

Bells Island Regional Pipeline Upgrade Strategy



Public Consultation Document

November 2008

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1.0 Introduction

The Nelson Regional Sewerage Business Unit (NRSBU) is a joint committee of the Tasman District and Nelson City Councils and was instigated to look after the owner's (the two Council's) interests in the Regional Sewerage Scheme. It was set up as a business unit in October 2000 and previously operated as the Nelson Regional Sewerage Authority. A Memorandum of Understanding that was signed by the two Mayors and CEOs in December 2000 governs the operation of the NRSBU.

Area covered by the NRSBU

The NRSBU treats municipal wastes (mainly domestic sewage) from Nelson City, Stoke, Tahunanui, Richmond, Wakefield, Brightwater (the Waimea Basin) and Mapua as well as industrial wastewater from Alliance Nelson, ENZA Food, and Nelson Pine Industries. The Councils also have additional sewerage schemes and associated treatment and disposal schemes.

The existing issue

Sewage from the service area is treated at the Nelson Regional Sewerage Business Unit's Bells Island Treatment Plant and discharged into one of the main channels of the Waimea Estuary on the outgoing tide. In recent months the NRSBU has identified a critical issue with the sewer pipe for this treatment plant.

NRSBU's strategy for the regional pipeline upgrade is driven by two key concerns:

- The risk of a pipeline failure in the estuary between Monaco and Bells Island - identified as an extreme risk - that would necessitate repairs that could take a significant time to complete.
- The present pipeline to the Bells Island Wastewater Treatment Plant cannot handle present flows, let alone future higher flows. It is likely there will be an increasing frequency of overflow discharges to the Waimea Inlet during extreme wet weather.

Why consultation is necessary

In order to make the necessary upgrades to repair and/or upgrade the pipeline, the NRSBU is required to apply for resource consent and must, therefore, seek public consultation on its proposed plans.



The proposed strategy - suggested upgrade options

The NRSBU regional pipeline upgrade strategy is driven by two conditions:

- The risk of a pipeline failure in the estuary between Monaco and Bells Island has been identified as an extreme risk, for which repairs to the line could take a significant time to complete.
- The present pipe network to the Bells Island wastewater treatment plant does not have sufficient capacity for present flows, let alone future higher flows, leading to an increasing frequency of overflow discharges during extreme wet weather.

Upgrade strategy options have therefore focussed on addressing both conditions as a matter of urgency. Three fundamental upgrade concepts have first been identified. These have been labelled as Options A, B, and C, and are described as follows:

- A** New pipework continues to direct flows in an anticlockwise flow direction around the Waimea Inlet, as at present.
- B** New pipework reverses the present flow direction to a clockwise direction around the Waimea Inlet, allowing the existing estuary crossing from Monaco to Bells Island to ultimately be abandoned and avoiding other new significant estuary crossings.
- C** New pipework is designed to direct flows in both directions around the Waimea Inlet for maximum operational flexibility and more effective utilisation of existing assets.



Within each of these three fundamental concepts, three further sub-categories relating to the location of the pipelines within or beyond the estuary boundaries have been considered:

1. Pipeline routes that are kept completely out of the estuary, except for a short crossing from Bests Island to Bells Island at the present tidal road access causeway.
2. Pipeline routes that are land based as much as practicable, but which in places follow the estuary shoreline to reduce the length of pipeline needed and to reduce the cost of installation.
3. Pipeline routes that involve further estuary crossings to reduce pipeline lengths, reduce costs, reduce the likelihood of damage to the estuary, and to improve energy efficiency.

The evaluation of the different options must take into account four principle factors: cultural, social, environmental and economic. Cost

is only one consideration. For instance, the laying of wastewater pipelines in an estuarine environment, and even the siting of the present treatment plant within this environment is of concern to some people. Additionally, with increasing pressure on agricultural water supplies in the region, future longer term planning may well entertain the opportunity to ultimately relocate the present treatment plant inland, and productively apply the treated effluent to land.

The way in which different options provide for future growth is also important.

In addition to these considerations, the following principles have been identified as important to the evaluation of the various strategies:

1. Achieve maximum economic benefit from existing plant and infrastructure.
2. Continually review all viable means of reducing the carbon footprint.
3. Reduce the use of non-renewable energy and work towards optimising energy efficiency, including consideration of energy generation.
4. Encourage minimisation of waste streams – domestic and industrial.
5. Continue to investigate ways to minimise the cost of the treatment process to customers.
6. Consider options for alternative sites away from the coast in areas of future growth.
7. Continue to consider treatment at source in order to minimise energy costs and maximise reuse opportunities.
8. Consider international best practice and sustainability policies.

With the foregoing considerations and principles in mind, then, seven upgrade scenarios have been identified as a basis for consultation with the public and other special interest groups. There are many more variants to these options, but these seven are considered to best represent the range of scenarios that cover the cultural, social, environmental and economic considerations needing to be addressed.



The seven scenarios are generally described as follows:

Scenario A

Pipeline flows continue to run in an anti-clockwise direction as at present, with new duplicate pipeline installed across estuary from Monaco to Bells Island. Other new pipelines are land based where possible, but are laid along the estuary shoreline in places.

Scenario B-1

The existing estuary crossing is ultimately decommissioned, with all pipelines designed to now direct flow in a clockwise direction to Bells Island. All new pipelines are land based, except for the short estuary crossing from Best Island to Bells Island.

Scenario B-2

The existing estuary crossing is ultimately decommissioned, with all pipelines again designed to direct flow in a clockwise direction to Bells Island. New pipelines are land based where possible, but do in this case more generally follow the estuary shoreline to Bells Island to reduce pipeline lengths and associated costs.

Scenario C-1

Pipelines are designed to direct flows in two directions to Bells Island for greater operational flexibility. The duplicate pipeline is installed from Monaco to Bells Island for risk mitigation purposes, and to allow other construction work to be deferred. All other new pipelines are land based (except for the Best Island to Bells Island crossing).

Scenario C-2a

Pipelines are again designed to direct flows in two directions to the Bells Island treatment plant for greater operational flexibility. The duplicate pipeline is installed from Monaco to Bells Island for risk mitigation purposes, and to allow other construction work to be deferred. New pipelines are land based where possible, but more generally follow the estuary shoreline to Bells Island to reduce pipeline lengths and associated costs

Scenario C-2b

Similar to C-2a, pipelines are designed to direct flows in two directions to Bells Island for greater operational flexibility. The duplicate pipeline to Bells Island, however, is NOT installed, in favour of constructing the new clockwise direction pipework immediately. The existing estuary crossing to Bells Island is retained and rehabilitated once the new pipelines are installed. New pipelines



are land based where possible, but more generally follow the estuary shoreline to Bells Island as before.

Scenario C-3a

Pipelines are again designed to direct flows in two directions to Bells Island for greater operational flexibility. The duplicate pipeline is installed from Monaco to Bells Island as an integral part of the pipeline strategy, whilst at the same time providing for risk mitigation purposes, and to allow other construction work to be deferred. The new clockwise directed pipeline is laid directly across the estuary from Headingly Lane to Saxtons Island, to join up with the duplicate pipeline.

Scenario C-3b

Similar to Scenario C-3a, pipelines are designed to direct flows in two directions to Bells Island for greater operational flexibility and would mitigate the risk of failure to the existing single pipeline. For Scenario C-3b a new pipeline would follow the estuary shoreline to Headingly Lane and then directly across the estuary to Bells Island to provide an alternative to the route across Saxton Island identified for Scenario C-3a.

The following attachments to this Summary Paper provide background information to the seven scenarios as follows:

Attachment A – This provides a detailed breakdown of the cost estimates, identifying construction timing for rating assessment purposes

Attachment B – This provides an overall summary of the cost estimates, including operational costs.

Attachment C – This provides key comments on each scenario.

Attachment D – This provides individual plans of each scenario.

Duffill Watts Ltd, 26 November 2008

Enclosures:

Attachment A – Detailed Breakdown of Cost Estimates
Identifying Construction Timing for Rating Assessment Purposes

Attachment B – Summary of Cost Estimates

Attachment C – Key Comments on Each Scenario

Attachment D – Plans of each Scenario (may be forwarded under separate cover)

Attachment A

Detailed Breakdown of Cost Estimates Identifying Construction Timing for Rating Assessment Purposes

Scenario		Physical Work Stages	Year Required	Estimated Capital Cost (\$M)	NPV Capital Cost (\$M)
Scenario A	1	Monaco to Bells Island - duplication pipeline (704 ID)	1	9.7	9.1
	2	Emergency power generation (Beach, Saxton, Airport pump stations) (Provisional Allowance)	1	0.9	0.8
	3	Install a new additional storm pump in Saxton pump station	1	1.5	1.4
	4	Install a new additional storm pump in Beach Road pump station	1	1.6	1.5
	5	Inspect and repair joints on the existing 600 ID concrete pipeline - Monaco to Bells Island (Provisional)	1	0.8	0.7
	6	New Songer St pump station (inject into pipeline) plus emergency power generation	8	3.2	1.9
	7	Upgrade Saxton P S to full AMP capacity	8	2.1	1.2
	8	Upgrade Beach Road pump station to full AMP capacity	8	1.5	0.9
	9	Songer Street to Monaco pipeline duplication (704 ID) substantially following the shoreline.	8	6.8	4.0
	10	Saxton Road pump station to Songer Street pump station pipeline duplication (704 ID) substantially following the shoreline.	8	6.4	3.7
	11	Beach Road to Saxton pump station pipeline duplication - 493ID substantially following the shoreline	8	6.4	3.7
	12	Provision for emergency storage at Beach Road and Saxton Road pump stations	8	3.8	2.2
	13	Rehabilitate (slip-line) existing 600mm dia concrete pipe if required	20	1.2	0.3
		Total	0	\$45.9M	\$31.4M

Scenario		Physical Work Stages	Year Required	Estimated Capital Cost (\$M)	NPV Capital Cost (\$M)
Scenario B-1	1	Emergency power generation (Beach, Saxton, Airport pump stations) (Provisional Allowance)	1	0.9	0.8
	2	Install a new additional storm pump in Saxton pump station and replace existing storm pump	1	2.0	1.9
	3	Construct 880 ID pipeline from Beach Road Pump Station to new "Tasman" Pump Station	1	21.4	20.0
	4	Construct 880 ID pipeline from new "Tasman" Pump Station to Bells Island Treatment Plant via causeway crossing to Bells Island	1	15.9	14.9
	5	Upgrade Beach Road pump station	1	4.2	3.9
	6	Construct new "Tasman" Pump Station	1	5.5	5.1
	7	Construct 395 ID duplicate pipeline from Saxton Pump Station to Beach Road Pump Station including redirection of pipework	45-50	(Not incl.)	(Not incl.)
		Total		\$49.9M	\$46.6M
Scenario B-2	1	Emergency power generation (Beach, Saxton, Airport pump stations) (Provisional Allowance)	1	0.9	0.8
	2	Install a new additional storm pump in Saxton pump station and replace existing pump station	1	2.0	1.9
	3	Construct 880 ID pipeline from Beach Road Pump Station to new "Queen Street" Pump Station, generally via shoreline, past NP1 to Lower Queen Street	1	9.6	9.0
	4	Construct 880 ID pipeline from new "Queen Street" Pump Station to Bells Island Treatment Plant, generally via shoreline, and estuary crossing off end of Landsdowne Road	1	12.9	12.1
	5	Upgrade Beach Road pump station	1	4.2	3.9
	6	Construct new Queen Street Pump Station	1	5.5	5.1
	7	Construct 395 ID duplicate pipeline from Saxton Pump Station to Beach Road Pump Station including redirection of pipework	45-50	(Not incl.)	(Not incl.)
		Total		\$35.1M	\$32.8M

Scenario		Physical Work Stages	Year Required	Estimated Capital Cost (\$M)	NPV Capital Cost (\$M)
Scenario C-1	1	Monaco to Bells Island - duplication pipeline (704 ID)	1	9.7	9.1
	2	Emergency power generation (Beach, Saxton, Airport pump stations)	1	0.9	0.8
	3	Install a new additional storm pump station in Saxton pump station	1	1.2	1.1
	4	Install a new additional storm pump in Beach Road pump station	1	1.6	1.5
	5	Inspect and repair joints on the existing 600 ID concrete pipeline - Monaco to Bells Island (Provisional)	1	0.8	0.7
	6	New Songer St pump station - (Inject into pipeline). Including emergency power generation	8	3.2	1.9
	7	Construct 704 ID rising main from the Beach Road PS to Bells Island via western route.	8	25.9	15.1
	8	Construct Tasman pump station and upgrade the Beach Road pump station	8	8.1	4.7
	9	Rehabilitate (slip-line) existing 600mm dia concrete pipe	20	1.2	0.3
		Total		\$52.6M	\$35.2M
Scenario C-2a	1	Monaco to Bells Island - duplication pipeline (704 ID)	1	9.7	9.1
	2	Emergency power generation (Beach, Saxton, Airport pump stations)	1	0.9	0.8
	3	Install a new additional storm pump station in Saxton pump station	1	1.2	1.1
	4	Install a new additional storm pump in Beach Road pump station	1	1.6	1.5
	5	Inspect and repair joints on the existing 600 ID concrete pipeline - Monaco to Bells Island (Provisional)	1	0.8	0.7
	6	New Songer St pump station - (Inject into pipeline). Including emergency power generation	8	3.2	1.9
	7	Construct 704 ID rising main from the Beach Road PS to Bells Island via coastal shoreline route.	8	15.7	9.1
	8	Construct Lower Queen Street pump station and upgrade the Beach Road pump station	8	8.1	4.7
	9	Rehabilitate (slip-line) existing 600mm dia concrete pipe	20	1.2	0.3
		Total		\$42.4M	\$29.2M

Scenario		Physical Work Stages	Year Required	Estimated Capital Cost (\$M)	NPV Capital Cost (\$M)
Scenario C-2b	1	Emergency power generation (Beach, Saxton, Airport pump stations)	1	0.9	0.8
	2	Install a new additional storm pump station in Saxton pump station	1	1.2	1.1
	3	Install a new additional storm pump in Beach Road pump station	1	1.6	1.5
	4	Inspect and repair joints on the existing 600 ID concrete pipeline - Monaco to Bells Island (Provisional)	2	0.8	0.7
	5	New Songer St pump station - (Inject into pipeline). Including emergency power generation	1	3.2	3.0
	6	Construct 704 ID rising main from the Beach Road PS to Bells Island via coastal shoreline route.	1	15.7	14.7
	7	Construct lower Queen Street pump station and upgrade the Beach Road pump station	1	8.1	7.6
	8	Rehabilitate (slip-line) existing 600mm dia concrete pipe – if required	20	1.2	0.3
		Total		\$32.7M	\$29.7M
Scenario C-3a	1	Monaco to Bells Island - duplication pipeline (704 ID)	1	9.7	9.1
	2	Emergency power generation (Beach, Saxton, Airport pump stations)	1	0.9	0.8
	3	Install a new additional storm pump station in Saxton pump station	1	1.2	1.1
	4	Install a new additional storm pump in Beach Road pump station	1	1.6	1.5
	5	Inspect and repair joints on the existing 600 ID concrete pipeline - Monaco to Bells Island (Provisional)	1	0.8	0.7
	6	New Songer St pump station - (Inject into pipeline). Including emergency power generation	8	3.2	1.9
	7	Construct 704 ID rising main from the Beach Road PS to Bells Island via Saxton Island.	8	11.2	6.5
	8	Rehabilitate (slip-line) existing 600mm dia concrete pipe	20	1.2	0.3
		Total		\$29.8M	\$21.9M

Scenario		Physical Work Stages	Year Required	Estimated Capital Cost (\$M)	NPV Capital Cost (\$M)
Scenario C-3b	1	Emergency power generation (Beach, Saxton, Airport pump stations)	1	0.9	0.8
	2	Install a new additional storm pump station in Saxton pump station	1	1.0	0.9
	3	Install a new additional storm pump in Beach Road pump station	1	1.6	1.5
	4	Install 900mmDN (810mmID) pipeline from Beach Rd to Bells Island - along shoreline to Heddingly lane and then direct to Bells Island	1	16.1	15.0
	5	Inspect and repair joints on the existing 600 ID concrete pipeline - Monaco to Bells Island (Provisional)	2	0.8	0.7
	6	New Songer St pump station -(Inject into pipeline) including emergency generator	8	3.2	1.9
	7	Rehabilitate (Slip line) existing 600mm dia concrete pipe	20	1.2	0.3
		Total		\$24.8M	\$21.1M



Attachment B

Summary of Cost Estimates

Scenario	Capital Cost	NPV Capital Cost (\$M)	Annual O & M Capital Cost (\$M)	NPV Capital Plus O & M (\$M)
A	45.9	31.4	0.43	36.4
B-1	49.9	46.6	0.52	52.7
B-2	35.1	32.8	0.52	38.9
C-1	52.6	35.2	0.52	41.3
C-2a	42.4	29.2	0.52	35.3
C-2b	32.7	29.7	0.52	35.8
C-3a	29.8	21.9	0.43	26.9
C-3b	24.8	21.1	0.43	26.1



Attachment C

Key Comments on Each Scenario

Scenario	A
Summary Description	Pipeline flows continue to run in an anti-clockwise direction as at present, with new duplicate pipeline installed across estuary from Monaco to Bells Island. Other new pipelines are land based where possible, but are laid along the estuary shoreline in places.
Comments (A)	<ul style="list-style-type: none"> • Avoids further estuary crossings once the duplicate pipeline is installed. • Flows are all taken in the one direction, therefore there is little flexibility and redundancy for ongoing operations and maintenance. • Not well suited to longer term growth in the Tasman District. • Not well suited to a potential future move towards new treatment facility in Tasman District with land based effluent re-use away from coastal waters.
Scenario	B-1
Summary Description	Existing estuary crossing is ultimately decommissioned, with all pipelines designed to now direct flow in a clockwise direction to Bells Island. All new pipelines are land based, except for the short estuary crossing from Best Island to Bells Island.
Comments	<ul style="list-style-type: none"> • Most expensive option. • Provides for ultimate decommissioning of the existing estuary crossing to Bells Island. • Keeps pipelines away from the estuary to the maximum possible extent. • All flows are taken in one direction, therefore there is little flexibility and redundancy for ongoing operations and maintenance. • Well suited to a potential future move towards a new treatment facility in Tasman District with land based effluent re-use away from coastal waters.
Scenario	B-2
Summary Description	Existing estuary crossing is ultimately decommissioned, with all pipelines designed to now direct flow in a clockwise direction to Bells Island. New pipelines are land based where possible, but more generally follow the estuary shoreline to Bells Island.
Comments	<ul style="list-style-type: none"> • Provides for ultimate decommissioning of the existing estuary crossing to Bells Island. • Avoids further estuary crossings (except Best Island to Bells Island), although some pipelines follow the estuary shoreline to reduce pipeline lengths and costs. • All flows are taken in one direction, therefore there is little flexibility and redundancy for ongoing operations and maintenance. • Slightly less suited than B-1 to a potential future move towards a new treatment facility in Tasman District with land based effluent re-use away from coastal waters.

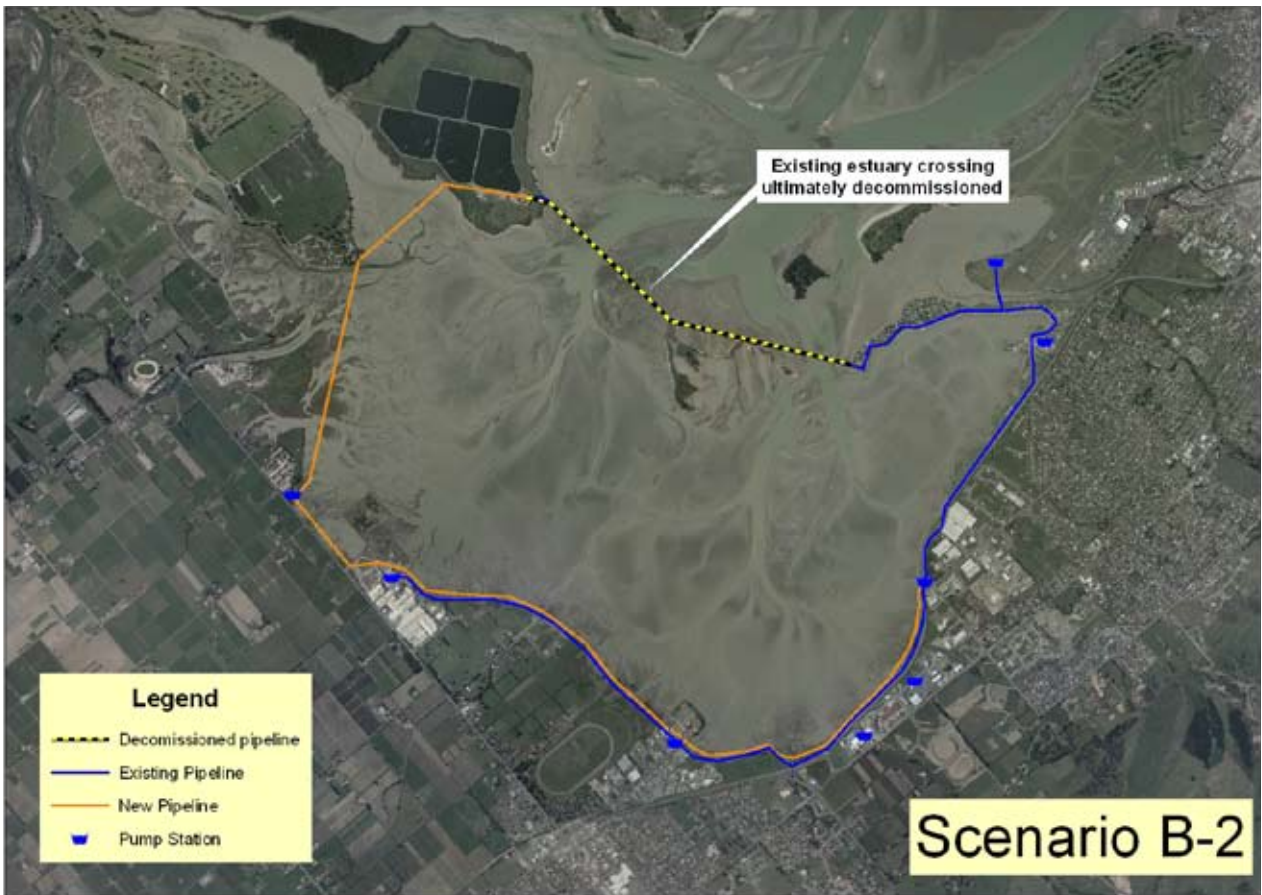
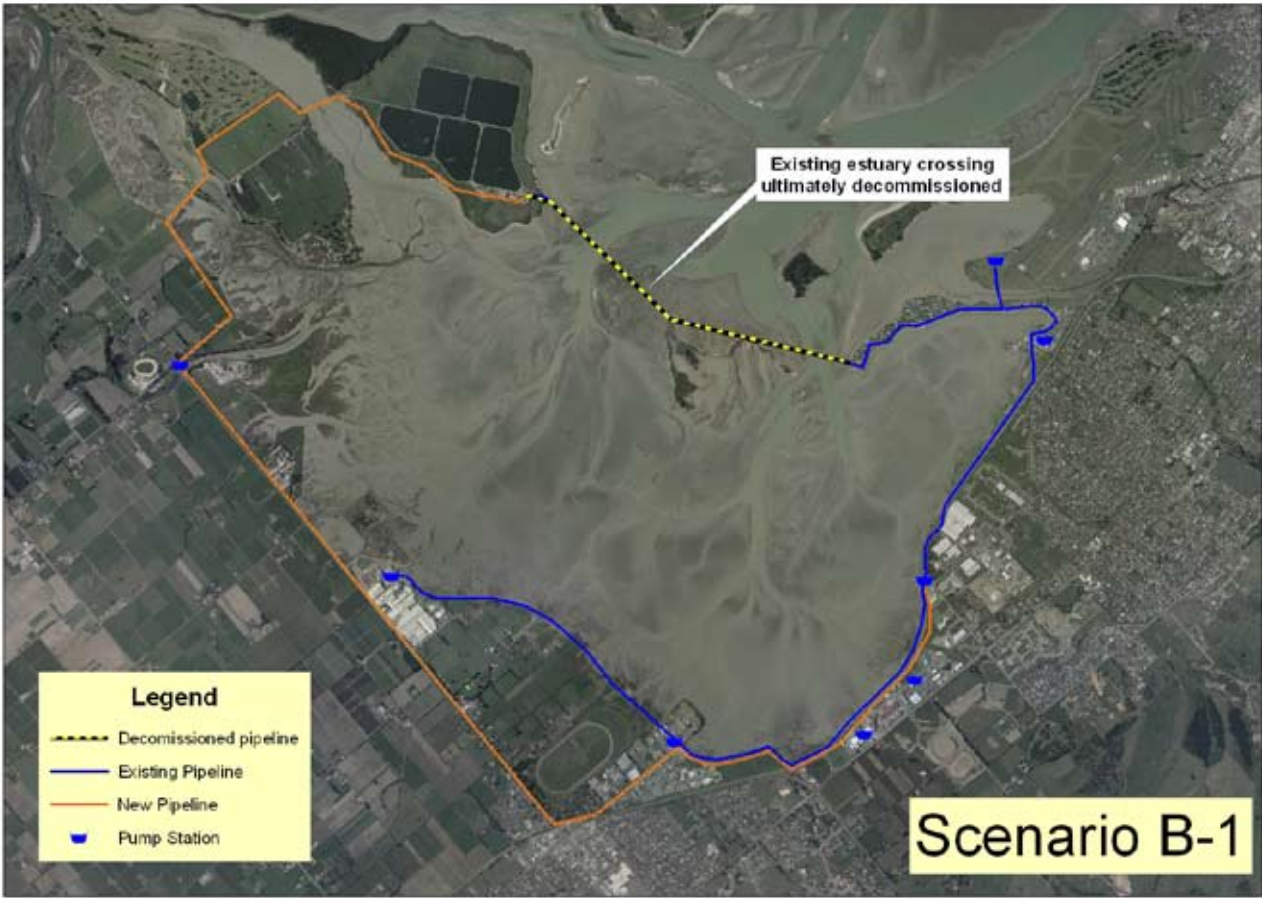
Scenario	C-1
Summary Description	Pipelines are designed to direct flows in two directions to Bells Island for greater operational flexibility. The duplicate pipeline is installed from Monaco to Bells Island, for risk mitigation purposes, and to allow other construction work to be deferred. All other new pipelines are land based (except for the Best Island to Bells Island crossing).
Comments	<ul style="list-style-type: none"> • Avoids further estuary crossings once the duplicate pipeline is installed (except for the Best Island to Bells Island crossing).
	<ul style="list-style-type: none"> • Provides good flexibility and redundancy for ongoing operations and maintenance by allowing the direction of flows in two directions, according to circumstances.
	<ul style="list-style-type: none"> • Well suited to longer term growth in the Tasman District.
	<ul style="list-style-type: none"> • Well suited to a potential future move towards a new treatment facility in Tasman District with land based effluent re-use away from coastal waters.
Scenario	C-2a
Summary Description	Pipelines are designed to direct flows in two directions to Bells Island for greater operational flexibility. The duplicate pipeline is installed from Monaco to Bells Island for risk mitigation purposes, and to allow other construction work to be deferred. New pipelines are land based where possible, but more generally follow the estuary shoreline to Bells Island.
Comments	<ul style="list-style-type: none"> • Avoids further estuary crossings once the duplicate pipeline is laid (except for the Best Island to Bells Island section).
	<ul style="list-style-type: none"> • Some pipelines follow the estuary shoreline to reduce pipeline lengths and costs.
	<ul style="list-style-type: none"> • Provides good flexibility and redundancy for ongoing operations and maintenance by allowing the direction of flows in two directions, according to circumstances.
	<ul style="list-style-type: none"> • Well suited to longer term growth in the Tasman District.
	<ul style="list-style-type: none"> • Slightly less suited than C-1 to a potential future move towards a new treatment facility in Tasman District with land based effluent re-use away from coastal waters.
Scenario	C-2b
Summary Description	Pipelines are designed to direct flows in two directions to Bells Island for greater operational flexibility. The duplicate pipeline to Bells Island is NOT installed, in favour of constructing the new clockwise direction pipework immediately. The existing estuary crossing to Bells Island is retained and rehabilitated once the new pipelines are installed. New pipelines are land based where possible, but more generally follow the estuary shoreline to Bells Island.
Comments	<ul style="list-style-type: none"> • Avoids further estuary crossings (except for the Best Island to Bells Island section).
	<ul style="list-style-type: none"> • The decision to not install the duplicate pipeline to Bells Island means that the risk of the existing pipeline failing continues for a longer period, while the new pipelines are constructed.
	<ul style="list-style-type: none"> • Some pipelines follow the estuary shoreline to reduce pipeline lengths and costs.
	<ul style="list-style-type: none"> • Provides reasonable flexibility and redundancy for ongoing operations and maintenance but less so than for Option C-2a.
	<ul style="list-style-type: none"> • Well suited to longer term growth in the Tasman District.
	<ul style="list-style-type: none"> • Slightly less suited than C-1 to a potential future move towards a new treatment facility in Tasman District with land based effluent re-use away from coastal waters.

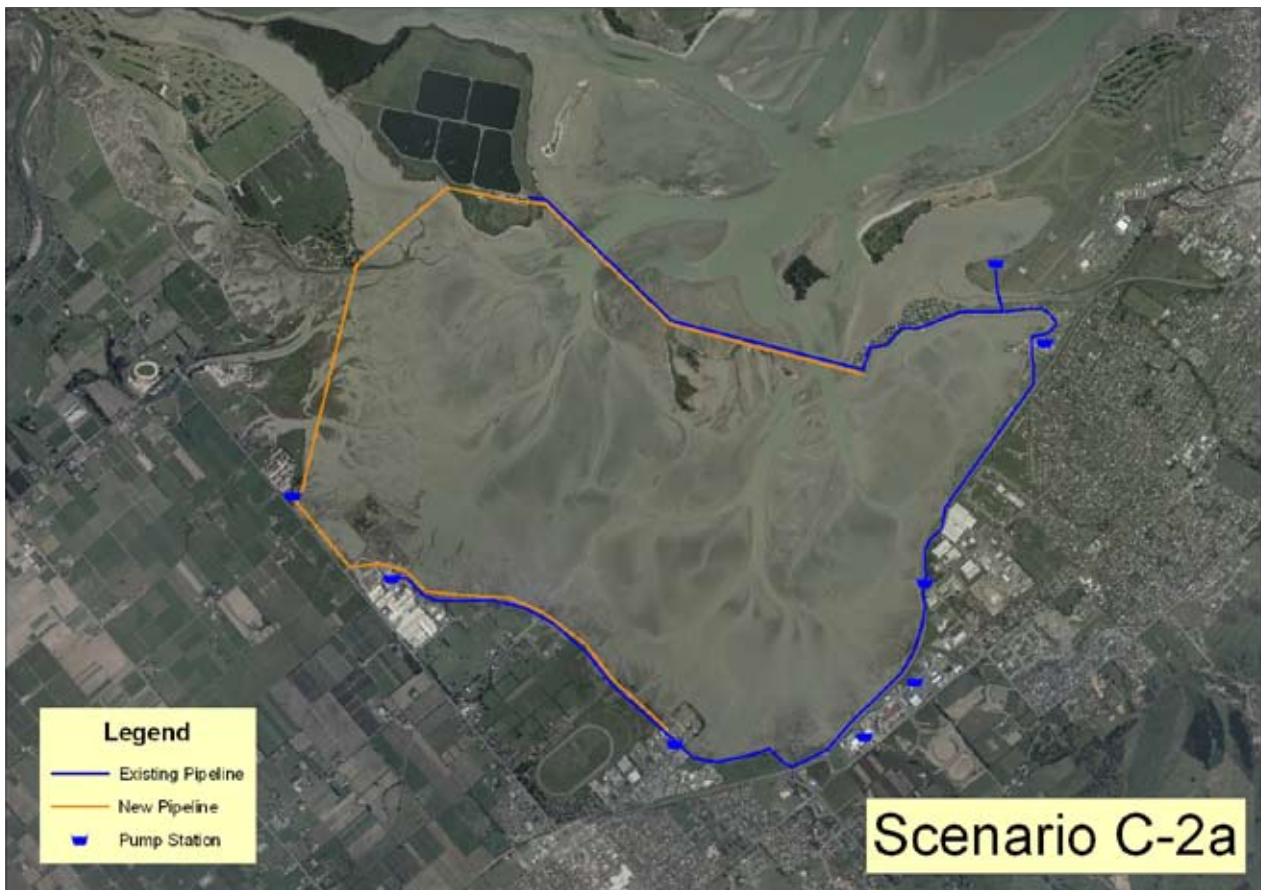
Scenario	C-3a
Summary Description	Pipelines are designed to direct flows in two directions to Bells Island for greater operational flexibility. The duplicate pipeline is installed from Monaco to Bells Island as an integral part of the pipeline strategy, whilst at the same time providing for risk mitigation purposes, and to allow other construction work to be deferred. The new clockwise directed pipeline is laid directly across the estuary from Headingly Lane to Saxtons Island, to join up with the duplicate pipeline.
Comments	<ul style="list-style-type: none"> • Lower cost scenario. • Involves a further significant estuary crossing. • Provides good flexibility and redundancy for ongoing operations and maintenance by allowing the direction of flows in two directions, according to circumstances. • Slightly less suited than the other 'C' options to longer term growth in the Tasman District. • Slightly less suited than C-1 to a potential future move towards a new treatment facility in Tasman District with land based effluent re-use away from coastal waters.
Scenario	C-3b
Summary Description	Pipelines are designed to direct flows in two directions to Bells Island for greater operational flexibility and would mitigate the risk of failure to the existing single pipeline. The new pipeline would follow the estuary shoreline to Headingly Lane and then directly across the estuary to Bells Island to provide an alternative route.
Comments	<ul style="list-style-type: none"> • Lowest cost scenario. • Involves a significant estuary crossing. • The decision to not install the duplicate pipeline to Bells Island means that the risk of the existing pipeline failing continues for a longer period, while the new pipelines are constructed. • Avoids Saxton Island and associated archaeological issues. • Provides reasonable flexibility and redundancy for ongoing operations and maintenance but less so than for Option C-3a. • Slightly less suited than the other 'C' options to longer term growth in the Tasman District. • Slightly less suited than C-1 to a potential future move towards a new treatment facility in Tasman District with land based effluent re-use away from coastal waters.

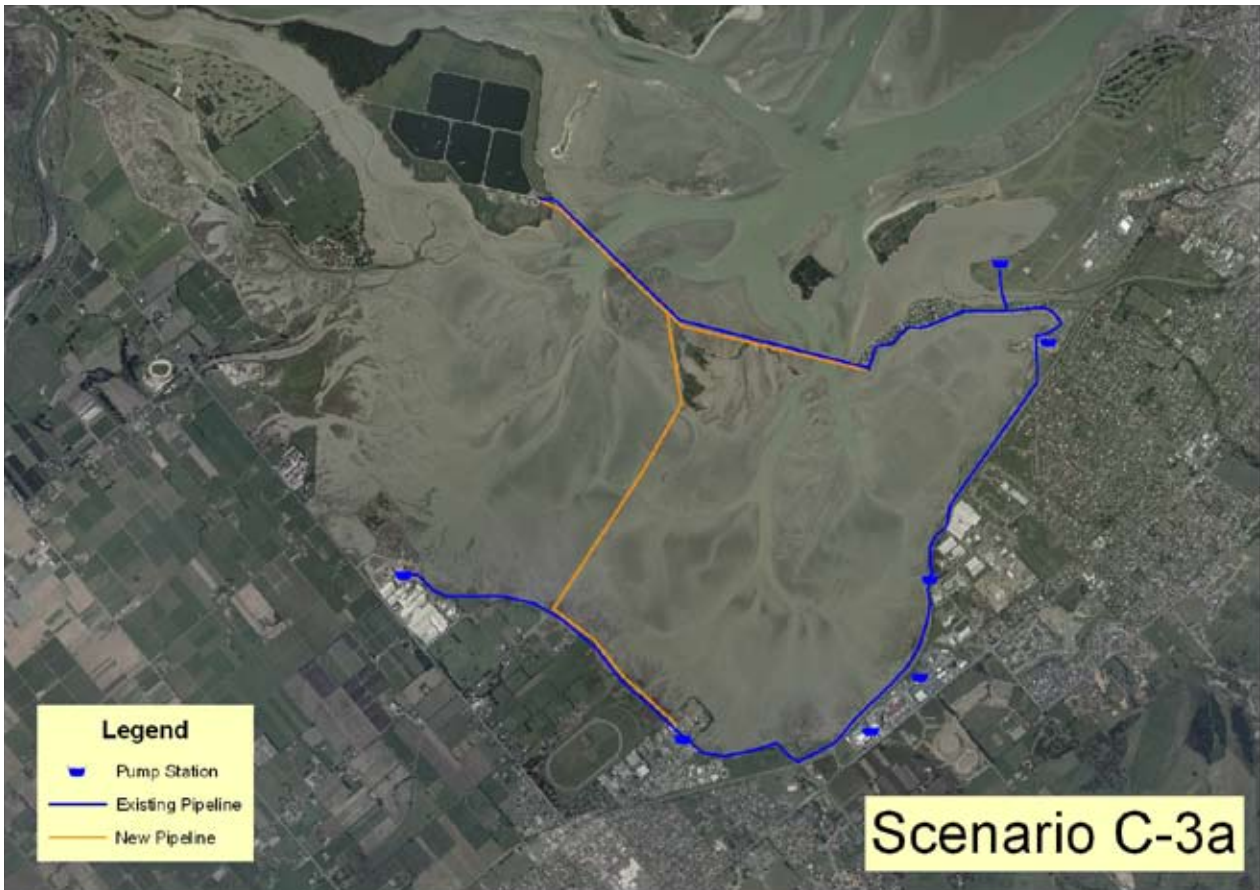
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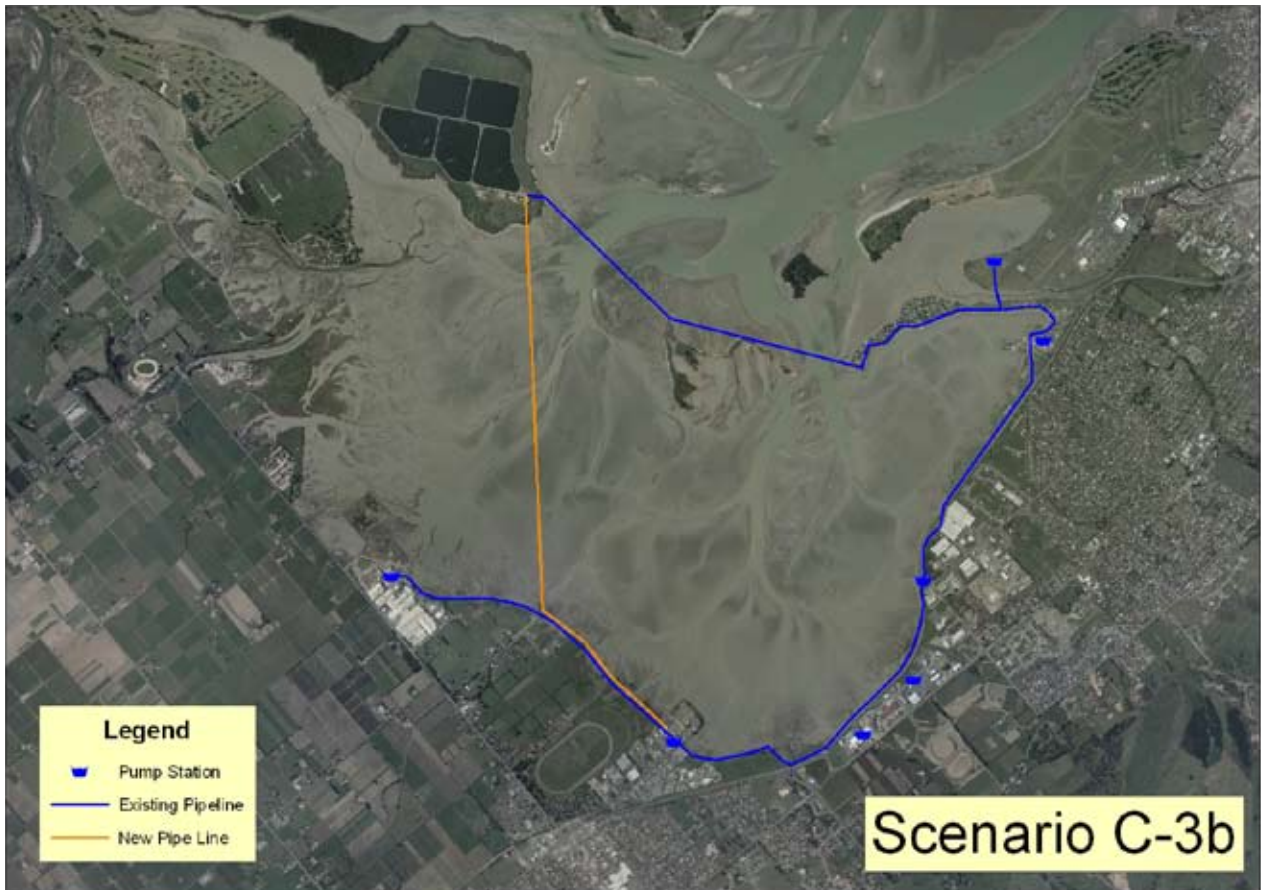
Plans of each Scenario











Please cut form from Strategy prior to submitting it. Thank you.

Bells Island Pipeline Upgrade Submission form

The NRSBU pipeline upgrade strategy is open to the Nelson Tasman region for public consultation. Submissions are welcome through to Friday 27 February 2009. Please send your submission to: Bells Island Pipeline Upgrade Consultation, Nelson City Council, Freepost 76919, PO Box 645, Nelson 7040.

Name _____ Organisation represented (if any) _____

Address _____ Phone _____ Email _____

Hearings will be held for submitters who wish to speak in support of their submission (the Hearing date is yet to be determined).

Do you wish to speak at the hearing? Yes No *If you do not tick either, we assume you do not wish to be heard.*

Public information statement: Submissions to NRSBU consultations are public information. Your submission will be included in reports, which are available to the public and the media.

The consultation proposals for a pipeline upgrade are driven by the high risk of pipeline failure and capacity problems, now and in the future. The eight development options have been proposed guided by environmental, economic, social and cultural concerns in mind. How should these concerns be balanced? Is the cost of the upgrade more important than environmental concerns? How much should the development consider future needs? Should all concerns be equally weighted?

Please indicate on the following scales how important you consider the environmental, economic, social and cultural concerns are, particularly in relation to each other.

1. **Environment** (the need to contain spills into the estuary and outlying area, carbon footprint is reduced, lessen non-renewable energy use)

1 2 3 4 5 6
Not at all important Neutral Extremely important Don't know

Comments _____

2. **Economic** (minimise costs of pipeline development, costs of ongoing treatment, treatment at source to minimise costs)

1 2 3 4 5 6
Not at all important Neutral Extremely important Don't know

Comments _____

3. **Social** (encourage minimising waste streams from community and business, consider other sites away from coast to manage future growth)

1 2 3 4 5 6
Not at all important Neutral Extremely important Don't know

Comments _____

4. **Cultural** (pipeline placement and operation is sensitive to iwi needs)

1 2 3 4 5 6
Not at all important *Neutral* *Extremely important* *Don't know*

Comments _____

5. Thinking about your ratings in questions 1-4, which option do you think best deliver your preferences (please tick just one)

Option A Option B1 Option B2 Option C1 Option C2A Option C2B Option C3A
 Option C3B None of the above options

Comments _____

6. Which option would you rate as second best (please tick just one)

Option A Option B1 Option B2 Option C1 Option C2A Option C2B Option C3A
 Option C3B None of the above options

Comments _____

7. Please tick any options you consider would be UNacceptable

Option A Option B1 Option B2 Option C1 Option C2A Option C2B Option C3A
 Option C3B None of the above options

Comments _____

8. Are there any other areas you feel the strategy should consider, or that need to be further developed? _____

9. Other comments - please make any further comments on the strategy. _____

 Please attach additional sheets if needed

Please tell us about yourself. It would be helpful if you could fill out the following panel. The information is used by Council to improve consultation methods. This is voluntary and is not used for any purpose other than this consultation.

10. Gender Female Male
 11. Your location? Nelson North Nelson Central Nelson South Tahuna Stoke Richmond
 Waimea Plains Motueka Golden Bay
 Other, please specify _____

12. Age Under 20 Between 20 - 39 Between 40 - 59 Over 60

14. Are you a first time submitter? Yes No

THANK YOU FOR YOUR COMMENTS