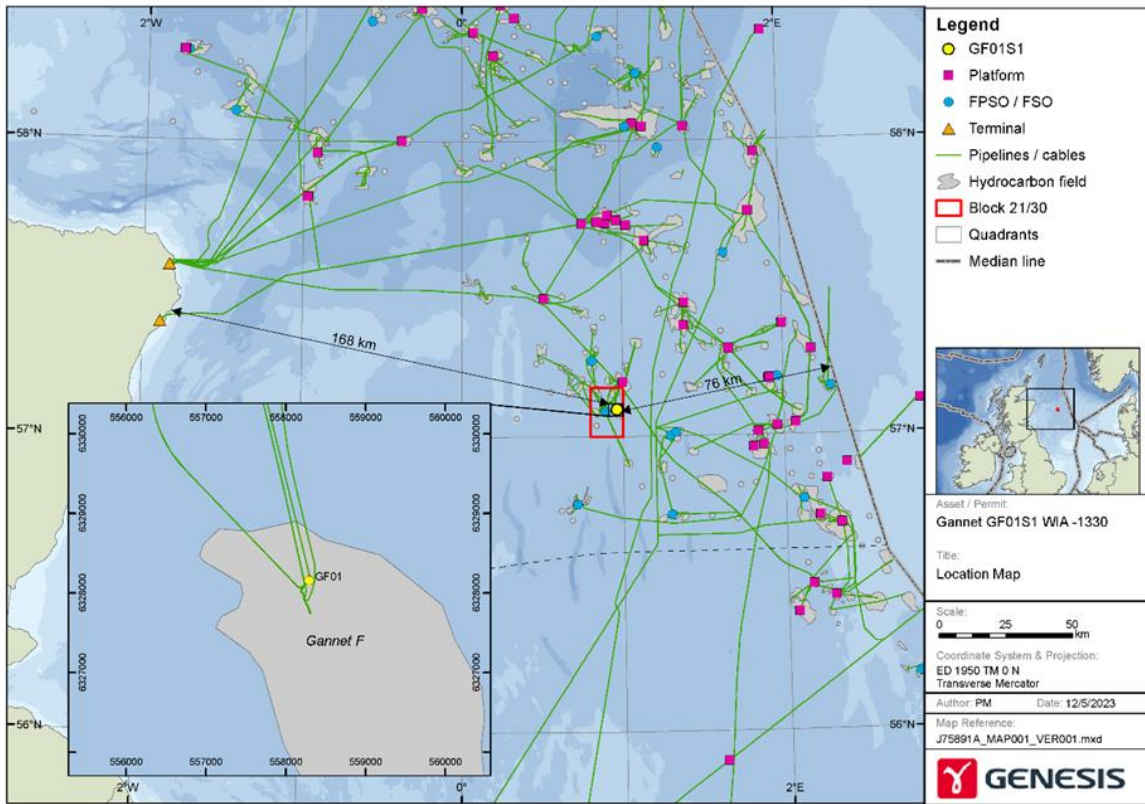


Figure 1-2: Location of Wells Within Gannet Field

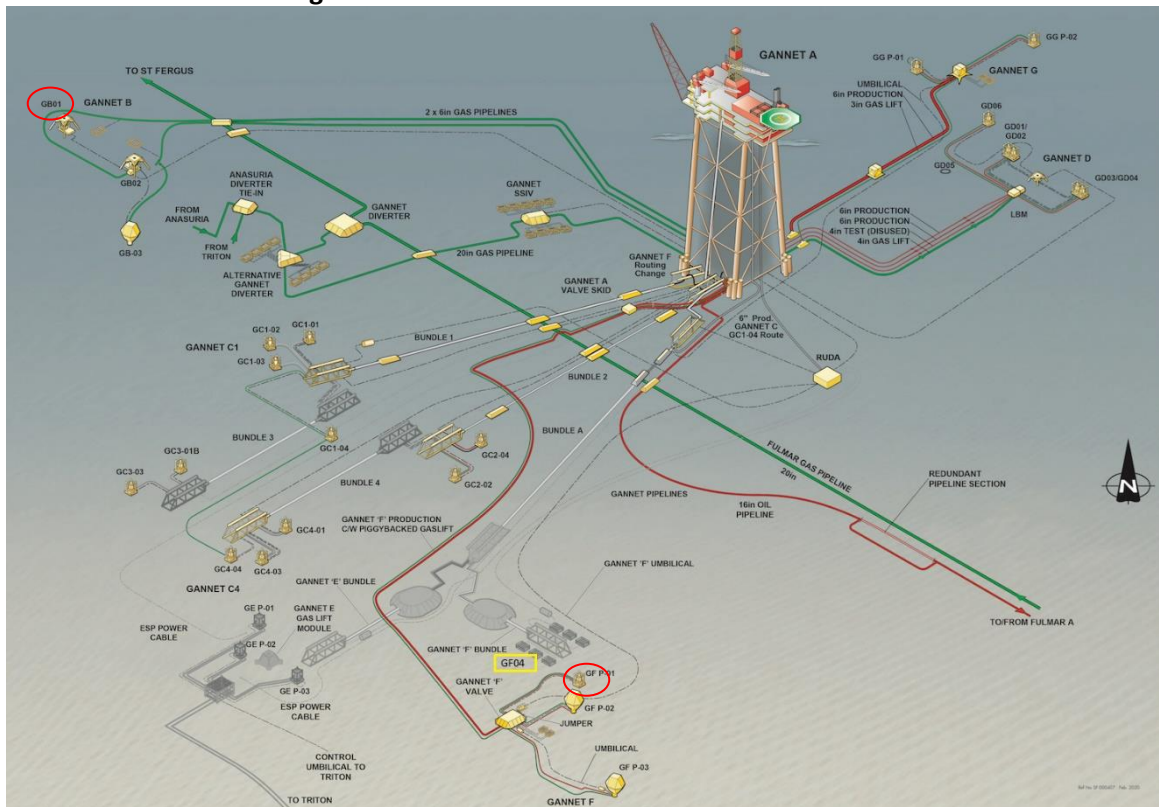


Table 1-4: Adjacent Facilities					
Owner	Name	Type	Distance/Direction	Information	Status
<p>Infrastructure associated with the Gannet Field has not been listed here as Adjacent Facilities. Refer to Figure 1-2 for a Field layout, showing the infrastructure associated with the Gannet Field – noting that the Field will continue to produce following P&A of the two wells in scope of this DP. Subsea safety zones associated with the Gannet Field will continue to operate until Field decommissioning is complete.</p>					
Dana Petroleum	Triton	Floating Production Storage and Offloading vessel (FPSO)	4km West	Supporting production from Bittern, Guillemot West & North West, Gannet E, Evelyn, Clapham, Pict and Saxon	Active
Anasuria Operating Company	Anasuria	FPSO vessel	20km north-west	Supporting production from Cook, Teal, Teal South, Guillemot A	Active
Harbour	Catcher	FPSO vessel	37km south-west	Supporting production from Catcher, Varadero and Burgman	Active
Impacts of Decommissioning Proposals					
<p>Some of the removals associated with this DP will necessitate lifting over live pipelines. All such lifts are subject to risk assessments and readiness reviews, with appropriate regulatory engagements prior to and throughout permit submissions.</p> <p>P&A and wellhead severance of these wells are required by regulation, and its execution does not preclude any decommissioning solutions for the remaining Installations or Pipelines covered by the Gannet Field Section 29 Notices.</p>					

1.7 Industrial Implications

The scopes associated with decommissioning of the two wells within this scope have been, or will be, contracted within the wider Shell UK well decommissioning portfolio.

Stena Drilling Ltd were awarded a contract to execute P&A scopes, including at Gannet, in May 2022. Baker Hughes Limited were awarded a contract to provide Integrated Services to the rig in December 2022; and Halliburton Manufacturing and Services Limited were awarded a contract for cementing services to the rig in December 2022.

GF01S1 P&L and P&A has been included within a wider Shell drilling contract with Diamond Offshore Drilling (U.K.) Ltd.

Wellhead severance for the remaining Gannet wellheads was included in a competitive tender for a later campaign and awarded to Mermaid Subsea Services (UK) Limited, combined with wellhead severance scopes across Shell UK's decommissioning portfolio.

Shell will engage with the NSTA to confirm the most appropriate method for capturing relevant Supply Chain data for this bundled scope in the most efficient manner.

2 DESCRIPTION OF ITEMS TO BE DECOMMISSIONED

No pipelines are associated with this scope.

2.1 Installations

Table 2-1: Christmas Trees (XTs)				
Well Identification	No	Size / weight m / Te	Location WGS84 Decimal	Comments
21/30-28 (GF01S1)	3	XT: 3.97m x 3.97m x 3.6m 35 Tonnes	57° 05' 25.668"N 00° 57' 31.839"E	The XT, flowbase and wellhead will be recovered to shore for dismantling, re-use, recycling and disposal
		Wellhead: 1.6m x 1.6m x 20.1m 29 Tonnes		
		Flowbase: 4.5m x 3.35m x 2.5m 18 tonnes		
21/25-B1Z (GB01S1)	4	XT: 3.94m x 3.25m x 3.43m 21 Tonnes	N 57° 11' 52.179" E 00° 54' 54.730"	The XT has been recovered to shore for dismantling, recycling and disposal.
		Wellhead: 1.6m x 1.6m x 20.1m 29 Tonnes		The flowbase and wellhead will be recovered to shore for dismantling, recycling and disposal
		Temporary Guide Base (drilling guide base) 4.3m x 4.3m x 0.79m 3.6 Tonnes		Note height of 5.38m includes posts, height is 1.62m without posts
		Flowbase: 4.1m x 3.8m x 5.38m 12.5 tonnes		

2.2 Wells

Two wells are being decommissioned, details of which are provided in Table 2-2. Details of the XTs and wellheads associated with these wells are contained in Table 2-1.

Well Identification	Designation	Status	Category of well
21/25-B1Z (GB01S1)	Production	AB2	SS 0-0-3
21/30-28 (GF01S1)	Production	Suspended	3-1-3

2.3 Inventory Estimates

The XTs, tree caps, flowbases and wellheads to be recovered as part of this scope are broken down into estimated waste streams in Table 2-3. No other infrastructure such as pipeline spools, concrete mattresses or grout bags is scheduled to be recovered at this time. The remaining infrastructure will be included in the Decommissioning Programmes covering full Gannet Field decommissioning at CoP.

Material	Total weight (tonnes)	Weight to be recovered (tonnes)	Weight to be left in situ (tonnes)
Steel	160.7	120.2	40.5
Non-ferrous metal	3.8	3.8	0
Other non-hazardous	0.6	0.6	0

The total inventory associated with this Decommissioning Programme is 165 tonnes. Of this, approximately 76% will be recovered to the surface to be dismantled, re-used, recycled and disposed as appropriate.

The material to be left in situ represents the section of each wellhead which is left buried within the seabed when the upper wellhead is cut and removed. Per the OEUK Well Abandonment Guidelines and OPRED Guidance Notes on Decommissioning, the wellheads will be removed to a target depth of at least 3m below seabed.

In addition to the inventory noted above, there is likely to be a small amount of marine growth adhered to the recovered infrastructure. This has not been included in the weight estimates above.

Note that the GF01S1 XT and tree cap will, in the first instance, be returned to shore and preserved for potential future re-use at another well. As such, neither item will initially be designated as 'waste'. No specific re-use option has been identified for this infrastructure but, given the age and anticipated condition of the equipment, it will be retained to maximise future re-use options. As a reasonable worst-case scenario, the recycling and disposal of each element of the XT and tree cap has been outlined within this DP.

3 WASTE STREAMS

Shell's decommissioning projects set a target to recycle and re-use at least 97% by weight of all the equipment and materials that is retrieved to shore.

The waste arising from the recovery of the XTs, tree caps, flowbases and wellheads within this scope will be recovered as part of amalgamated campaigns across Shell's decommissioning portfolio. The waste will be returned to shore for dismantling, re-use, recycling and disposal utilising existing framework contracts. Duty of Care audits are performed at all contractors handling Shell waste, in line with Shell's Waste Control Framework.

Table 3-1: Waste Stream Management Methods	
Waste Stream	Removal and Disposal method
Steel/plastics/other materials	<p>Removed to shore and recycled or disposed of as appropriate.</p> <p>Removal methodologies are detailed in the approved supporting Environmental Assessment Justifications, see Section 4.</p>
Marine growth	<p>Marine growth that remains attached to the subsea equipment after load-in to the onshore dismantling site will be removed. It will be disposed of in accordance with the regulations in force at the site following the site operator's licences and procedures (e.g. decommissioning yard's Waste Management Plan)</p>
NORM	<p>All recovered material will be monitored for NORM contamination and, where encountered, managed in accordance with Shell's control framework and the Environmental Authorisations (Scotland) Regulations 2018. Any NORM encountered will be disposed of in accordance with guidelines and company policies, and appropriately permitted under local regulations.</p>
Other hazardous wastes	<p>No other hazardous materials have been identified for this scope. Should additional hazardous waste(s) be identified during the execution phase, the waste shall be identified, labelled, segregated, treated and disposed in full compliance with relevant regulations and permits conditions.</p>
Onshore Dismantling sites	<p>Appropriately licensed UK sites are to be used to receive recovered materials. No trans-frontier shipment of waste is planned.</p> <p>The dismantling site will be selected in accordance with Shell's Waste Control Framework and only appropriately permitted sites which have been subject to a Shell Duty of Care audit will be considered. Site selection will consider disposal track record and waste stream management throughout the deconstruction process, and the yard's ability to deliver re-use and recycling options in accordance with the waste hierarchy.</p>

4 ENVIRONMENTAL SENSITIVITIES/POTENTIAL ENVIRONMENTAL IMPACTS & THEIR MANAGEMENT

Agreed with OPRED that this section is not required at this time. Environmental conditions and potential impacts are covered through the Environmental Assessment Justification (EAJ) that is submitted in support of the Marine License covering the removal activities. Please refer to the EAJ issued in support of the WIAs and Marine Licenses for each well, as follows:

Well Identification	WIA	ML
21/30-28 (GF01S1)	WIA/1330	ML/1064
21/25-B1Z (GB01S1)	WIA/1342 (P&L) WIA/1399 (P&A)	ML/856 (P&L) ML/966 (P&A)

A pre-decommissioning environmental survey and environmental appraisal will be developed to support the main Gannet Field Decommissioning Programmes submitted at CoP.

5 INTERESTED PARTY CONSULTATIONS

Table 5-1: Summary of Stakeholder Comments		
Consultee	Comment	Response
Statutory Consultations		
National Federation of Fishermen's Organisation	HOLD 1	
Scottish Fishermen's Federation		
Northern Ireland Fish Producers Organisation		
Global Marine Systems Limited		
Other Interested Parties		
North Sea Transition Authority		
Public		

6 PROGRAMME MANAGEMENT

6.1 Project Management and Verification

Shell is undertaking a number of well decommissioning campaigns over the coming years. Resources are identified to support each campaign and to manage suitable sub-contractors. Where possible, scopes have been or will be coordinated with other decommissioning operations in the Central North Sea to secure schedule and cost efficiencies.

The process of consents and the engagements required to execute the decommissioning of wells GB01S1 and GF01S1 have commenced and will be fully managed and monitored. In the event of any changes in the detail of the offshore removal scope being required, these will be discussed and agreed with OPRED in advance.

6.2 Post-Decommissioning Debris Clearance and Verification

On the completion of well decommissioning (AB3), Shell will engage a wellhead severance contractor to undertake a debris survey within a 70m radius of each wellhead in line with the OEUK Well Decommissioning Guidelines.

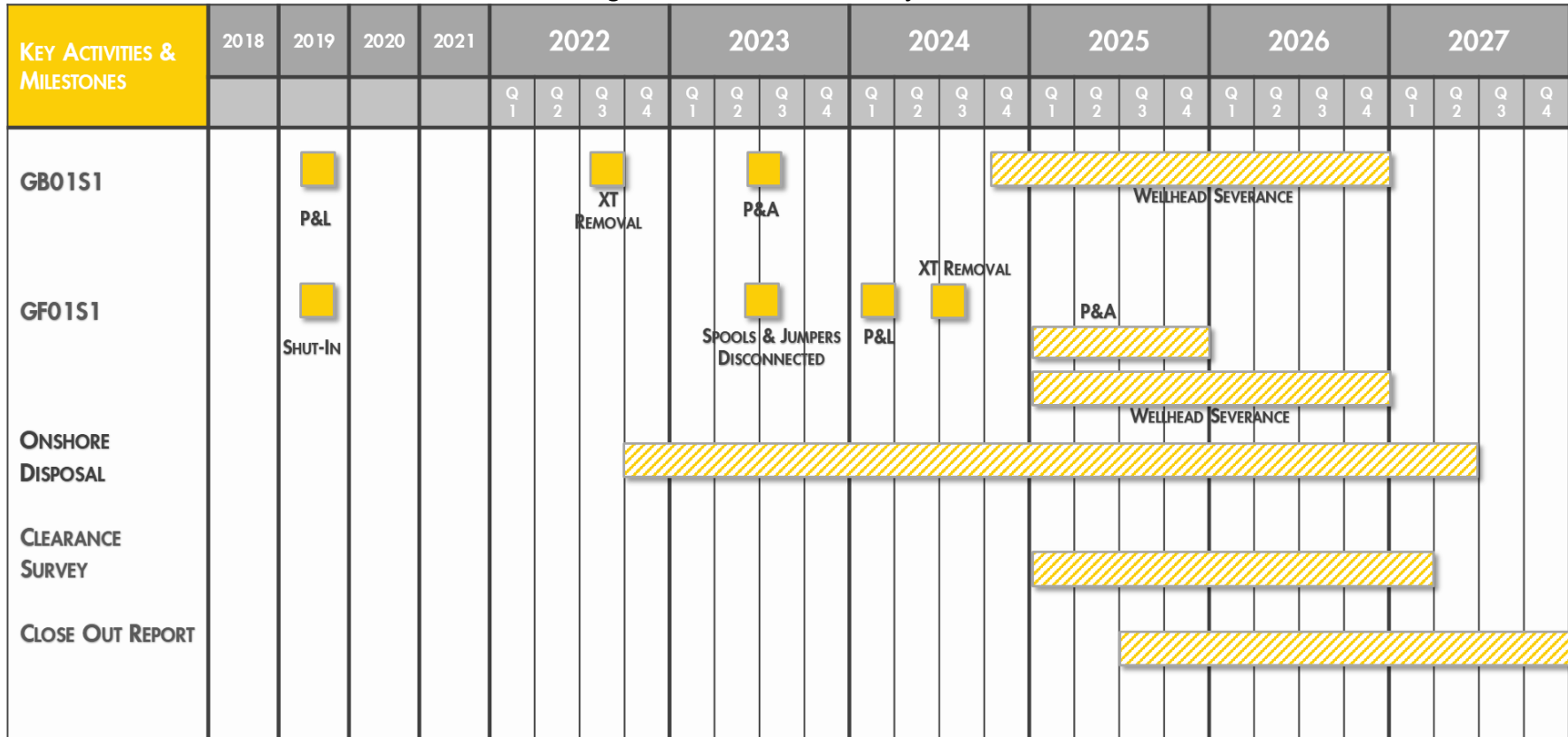
Any items of debris which cannot be removed at this time will be recorded within Shell's Commitments Register for inclusion in the debris campaigns associated with the full Field Decommissioning Programmes, to be developed at CoP of the Gannet Field.

A 500m exclusion zone is active at the Gannet F well location and will remain in place to protect the infrastructure that remains and supports ongoing production. Seabed clearance verification of the 500m exclusion zones will be carried out when the wider Gannet Field is decommissioned. The Wellhead Protection Structure at well GB01S1 will remain in place to protect the remaining infrastructure.

6.3 Schedule

An indicative schedule for the scope of this Programme is provided in Figure 6-1.

Figure 6-1: Gantt Chart of Project Plan



Note that the timings provided in the hashed bars are indicative windows of proposed upcoming campaigns. The windows are not intended to indicate total execution duration. Onshore Disposal will continue throughout, as waste is returned from individual scopes. The solid bars indicate work undertaken to-date.

6.4 Costs

Costs will be provided to OPRED in a separate CONFIDENTIAL email at Draft stage to support public consultation.

6.5 Close Out

A Close Out Report will be submitted to cover the scope of this Decommissioning Programme.

Shell will submit a Progress Report at appropriate milestones agreed with OPRED throughout the campaigns outlined in Section 6.3. The Progress Report(s) will be submitted to OPRED confirming the infrastructure which has been recovered and the status of the seabed following execution.

6.6 Post-Decommissioning Monitoring and Evaluation

Production will continue from the wider Gannet Field following decommissioning of wells GB01S1 and GF01S1 covered by this Programme. Monitoring of the remaining infrastructure and the associated 500m exclusion zone will continue on a risk basis.

Of the infrastructure associated with this Programme, i.e. the XTs, tree caps, flowbases and wellheads, everything on or above the seabed will be recovered to shore and nothing will remain in situ on the seabed which requires future monitoring. The lower sections of the wellheads, below the cut point 3m below the seabed, will be decommissioned in situ per the OEUK Well Abandonment Guidelines and OPRED Guidance Notes.

A post-decommissioning environmental survey will be carried out when the wider Gannet Field is decommissioned.

7 SUPPORTING DOCUMENTS

<i>Document Number</i>	<i>Title</i>
1	Environmental Assessment Justification issued in support of WIA/1330; <i>Gannet GF01S1 – 21/30-28</i>
2	Environment Assessment Justification issued in support of WIA/1342; Gannet B GB01 – 21/25-B1 (P&L)
3	Environmental Assessment Justification issued in support of WIA/1399; Gannet B GB01S1 – 21/25-B1Z (P&A)

This Decommissioning Programme is available as follows:

1. At the Shell website at <https://www.shell.co.uk/about-us/sustainability/decommissioning.html>
2. Electronic copies of the Decommissioning Programme and supporting information may be requested by emailing SUKEP-Shell-Decommissioning-Correspondence@shell.com or by writing to Decommissioning Business Opportunity Manager, Decommissioning Strategy, Shell U.K. Limited, The Silver Fin Building, 455 Union Street, Aberdeen, AB11 6DB

8 SECTION 29 NOTICE HOLDER LETTERS OF SUPPORT

HOLD 2