

## Annex to EJD WWU.5 – LTS Pipelines

### 1.0 Introduction

This annex document provides additional supplementary information in support of Engineering Justification Document WWU.5 – LTS Pipelines. The content and structure has been developed based on the feedback we’ve gratefully received in bilateral discussions with the Ofgem Engineering Assessment team.

### 2.0 Winter Submission Summary

We submitted our Asset Health Engineering Justification Document (EJD) WWU.5 in December 2024. The document included a description of the assets within LTS Pipelines, including sub-assets, and we provided our justification for the interventions required on this asset group.

As stated in our EJD we are proposing Option 1: Balanced Plan, a combination of refurbishment and replacement interventions.

Our proposed RIIO-GD3 workload and the associated costs are detailed in Table 1 below:

Table 1 - RIIO-GD3 Submission Summary

	RIIO-GD3	
	Cost (£m)	Volume (No.)
Above Ground Crossing Refurbishments	■	8
AC Monitoring and Mitigation Installation	■	68
AGI (Block Valve and Pig Trap Sites) Refurbishments	■	20
Condition-Driven Short Length Diversions	■	8
CP System – TR, Ground bed and Test Post Replacements	■	475
Inspections – Pre-Work, Surveys and Defect Investigations/Repairs	■	4,418
Marker Post Replacements	■	2,140
Nitrogen Sleeve Repairs	■	20
Riverbed and Bank Refurbishments	■	237
Shallow Depth of Cover Remediation	■	120
Third Party-Driven Short Length Diversions	■	2
Valve and Valve Chamber Refurbishments	■	130
<b>Total</b>	■	<b>7,646</b>

### 3.0 WWU Draft Determination

In Ofgem’s Draft Determinations consultation the proposed outcome for LTS Pipelines was noted as ‘Partially Justified’ and reduced workload volumes have been proposed. The detail noted *“Generally, the need for ongoing maintenance of LTS pipeline systems and ancillary equipment is accepted and the submission outlines the requirements clearly. There has been significant volumes increases for some asset classes in RIIO-3 without justification or supporting evidence. The volumes increase for inspection volumes, marker posts, nitrogen sleeves and riverbed refurbishments have not been adequately justified, we have reflected this in the volume reductions in our Draft Determinations to align with RIIO-2 volumes.”*

## 3.1 Impact of Draft Determinations

Table 2 and 3 below show the impact of Draft Determinations on this asset group, with comparisons made between RIIO-GD2 Actuals / Forecast, RIIO-GD3 Business Plan (Submission: December 2024) and RIIO-GD3 Draft Determinations. These comparisons are split out by spend type and work category.

Table 2 - Comparison Between: RIIO-GD2, RIIO-GD3 Business Plan & Draft Determinations

EJP	GD2 Actuals/Forecast		GD3 BP		GD3 DD	
	Workload	£	Workload	£	Workload	£
WWU.5 - LTS Pipelines (CAPEX)	1,773	■	3,060	■	~2,200	19.3m
WWU.5 - LTS Pipelines (OPEX)	2,658	■	4,587	■	~2,500	5.6m

Table 2 - Activities Split Out by Spend Type and Work Category

Spend Type	Work Category	GD3 BP		GD3 DD	
		Volume	Cost (£M)	Volume	Cost (£m)
Capex / Repex	Legislative Compliance - Fixed Workload	205	■	103	3.0
	Legislative Compliance - Variable Workload	845	■	686	13.4
	Other Priority Work	2,010	■	1,495	2.9
	<b>Capex Total</b>	<b>3,060</b>	■	<b>2,284</b>	<b>19.3</b>
Opex	Legislative Compliance - Fixed Workload	750	■	553	1.4
	Legislative Compliance - Variable Workload	3,697	■	1,699	3.4
	Other Priority Work	140	■	140	0.8
	<b>Non-Routine Maintenance Opex Total</b>	<b>4,587</b>	■	<b>2,392</b>	<b>5.6</b>
	<b>Total</b>	<b>7,647</b>	■	<b>4,676</b>	<b>24.9</b>

The workload categories we have illustrated are defined as follows:

- Legislative Compliance – Fixed Workload
  - Pre-Inspection: vegetation clearance, valve movement/refurbishment
  - Inspection: close interval potential survey, route walk, coating survey, in-line inspection, in line with Written Scheme of Examination
- Legislative Compliance – Variable Workload
  - Pipeline Remedials: investigation of defects following inspection, excavation and pipeline repair to ensure continued fitness for purpose
  - Above Ground Crossing Refurbishment / Replacement: following maintenance / inspection
  - Tree Cutting
- Other Priority Work
  - New Pipeline Marking – additional mitigation for areas of reduced depth of cover
  - New Cathodic Protection Test Post – to assist in maintenance / better monitor the level of protection along the whole pipeline

## 3.2 WWU Draft Determination Response

Four areas of work have been identified as increasing from RIIO-GD2 to RIIO-GD3, these are:

- Inspections – Pre-Work, Surveys and Defect Investigations/Repairs
- Marker Post Replacements
- Nitrogen Sleeve Repairs
- Riverbed and Bank Refurbishments

As part of our response to SQWWU005 we went some way to explaining why these areas of workload have increased, but include a more detailed explanation below of how the workloads included in our plan have been derived. It should be noted that tree cutting makes up a significant proportion of the workload, and including at this level of granularity is probably unhelpful in comparing workloads between price controls.

In order to forecast the workload for remedial works following inspections, carried out in accordance with our Written Schemes of Examination and our Annual Maintenance Plan, we interrogated the past 10-years' worth of intervention programme data to derive a ratio of remedial work to inspection, a '10-Year Remedial Ratio'.

For example, our data shows that on average for every four in-line inspections carried out, we undertake one dig on a pipeline to carry out a repair. Similarly, on average we carry out one dig on a pipeline and carry out coating/defect repairs for every 10km walked when undertaking an overground inspection (Close Interval Protection Survey) to verify the level of cathodic protection along the whole length of the pipeline.

Table 4 below summarises how we have forecast these workload items, based on the relationship between the inspection and resulting remedial works derived for each inspection type.

Table 2 - Relationship Between Inspection & Remedial Works

Inspection Type	10-Year Remedial Ratio	GD3 Inspection Volumes	GD3 Remedial Works
ES/94/01.1 - OLI1 Inline inspection	1 dig per 4 runs	12 runs	3 digs & any repairs
ES/94/02.1 - OLI4 Overground inspection	1 dig per 10 km	1,674km (156 jobs)	167 digs & any repairs
Route Walking	1 tree per 1 km	2,460km (165 jobs)	2,559 trees
Underwater Crossing Survey	1 refurb per 3 surveys	693 surveys	237 repairs
<b>Total</b>		<b>1,026 inspections</b>	<b>2,966 interventions</b>
		<b>3,992 inspections / interventions</b>	

A further area of increased workload is related to pipelines in the vicinity of water courses, both increased inspections and increases in riverbank and riverbed remedial work. As part of our route walking activities included in our Annual Maintenance Plan and carried out in accordance with IGEM/TD/1, we continue to identify new watercourses that require inspection, due in part to agricultural activities creating drainage ditches, but also due to rivers continually moving and creating new watercourses due to changes to climate.

In many cases we are having to increase the survey frequency where there is evidence of river movement as an initial step to monitor these changes and determine whether remedial action is required.

The increase in remedial works following inspection has two main drivers:

1. Increased severe weather events, impacting rivers and their tributaries, exposing them to higher water levels and increased flow rates compared to the past
2. Environment agencies (Environment Agency & Natural Resources Wales) actively allowing watercourses to find their own channel naturally, increasing the impact on pipelines crossing or running parallel

In the second case our options for remedial work are impacted by these policies, requiring different types of intervention, or more extensive intervention than previously permitted. For example, where localised installation of a block stone revetment or gabion baskets may have been permitted in the past, we may now have to carry out soft engineered solutions to maintain a river's course, and/or carry out work further upstream or downstream of a location to mitigate the impact of our work. These solutions can have a shorter life and require more frequent intervention but still represent a significantly lower cost option than diversion. In some case however we may have no option other than to divert pipelines instead of undertaking riverbank or riverbed works.

### Engineering Team Feedback

It was noted in the feedback received from the Ofgem Engineering Team that the presentation of workload and costs at a summary level in our EJD, repeated above in Table 1, did not allow detailed assessment of work items and discrete costs due to our grouping of activities together. As such the following detail was requested:

1. Breakout intervention option against each intervention type
2. Breakout costs between intervention options

Table 3 **Error! Reference source not found.** in Appendix Q details the scope of each discrete intervention in our plan (rows) and includes the total cost and volume of each intervention. Denoted by the ticks, the table also details whether the individual intervention item is included in the Baseline (Reactive Only) option, Option 1 (Balanced Plan) and/or Option 2 (Replace Only). Also included in this table is the unit cost of each intervention.

Unless otherwise stated (with Diversion or Replace, as per Option 2), the costs and volumes are consistent across all options for each discrete intervention.

### 4.0 Conclusion

Following feedback in the WWU Draft Determinations document and the Bilateral meeting between Ofgem and WWU on 5th August 2025, this Annex document provides the additional data that was missing from our original submission, to support the case for proceeding with Option 1: Balanced Plan, in line with our business plan ask. We hope this is an adequate explanation for Ofgem to support our case for the workload presented in our EJD, rather than the reduced workload proposed in the Draft Determinations.

## 5.0 Appendices

Table 3 - Intervention Scope by Cost & Volume for Each Option, including Unit Cost

Intervention Scope	Cost (£m)	Volume (No.)	Baseline	Option 1	Option 2	Unit Cost (£k)
3rd Party Diversion (18% NRSWA Discount)		2	✓	✓	✓	
Above Ground Crossing Refurbishment		8	✓	✓	Diversion	
AC Mitigation		20	-	✓	Diversion	
AC Monitoring		48	-	✓	✓	
Aerial Marker Post New Installation		950	✓	✓	✓	
Aerial Marker Post Replacement		160	✓	✓	✓	
Close Interval Potential Survey (CIPS)		34	✓	✓	✓	/km
Condition Based Repex Cut-Outs / Diversions		2	-	✓	✓	
CP Test Post New Installation		60	✓	✓	✓	
CP Test Post Refurbishment		80	✓	✓	✓	
CP Test Post Replacement		160	✓	✓	✓	
Current Attenuation Survey		133	✓	✓	✓	/km
Direct Current Voltage Gradient (DCVG)/Pearsons		27	✓	✓	✓	/km
Drainage		20	✓	✓	✓	
ES/94/01.1 - OLI1		12	✓	✓	✓	
ES/94/01.1 - OLI1 Pre Works		12	✓	✓	✓	
ES/94/02.1 - OLI4		156	✓	✓	✓	
ES/94/12 Pt1-Visual Examination PigTraps		47	✓	✓	✓	
ES/94/12 Pt2-Visual& Major Insp PigTraps		25	✓	✓	✓	
Fence New Installation		20	✓	✓	✓	
Groundbed New		20	✓	✓	✓	
Groundbed Replacement		35	✓	✓	✓	
Leakage Surveys		170	✓	✓	✓	/km
Logger Replacement		40	✓	✓	✓	
Marker Post New Installation		951	✓	✓	✓	
Marker Post Replacement		80	✓	✓	✓	
New Impact Protection Slabs		20	-	✓	✓	
OLI 1 Digs / Refurbishment		3	✓	✓	✓	
OLI 4 Digs / Refurbishment		167	✓	✓	✓	
Part replacement of pipeline due to reduced depth		2	-	✓	✓	
Pig Trap Refurbishment		20	✓	✓	✓	
Riverbed / Bank Refurbishment (+ Pipeline Works)		237	✓	✓	Diversion	
Route Walking		165	✓	✓	✓	/km
Scrub Clearance		174	✓	✓	✓	/km
Shallow Depth of Cover Remediation		99	-	✓	Diversion	
Sleeve Refurbishment		20	✓	✓	Diversion	
TR New Install		20	✓	✓	✓	
TR Replacement		60	✓	✓	✓	
Tree Clearance For Surveys		2,559	✓	✓	✓	
Underwater Crossing Survey (5+ Years)		693	✓	✓	✓	
Valve Chamber Lids		20	✓	✓	✓	
Valve Chamber Refurbishment		20	✓	✓	Replace	
Valve Chamber Replacement		20	✓	✓	✓	
Valve Refurbishment		60	✓	✓	Replace	
Valve Replacement		10	✓	✓	✓	
<b>Total</b>		<b>7,646</b>				