

**BEFORE THE TASMAN DISTRICT COUNCIL**

**Under** the Resource Management Act 1991

**In the matter of** of an application by **THE NELSON REGIONAL SEWERAGE BUSINESS UNIT** for the resource consents to continue applying biosolids to land on Moturoa/Rabbit Island.

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**STATEMENT OF EVIDENCE OF HAROLD NATHAN CLARKE  
FOR THE NELSON REGIONAL SEWERAGE BUSINESS UNIT**

**11 MAY 2022**

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## STATEMENT OF EVIDENCE OF HAROLD NATHAN CLARKE

### Introduction

- 1 My full name is Harold Nathan Clarke. I am the General Manager (**GM**) of the Nelson Regional Sewerage Business Unit (the **NRSBU**), which has applied to Tasman District Council for various resource consents connected to the application of biosolids to land at Moturoa/Rabbit Island. I am authorised to provide this statement of evidence on behalf of NRSBU.
- 2 I have a degree in Environmental Engineering, am a member of Engineering NZ, and have 25 years' experience in wastewater and biosolids engineering, having worked in NZ and internationally on wastewater, biosolids, and organic waste to energy projects.
- 3 I have been GM of NRSBU since March 2020.
- 4 Between July 2018 and March 2020, I was employed by Beca Ltd as a principal wastewater engineer for New Zealand, and during this time I was seconded to the Nelson City Council to act as Operations Manager for NRSBU.
- 5 I have further experience with the NRSBU as the Operations Manager for the operations and maintenance contractor operating the Bell Island wastewater treatment plant (WWTP) between 2001 and 2012. During this time, I was responsible for the staff undertaking the day-to-day operations of the Bell Island WTP.
- 6 My experience with the NRSBU also includes being responsible for designing and constructing two significant upgrades for the Bell Island WWTP, in 2003 and 2010, and I designed and wrote the tradewaste charging formula that is used by the NRSBU in its management of the wider Nelson Regional Sewerage Scheme (**NRSS**).
- 7 My involvement in this project, and my role as GM more broadly, includes a responsibility to ensure that NRSBU has appropriately skilled and experienced advisors, and has sufficient capacity and funding to ensure that the NRSBU's statutory obligations are met - aligned with the NRSBU strategic goals as set out at 2.2 of the Assessment of Environmental Effects (**AEE**).
- 8 While I am a technical expert in wastewater and biosolids treatment, I have remained at a management level in this application process and have used my knowledge to engage technical experts on behalf of NRSBU to provide detailed assessments of the potential impacts from the BAF and biosolids operation. My knowledge has enabled me to test conclusions and vet alternative process and disposal methods with an understanding of the technical detail. I believe this approach has been of benefit to the project.
- 9 During my tenure as GM, I have been involved in attending a series of meetings with Iwi including commencing the NRSBU annual hui process. I have also met with a range of stakeholders. The annual hui (a product of the Bell Island WWTP resource consent conditions)

has provided me with an opportunity to hear first-hand the key concerns of submitters on this application. The meetings were cordial and positive although the parties have not always been able to reach agreement on issues.

- 10 I take my role as GM and spokesperson for NRSBU very seriously. I want to make sure that NRSBU is taking the right steps to be a reasonable and responsible neighbour and I consider communication with those who are impacted by NRSBU operations as crucial to enable NRSBU to better manage its impact.
- 11 A key aspect of my role with NRSBU is to ensure that the regionally significant wastewater assets and facilities deliver the required wastewater treatment and disposal services for the community in a way that remedies or mitigates potential adverse effects on the environmental, including cultural impacts and to deliver these outcomes in a cost-effective manner. It is also my responsibility to ensure that the NRSBU has a clear view to the future and to take steps to ensure that the vision has been appropriately tested and socialised, and to ensure that the NRSBU has the funding in place to implement and maintain the assets required by that vision.
- 12 A key aspect of the NRSBU vision as stated in the NRSBU Asset Management and the series of Business Plans is a desire to work toward beneficial reuse of resources including wastewater and biosolids.
- 13 I was born and raised in Nelson and have an affinity with and frequent the Waimea Estuary and Moturoa/Rabbit Island for recreational purposes.
- 14 While this is a Council-level hearing, I acknowledge that I have read and am familiar with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014, and that I agree to comply with it. I confirm that this evidence is within my area of expertise, except where I state that this evidence is given in reliance on another person's evidence. I have considered all material facts that are known to me that might alter or detract from the opinions I express in this evidence.

### **Scope of Evidence**

- 15 In my evidence I will outline the following:
  - 15.1 Explain the structure and functions of the NRSBU;
  - 15.2 Implications of the Three Waters reforms;
  - 15.3 Level of investment at the Bell Island WWTP and (Moturoa/Rabbit Island Biosolids Application Facility) (BAF) sites;
  - 15.4 Future works proposed at the Bell Island WWTP and the BAF;
  - 15.5 Overview of the biosolids treatment and application to land;

- 15.6 Complaint response protocol;
- 15.7 Access to Moturoa/Rabbit Island;
- 15.8 Climate change considerations;
- 15.9 The NRSBU 50-year strategic plan;
- 15.10 Response to the Officer's report, including comment on regional growth and demand; and
- 15.11 Response to some of the issues raised in submissions.

### **The Nelson Regional Sewerage Business Unit**

- 16 The NRSBU is managed by a joint committee comprising representatives of the Tasman District Council and the Nelson City Council (the **Councils**), an independent member, a committee member representing the three major industrial customers and an iwi representative
- 17 The NRSBU oversees the operation of the **NRSS**, which is collectively owned by the two Councils.
- 18 The NRSS treats municipal wastes (mainly domestic sewage) from Nelson City - Stoke, Tahunanui and the Tasman District - Richmond, Wakefield, Brightwater (the Waimea Basin) and Mapua. The WWTP also receives industrial wastewater from Alliance Nelson, and Nelson Pine Industries. Until the end of 2021 NRSBU also received waste from Turners and Growers. I will discuss the trade waste arrangements later in my evidence.
- 19 The structure of the NRSBU (at March 2022) is set out in **Attachment A** subject to one correction. The role of iwi advisor has been vacant for some time. The previous iwi advisor Mr Hippolite relocated from the Nelson Tasman Region during 2021 and subsequently resigned from his role on the NRSBU board. The role is currently vacant awaiting a representative to be nominated by Te Tau Ihu Iwi.
- 20 NRSBU is the successor to the Nelson Regional Sewerage Authority which was established in the 1970's. NRSBU was established as a business unit in October 2000.
- 21 The NRSBU operates under a cascade of key documents:
  - 21.1 The Governance Charter – which describes roles, responsibilities and expected behaviours of the NRSBU Board;
  - 21.2 The Memorandum of Understanding (**MOU**) between the two Councils – which prescribes the NRSBU role and the scope of its delegated authority. The MOU also sets out the required Plans:
    - 21.2.1 Strategic Plan;

21.2.2 Asset Management Plan; and

21.2.3 Annual Business Plan.

21.3 In recent years the Strategic Plan has been included into the Annual Business Plan. Copies of the MOU and the 2022 – 2023 Annual Business Plan are included as **Attachments B and C** respectively.

- 22 The Asset Management Plan is a management tool that guides and influences decision-making. The purpose of the Asset Management Plan is to co-ordinate NRSBU's long term management approach (ten year forward view) for the provision and maintenance of the NRSS, including agreed levels of service, anticipated future demand, risk management, lifecycle management and financial requirements.
- 23 The two Councils rely upon the approved Asset Management Plan to inform their own Long-Term Plans. Any departures from the Asset Management Plan therefore require significant consideration by both Councils. This means that the NRSBU has difficulty being nimble and cannot react rapidly to new information or new situations. To partly mitigate this, a miscellaneous budget is included in the renewals section of the Business Plan (that may be used at the discretion of the General Manager).
- 24 The Business Plan is prepared annually and outlines the projects and initiatives to be implemented during the year. It also outlines the associated funding required and the details of the performance targets and measures. The Business Plan is aligned with the Asset Management Plan as referred to above.
- 25 My role as GM is to report to the Board; and to be responsible for the day-to-day compliance with the MOU. My interactions with the Board are mostly at the quarterly meetings. For each meeting I prepare a report on the past 3 months' performance and make recommendations as appropriate. The Board gives approvals and instructions by way of resolutions at these meetings. The Board obtains funding from the Councils, so financial approvals of deviations from the approved Plans require the further approval of both Councils. There is therefore a time lag as a consequence of this approval procedure.
- 26 The NRSBU has contracted Nelson Marlborough Wastes Ltd (**NMW**) to provide Operations and Maintenance Services for the BAF and associated biosolids disposal activity, including management and after-hours response. The NMW current contract commenced in 2021 for a 5 year term. The NMW contract is managed by the NRSBU Operations Manager, currently Brad Nixon, who reports to the GM, who in turn reports to the Board. The Operations Manager meets monthly with the NMW manager, the forestry manager (PF Olsen), and the Bell Island WWTP operations management staff to review performance of the BAF/ biosolids operations and to discuss the interactions between the Bell Island WWTP and the BAF. The NRSBU Operations Manager is also responsible for assessing compliance against the terms of the NMW contract,

which includes compliance with the conditions of the resource consent and associated monitoring and reporting. The GM has the remit to make recommendations for system and operations improvements to the Board. The Board and then the owners (the two Councils) make the decision about adopting any recommendations. In my role I have been delegated the authority to approve expenditure to a defined limit; above that amount I must seek further approval. The GM can only approve expenditure for items that have been pre-approved in the annual Business Plan.

26.1 As an example, the Business Plan contains a Capital Expenditure budget that is presented as a table of line items with funds allocated to each item. The Board (and later Councils) approve the Business Plan with these broad categories, which are structured in this way to provide some flexibility to the GM.

### **Three Waters reforms**

27 NRSBU as a Joint committee of both NCC and TDC falls within the changes proposed by the Three Waters reforms. These reforms propose the amalgamation of the NRSBU assets into a new three water entity, and the management of the NRSBU assets by that entity.

28 The current timeframes outlined for the transfer of the assets is 1 July 2024.

29 Irrespective of the Three Waters reform it is critical that the management of the regional wastewater infrastructure occurs with a view to sustainable and cost effective long term operations. I therefore consider that there are no significant changes from a planning perspective for this resource consent application.

30 One area that has been raised in relation to the reform, is whether the regional values will be effectively represented in the new water entity. NRSBU is working towards ensuring that the values of the Iwi and Stakeholders are encompassed in a 50-year strategic plan and that this plan has been approved by the NRSBU board (and if possible the two Councils) prior to the Three Waters reform transfers. NRSBU has been liaising with TDC and NCC regarding this 50-year strategic plan, with TDC expressing interest in a collaboration of the plan development.

### **NRSBU investment in the NRSS network**

31 The Bell Island WWTP was established in 1983 and has been subject to various capital upgrades over this period.

32 The level of investment in the WWTP in its current location and related NRSS network infrastructure is substantial. The BAF and biosolids operation is an integral component of the NRSS network, as it provides a beneficial end use to a by-product of the wastewater treatment process. The June 2021 NRSBU optimised replacement cost valuation for the Bell Island

WWTP and regional pumping system is around \$105m – this includes all NRSBU assets (including those at Moturoa/Rabbit Island) and not just those at the Bell Island WWTP. This is an accounting value and I consider the true replacement cost to more likely be in the order of \$150 – \$200 million.

- 33 Notwithstanding my comments above, with respect to the Three Waters reforms, continued investment in the NRSS, and in this context the BAF and related biosolids activity relies on achieving a long-term grant of consent for this application.
- 34 NRSBU employs a significant number of people via the Nelmac contract (Bell Island WWTP treatment) together with the NMW contract for the operation of the biosolids operation, NRSBU engages numerous other contractors to undertake services including, technicians to service and maintain the various plant components, monitoring contractors to sample and assess compliance against the requirements of the resource consent conditions, and an independent contractor to regularly assess the odour being discharged from the WWTP and the BAF.
- 35 I am also GM of the Nelson Tasman Regional Landfill Business Unit (**NTRLBU**), another joint committee of the two Councils. I am aware that in New Zealand the vast majority of biosolids produced are disposed to landfill, resulting in a significant use of landfill space, significant disposal costs, and high methane emissions. The Moturoa/Rabbit Island BAF does not send any material to landfill, and therefore avoids methane emissions associated with landfilled organic material. In addition, the ATAD facility reduces chemical consumption and allows transport without the use of fossil fuels.
- 36 The cost to dispose of Bell Island WWTP generated biosolids (if this were possible) to landfill would be around \$1.4 million per year, which is significantly exceeds the cost to operate and maintain the BAF.

### **Future works proposed**

- 37 The biosolids operation is but one component of the NRSS, and therefore upgrades scheduled for other NRSBU assets are important as these works may have flow on effects to the BAF and biosolids application activity. Proposed capital works and future upgrades are listed in the Annual Business Plan and relevant to the Moturoa/Rabbit Island site include:
- 37.1 Installation of covers for the BAF storage tanks and extraction of odours through a biofilter before discharging to air, and construction of a stormwater management for the BAF;
- 37.2 A phone application (App) to manage decision making for biosolids block selection has been developed and is soon to be implemented. The App will allow NMW to systematically select the best site informed by a number of inputs (weather/ wind, complaints history, nitrogen loading rates) to determine which location is the most appropriate to apply biosolids each day. This will remove the potential for operator error;

- 37.3 Future plans to investigate (2022 – 2023) and if feasible implement (2027 – 2028) a solar dewatering system on Bell Island. This system is intended to treat and dry a small (around 5%) fraction of the biosolids being treated at the Bell Island WWTP. The intent of the biosolids solar dryer is to allow NRSBU to test and develop alternative disposal options that will give some flexibility to biosolids disposal in the future.
- 38 A key aspect of the current plans for NRSBU, is that it is essential to have a method for the beneficial reuses of biosolids, and the Moturoa/Rabbit Island BAF facility currently provides this solution. It is important to note however that following renewal of the biosolids activity (provided this application is granted), this does not stop or prevent NRSBU from further investigating and developing additional or alternate reuse options. In fact, this is the driving force behind the proposed Monitoring Technology Review Report (**MTRR**) condition, which directs the NRSBU to stay current with respect to significant technological changes and advances in relation to biosolids production, treatment, application and end use.
- 39 The BAF will remain a key part of the overarching biosolids reuse system for the foreseeable future as it will ensure that NRSBU can continue to maintain 100% beneficial reuse of biosolids without significant adverse effects or significant costs.

#### **Biosolids treatment and application**

- 40 Biosolids are treated at the Bell Island WWTP through Autothermal Thermophilic Aerobic Digestion (ATAD) as discussed in the technical report and evidence of Dr Nick Berry.
- 41 Following treatment, biosolids are pumped from Bell Island WWTP through an underground pipe to the BAF on Moturoa/Rabbit Island.
- 42 The BAF has 4 storage tanks that provide buffer storage of biosolids. The storage tanks are inside a containment area to collect any spills. The storage tanks have around 10 days storage to allow NRSBU to store biosolids during prolonged rainfall periods. The BAF is connected to the Council water supply network. There are no potable groundwater sources on Moturoa / Rabbit Island.
- 43 Biosolids are pumped from the storage tanks to a tanker which is towed to the application site selected for the day by a tractor. Biosolids are then pumped from the tanker through a hose reel to the application vehicle, a heavy-duty travelling irrigator, and applied to the pine forest in accordance with an application rate prescribed in the resource consent conditions - limited to a maximum kilogram allowance of nitrogen (dependant on tree age) per hectare. The maximum application depth per application is 40mm and biosolids are applied through a coarse nozzle that exhibits a stream of biosolids with low aerosols. The application site selected for the day is one of two sites on Moturoa/Rabbit Island. One site is identified on the east and one on the west of the Island. The choice of the two sites is dependent on weather conditions, likelihood of



potential nuisance to recreational users of Moturoa/Rabbit Island, and various operational factors.

- 44 The use of tracked mobile application vehicles avoids the need for formation of roads within the forest and does not cause significant disturbance to the ground surface. It also avoids the need for earthworks within the application process.
- 45 The blocks are chosen based on a rotation. The current rotation is 3 yearly with a block becoming available three years after the previous application of biosolids. The blocks are generally selected in order that they become available, with the block available for the longest time being the next block selected, however this selection must also take into account the need to have a block open on the west and another on the east of the Island. Once a block on the east is completed the next available eastern block is then used. PF Olsen and NMW work collaboratively with respect to block selection, with operational decision making ultimately resting with NMW.
- 46 The plantation forest of Moturoa/Rabbit Island undergoes a harvest rotation every 28 years with different forestry blocks being at different points in the harvest rotation at any given time. It is my understanding that the average cycle for harvest is 28 years. Following harvest, the residual debris is windrowed to allow planting and future access into the forest, and then the area is replanted.
- 47 PF Olsen to maintain a land availability spreadsheet. This spreadsheet identifies the blocks of forest that are available for application in each year, based on the land area and the age of the trees. The spreadsheet identifies the land area for the next three-year cycle. NRSBU and NMW review this spreadsheet to ensure that land area constraints do not occur. This spreadsheet review process also assists NRSBU to consider available land and to forward plan and prepare for identified future growth.
- 48 This beneficial use of biosolids significantly improves the growth and therefore value of the trees; avoids the PF Olsen applying any nitrogen fertiliser to those forestry blocks benefitting from biosolids application and avoids implementation of costly dewatering technologies at Bell Island WWTP. Biosolids also reduces the NRSBU/ NRSS carbon emissions and energy consumption footprint, and also avoids the need to landfill any biosolids.
- 49 Day-to-day management of the BAF and biosolids activity is set out in the Biosolids Management Plan (**BMP**), which is updated annually, although this hasn't occurred since the application was submitted to TDC in August 2020. Reason being that it is sensible to update the BMP following a decision on this application so that any changes can reflect any new consent conditions imposed. Currently, the BMP includes:
- 49.1 Procedures – including daily, monthly and annual responsibilities for each of NRSBU, NMW and PF Olsen, and pre and post spray requirements.

49.2 Health and safety obligations – including guidance for managing public access, signage, weekend work, access to operational areas and incident and accident reporting.

49.3 Application plan – including detail on exclusion and buffer zones, planting, tending, and tree nutrient requirements, along with spray schedule record keeping requirements.

49.4 Contingency plans.

49.5 Resource consent monitoring.

50 The evidence prepared by Mr Chris Bender, recommends that the BMP include an odour specific section, which I support.

### **Complaint response protocol**

51 Public complaints are usually received by one of the Councils and passed directly to the Bell Island WWTP Operations Contractor (**Nelmac**). There are set procedures for Nelmac staff to follow. Most types of complaints Nelmac alone will respond to and deal with any issues. For issues that require elevating Nelmac will contact the NRSBU Operations Manager.

52 As an example, an odour complaint would be received by (say) Tasman District Council (**TDC**) after hour service, who then contact Nelmac. Nelmac will notify the TDC compliance officer, and will investigate the source of odour, wind direction etc. They will then respond to the complainant within a specified timeframe to advise their findings and their proposed remedies. There is often difficulty in establishing whether an odour generates from the Bell Island WWTP or the BAF and/ or biosolids application activity.

53 A summary of complaints is provided to NRSBU by Nelmac in their monthly reports; which in turn is passed on to the Board in the GM's quarterly report. The GM typically informs the NRSBU Board Chair of complaints as they occur, particularly if there is any concern that the complaints are likely to be significant or ongoing.

54 If the odour is assessed at coming from the BAF, then the NMW operator and manager are informed and are requested to investigate their activities. The proposed actions for NRSBU under these circumstances would be to consider relocating the biosolids application area to an alternative disposal site which has less chance of adverse odour issues.

55 As part of the Bell Island WWTP resource consent conditions the NRSBU engages an independent odour assessor who regularly assesses odour from the NRSBU facilities – the WWTP and the BAF and biosolids operation. The independent odour assessor also responds to complaints on an as needed basis.

### **Access to Moturoa/Rabbit Island**

56 Moturoa/Rabbit Island is vested in the TDC and as such NRSBU (as a separate entity to TDC) requires access to the Island to operate and maintain the BAF and to undertake the biosolids

activity. This access arrangement was historically set out in an Effluent Dispersal Licence that came to an end in October 2020, however TDC has granted the NRSBU permission to continue to operate under the terms of the Effluent Dispersal Licence until the outcome of this consent application is known.

- 57 A new Memorandum of Understanding (Access MOU) between NRSBU and TDC is entered into to record the access arrangements over the term of a new consent. The terms of the Access MOU are largely negotiated and agreed upon. The consent term that is granted will dictate the term of the MOU.

### **Climate change considerations**

#### *Sea Level Rise and consideration of retreat, defence and other adaptation options*

- 58 NRSBU has considered the sea level rise information available from both NCC and TDC and has in particular considered the sea level rise information related to the Bell Island and Moturoa/Rabbit Island coastlines. As part of NRSBU's work on developing a 50-year plan (discussed in more detail at paragraphs 63 - 66 below), NRSBU is looking at a programme that diversifies the disposal options over time and reduces the reliance on biosolids disposal at Moturoa/Rabbit Island.

- 59 I understand that Bell Island WWTP will not be hampered by projected sea level advances until at least 2080. As such there is still one investment cycle for civil assets prior to relocating the facility, although this is not to say that migration may not occur earlier if an alternate solution, or location can be found and facilitated. The BAF and biosolids operation is intrinsically linked to the Bell Island WWTP operations.

- 60 Migration from the Moturoa/Rabbit Island site is more nimble than the Bell Island WWTP due to temporary and moveable facilities at the BAF, although there are some permeant components. The biosolids operation can adapt much quicker in response to sea level advances, however an alternate solution to biosolids disposal would need to be located to serve the Bell Island WWTP.

#### *Coastal Erosion*

- 61 I understand from the Assessment of Environmental Effects supporting this application that coastal erosion is unlikely to adversely affect the application area onto which biosolids is applied within the term of the proposed consent – 35 years. If coastal erosion occurs within this time period then the NRSBU will maintain the 50m buffer zone from the Mean High Water Springs, which will effectively reduce the application area, however NRSBU are confident that more than one option is available to mitigate the loss of application land area if this were to occur as discussed further below under the headings Bell Island WWTP flexibility and Development of alternative disposal options

62 NRSBU has set up a GIS system that includes aerial photography of Moturoa/Rabbit, Bell and Best Islands. This Aerial photography will be used to identify significant changes to the coast over time. This information will inform the MTRR process.

**The NRSBU 50-year Strategic Plan**

63 The NRSBU is in the process of developing a 50-year plan for the NRSBU wastewater treatment facilities. The 50-year plan is not intended to specify all projects over the next 50-year period, rather its focus is on developing key strategies which will form the direction NRSBU elects to adopt over that period.

64 The 50-year strategic plan is currently being prepared for submission to the NRSBU Board for approval for consultation. Following the Boards review it will be consulted on with Iwi and the local community.

65 As an example, the 50-year plan is expected to outline the NRSBU wastewater and biosolids reuse goals and may set out targets for reuse of wastewater and biosolids using an adaptive pathway process. These goals will support the development of options for implementation and will promote ease of management, through enabling the selection of technical or project options that are most likely to achieve the NRSBU strategic goals. The 50-year plan may outline specific projects where these are already clearly in alignment with the business units strategic goals.

66 At this time a number of the strategic directions that are important to the NRSBU have been established, however it is not yet defined what the extent of and implementation pathway of any adopted changes will be. NRSBU will likely define its proposed targets by specific dates, but the targets will be somewhat dependant on the effects of growth, climate change and changes in any relevant regulations.

**Comments on Officer’s Report**

67 I have read the Council officer’s report and am generally in agreement with the findings reached. In particular, I note that NRSBU has and will continue to carefully consider the future of the biosolids operation, including odour impacts. The condition suite proposed by the NRSBU as part of this application is based on the last 26 years of monitoring data and has been informed by expert opinion on industry best practice. The NRSBU has proposed further revision to the consent conditions to address matters raised by the Council officer and submitters. Mr Murray will address these revisions in his evidence.

68 One point I would like to traverse in more detail are comments made by both the Council officer and submitters with respect to future development and growth in the region, associated load to the Bell Island WWTP and impact on the biosolids operation, including the availability of land to satisfy future demand.

***Future Development and Growth***

69 The Officer's report states, "it is unclear whether the disposal area on Moturoa/Rabbit Island is large enough and the applicant should provide further commentary on this". I can confirm that NRSBU has considered the available land area at Moturoa/Rabbit Island in relation to growth in biosolids as a part of this consent application.

70 At present NRSBU is not utilising the full land area available each year and therefore the biosolids application rotation is longer than 3 years. Our available land at present is around 720ha or around 240ha per annum in the biosolids rotation.

71 There are three different aspects that allow NRSBU to be confident that the biosolids operation will be appropriate within limitations for the duration of the sought 35-year consent.

72 The three aspects include:

72.1 a perceived misunderstanding on what the actual growth experienced by NRSBU is;

72.2 a lack of appreciation of the flexibility of the Bell Island WWTP and its ability to moderate the biosolids volume and concentration being discharged to Moturoa/Rabbit Island; and

72.3 NRSBU's plan to slowly trial and develop alternative disposal options to offset disposal area constraints should they arise.

***Actual growth at the Bell Island WWTP***

73 It is my opinion that many people within the Nelson Tasman region believe that the NRSBU facilities need to accommodate growth at the same rate that TDC has been growing. NRSBU does not experience growth at the same rate as the growth of the TDC domestic growth.

74 It is important to note that NRSBU has a significant portion of its waste biochemical load coming from industrial contributors. Until 2021 around 36% of the load was contributed from three major industries, with the remaining approximately 64% coming from the two Council wastewater networks.

75 Within the NCC network there is also a significant portion of the wastewater biochemical and solids load generated from other trade waste contributors. I would estimate that around 50% of the wastewater load to the Bell Island WWTP is generated by industrial and trade waste customers.

76 NRSBU has contracts with its contributors. These contracts specify the authorised load and flow rate to the Bell Island WWTP. The contributors can be fined for exceeding their allowable discharge, and NRSBU can dictate pre-treatment is required and/ or limit inflows (shut off) where wastewater influent characteristics are problematic for processing at the Bell Island WWTP or may pose a threat to the stability of the facultative ponds. The contracts implemented with the contributors do not allow growth above the agreed values without NRSBU permission.

The contracts include user pays principles in relation to the operational costs for wastewater treatment, which give a strong incentive to the customer to reduce discharge loads and flows. These contracts have resulted in the NRSBU industrial contributors loads reducing over the last 10 years.

- 77 The implication of this load reduction is the influence of the domestic wastewater biochemical growth is much lower than the actual growth rate of the population within the local Councils' domestic catchments. For example, 2% per annum growth within the TDC network is equivalent to around 0.4% per annum growth in wastewater load to the Bell Island WWTP.
- 78 Over recent years in particular domestic growth has actually been significantly outweighed by the reduction in industrial load. In 2021 Turners and Growers (T&G) ceased production at their Nayland Rd facility, and significantly reduced their contribution to the NRSS. This reduction resulted in the reduction of between 3 and 5% of the NRSBU solids and biochemical load.
- 79 This reduction in load from T&G is equivalent to more than 7 years of growth within TDC at roughly 2% per annum.

*Bell Island WWTP flexibility*

- 80 The Bell Island WWTP is a very flexible facility, and it is possible within this system to reduce the percentage of nitrogen that goes with the biosolids to Moturoa/Rabbit Island and increase the amount that wastewater that discharges within the bounds of the discharge permit to the Coastal Marine Environment. This adjustment can be undertaken by making operational changes including using additional chemicals within the treatment process to assist to dewater the sludge prior to treatment in the ATAD facility.
- 81 NRSBU currently do not have a land constraint on Moturoa/Rabbit Island and as a result NRSBU generally runs the Bell Island WWTP in a way that does not limit the nitrogen being sent to Moturoa/Rabbit Island.
- 82 While NRSBU has sufficient land available at Motuora/Rabbit Island to operate sustainably for the foreseeable future, the land availability risk has been considered and mitigation options have identified for these risks. It is therefore possible to counteract growth or sea level rise or a significant forest fire (if it becomes necessary), or a reduction in land area due to identification of additional sites of cultural significance, by adopting alternative disposal options, or supplementing the existing application method as discussed directly below.

*Development of alternative disposal options*

- 83 One of NRSBU's long term goals is to develop more, and alternative, beneficial reuse options for biosolids. The development of additional reuse options will likely occur gradually and will rely on the development of alternative disposal sites and / or products that members public want to use for alternative purposes.

- 83.1 This development program will start with a trial of biosolids drying using a small solar drying facility. The trial goal will be the development of a product from this drying system for use as a garden fertiliser in the community. The trial will be small and if successful NRSBU would apply for consent for the use of this fertiliser on land within the Nelson and Tasman regions.
- 83.2 It is expected based on anecdotal reports from the Rotorua District Councils composting facility operated during the 1990 into the early 2000s, and the Living Earth Joint Venture in Wellington facility that the public will adopt the use of this material slowly and somewhat reluctantly, and as such NRSBU believe this development, if successful, will take many years to expand to the point that it will have a material effect on the discharge to Moturoa/Rabbit Island. If it is successful NRSBU would expect to slowly expand production as the demand for the product(s) increase.
- 83.3 If alternative products can be developed, then this will compensate for growth within the NRSS networks and potentially reduce the effect of any sea level rise without requiring other operational changes at the Bell Island WWTP.

#### **Comments on submissions where relevant to my evidence**

- 84 I have reviewed all submission lodged, have participated in several engagement initiatives and this facilitated by the NRSBU over the course of this resource consent application, and have spoken regularly with stakeholders. A key issue that the NRSBU and submitters have been unable to agree on is consent term. I consider that the technical reports supporting the application for 35-years are robust and demonstrate no significant adverse effects that would warrant a shorter term of consent (from a science/ technical perspective). I accept that cultural considerations sit outside this sphere of assessment.

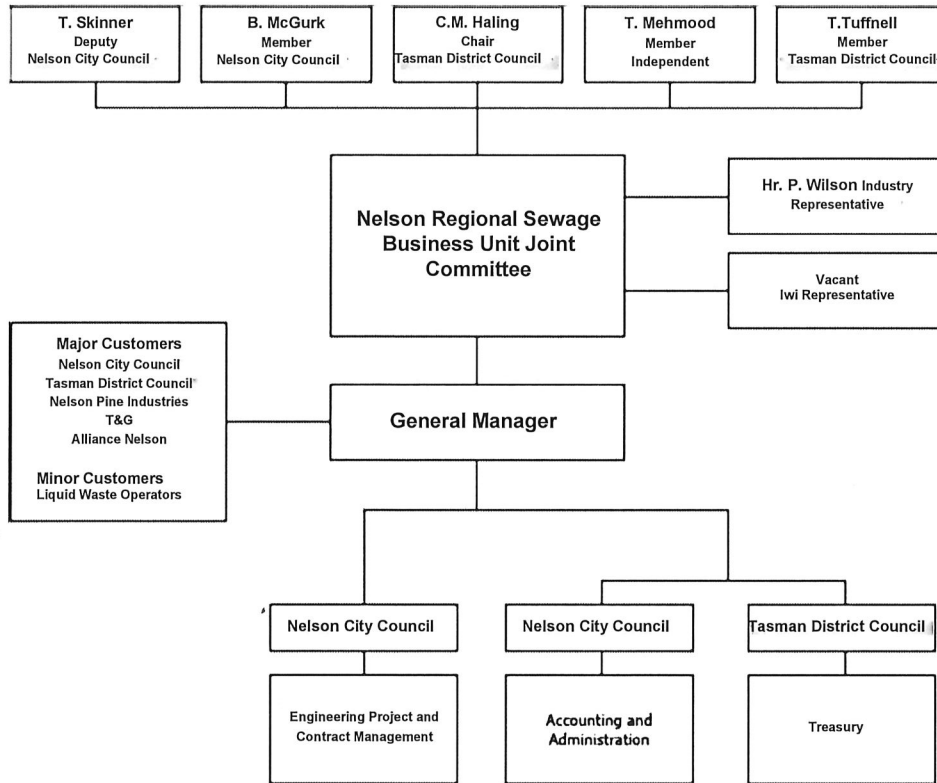
#### *Duration of Consent*

- 85 I acknowledge that Iwi submitters are seeking a shorter duration of consent (than the 35-year term sought by the NRSBU). The appropriate term of consent was also raised in the February 2021 Cultural Impact Assessment which the NRSBU formally responded to in late 2021.
- 86 I have been advised by NRSBU's project team that the MTRR condition that NRSBU has volunteered in the resource consent conditions is considered industry best practice. I am informed that this condition is an excellent way of ensuring that NRSBU as Consent Holder is required to regularly turn its mind to new technology advances that may present an alternate Best Practicable Option (BPO) – both process and disposal method. I understand that the MTRR condition will require NRSBU every 6 years to assess the potential for adverse effects generated by the biosolids operation, consider advances in wastewater and biosolids treatment options, and consider alternative reuse and disposal options as they become available. This approach is entirely consistent with NRSBU's strategic goal to operate sustainably.

- 87 I consider that a 35-year consent duration is more likely to achieve meaningful improvements at the Moturoa/Rabbit Island site; because a long-term consent will give the two Councils and the community confidence that further investment is worthwhile. A short duration consent is likely to result in a conservative approach to funding approvals from the two Councils and the wider community through the Long-Term Plan process.
- 88 An example of NRSBU's ongoing desire to improve its community offering, is the purchase of 60ha of land on Best Island in 2020 to enable increased discharge of wastewater to land and reduce the volume of wastewater being discharged to the Waimea Inlet. NRSBU has identified that there are opportunities to implement an irrigation system on the Best Island site and at the Greenacres Golf Course. Budgets were developed to allow this to occur, and the first stage of this system is expected to be in service for the 2022/2023 summer period.
- 89 The larger Best Island farm wastewater disposal system will be implemented in 2025/2026. This process shows NRSBU's commitment to voluntary improvement and will result in NRSBU taking a significant step toward more culturally acceptable discharge of wastewater.



Attachment A: Current structure of the NRSBU (as at May 2022)





## ***Nelson Regional Sewerage Business Unit***

### ***Memorandum of Understanding***

#### **1. Parties**

The Tasman District Council and the Nelson City Council (the councils).

#### **2. Term**

- 2.1. This memorandum of understanding shall commence on 9 May 2019 and shall terminate on 30 June 2025 unless terminated earlier by resolution of both councils.

#### **3. Preamble**

- 3.1. The Nelson Regional Sewerage Business Unit (NRSBU) was established in July 2000, to replace the former Nelson Regional Sewerage Authority established in the 1970s.
- 3.2. This Memorandum of Understanding replaces the Memorandum of Understanding which established the NRSBU on 1 July 2000 and the subsequent amendments on 9 March 2010 and 15 November 2018.
- 3.3. This Memorandum of Understanding shall constitute the 'terms of reference' as required under Section 30A (2) (c) of the Local Government Act 2002.
- 3.4. The purpose of the NRSBU is to manage and operate the wastewater treatment facilities at Bell Island and the associated reticulation network efficiently and in accordance with resource consent conditions to meet the needs of its customers. The NRSBU shall plan for the future needs of the community in a cost efficient and environmentally sustainable manner rather than entirely focusing making a financial return. The NRSBU has designated itself as a public benefit entity for the purposes of New Zealand Equivalents to International Financial Reporting Standards (NZIFRS).
- 3.5. The Bell Island treatment plant and associated reticulation network, and any additions or improvements to these assets are owned in equal parts by the councils and are strategic assets of the councils.
- 3.6. The NRSBU is intended to be a self-funding body which provides a service to its customers, which include the councils, under a contractual relationship independent of its ownership.

#### **4. Structure of NRSBU**

- 4.1. The Nelson Regional Sewerage Business Unit is hereby constituted a Joint Committee of the Nelson City Council and the Tasman District Council pursuant to the provisions of the 7<sup>th</sup> Schedule to the Local Government Act 2002.

*NRSBU Memorandum of Understanding*

- 4.2. The NRSBU Board (the Board) shall comprise either six or seven members appointed as follows:
- i) Two members appointed by the Tasman District Council (at least one of whom will be an elected member of the Tasman District Council);
  - ii) Two members appointed by the Nelson City Council (at least one of whom will be an elected member of the Nelson City Council);
  - iii) May include one member independent of either Council and not involved in any business related to the NRSBU activities. This member is discretionary and would only be appointed if mutually agreed to by both the councils and in accordance with the councils' 'Policy for the appointment and remuneration of jointly-appointed independent members on committees'. This member shall be appointed for a period of three years, and in such a way as to provide continuity through the triennial election period. The member shall be remunerated in accordance with the councils' 'Policy for the appointment and remuneration of jointly-appointed independent members on committees'.
  - iv) One non-voting member representing, and appointed by, the NRSBU Major Industrial Customers.
  - v) One member representing and nominated by local iwi and confirmed by both councils. This iwi advisor shall be appointed for a period of three years, and in such a way as to provide continuity through the triennial election period. The member shall be remunerated in accordance with the councils' 'Policy for the appointment and remuneration of jointly-appointed independent members on committees'.
- 4.3. In appointing members to the Board, the councils will consult with the Board on the skills and experience required so that an appropriate mix of skills is maintained.
- 4.4. The Board will elect a chair from its voting members at its first meeting of the triennium.

## 5. Meetings

- 5.1. For the avoidance of doubt the Board shall comply with the provisions of the Local Government Official Information and Meetings Act 1987 and the standing orders of the administering Council in respect of its meetings.
- 5.2. The Quorum for a meeting of the Board shall be half of the members if the number of members (including vacancies) is an even number, or a majority if the number of members (including vacancies) is an uneven number. There shall also be at least one member from each council represented in the quorum.
- 5.3. The Board shall meet at least 3 times per year (currently 4 times) at intervals decided by the Board in order to meet its obligations under this Memorandum of Understanding.

## 6. Management and Support Services

*NRSBU Memorandum of Understanding*

Management and support services are provided as follows,

- i) The administering Council shall be the Nelson City Council.
- ii) The General Manager is appointed by the councils and employed or contracted by the administering Council and may or may not be on the recommendation of the Board. The councils may choose to appoint an independent General Manager instead of appointing an independent member (as outlined in 4.2 (iii)).
- iii) The administering Council shall provide the following services as appropriate to enable the Board to fulfil its obligations under this Memorandum of Understanding;
  - Engineering services;
  - Accounting and Administration Services;
  - Treasury Services.
- iv) Costs incurred by either council in providing management and support services to the NRSBU shall be recovered from the NRSBU on the same basis as the Subsidised Transport activity of Council.
- v) The operation of the NRSBU shall be included in the audit of the Administering Council and the additional cost incurred as a result shall be recovered from the NRSBU.

## 7. Powers and Responsibilities Delegated to the NRSBU

7.1. The councils are agreed that the responsibility for all management and administrative matters associated with the NRSBU operation shall be with the Board, and in particular the Board shall without the need to seek any further authority from the councils:

- i) Operate a bank account for the Business Unit.
- ii) Comply with the Procurement Policy of the administering Council.
- iii) Enter into all contracts necessary for the operation and management of the Business Unit in accordance with the approved budgets and intent of the Business Plan.
- iv) Authorise all payments necessary for the operation and management of the Business Unit within the approved budgets and intent of the Business Plan.
- v) Do all other things, other than those things explicitly prohibited by this Memorandum of Understanding or relevant statutes, that are necessary to achieve the objectives as stated in the Strategic Plan, Asset Management Plan or Business Plan approved by the councils.
- vi) Comply with the Health and Safety Policy and requirements of the administering Council.

7.2. Contribute to the sanitary services assessment process of the councils.

7.3. Contribute to and comply with the waste management plans of the councils.

*NRSBU Memorandum of Understanding*

- 7.4. Contribute to the development of the councils' Development and Financial Contribution policies.
- 7.5. Contribute to the councils' Regional Policy Statement and Regional Plan Reviews.
- 7.6. Develop and keep under review an appropriate contract for the delivery of waste collection and disposal services with each of its customers.
- 7.7. Follow generally accepted accounting practices.
- 7.8. Follow good employment practices.

## 8. Limitations

The NRSBU may not borrow money or purchase or dispose of significant assets other than with the approval of the councils.

## 9. Operational Funding

- 9.1. The Board shall budget to repay loans for new capital expenditure over 30 years from Net Surplus Income. Any Net Surplus Income before extraordinary items over budget shall be returned to the councils on an equal share basis.
- 9.2. It is agreed that where any contribution is required to be made by the councils to the ongoing operational costs of the NRSBU, apart from the charges the councils agree to pay as customers of the scheme, each council shall pay an equal share of any contribution required.

## 10. Capital expenditure.

- 10.1. The NRSBU shall ensure that all capital assets are appropriately depreciated to enable a fund to be established for the replacement of such assets.
- 10.2. The NRSBU shall have the sole authority to determine what expenditure is made from the depreciation fund so accumulated.
- 10.3. Any capital expenditure that is required which exceeds the amount held in any depreciation fund or account and is in the way of expansion or major upgrade shall require approval of the councils.

## 11. Planning and reporting

The NRSBU shall produce the following plans in respect of its operations.

### 11.1. Strategic Plan

The Strategic Plan shall describe the long term objectives of the Board in relation to its operations. This will include consideration of new technologies, environmental sustainability, climate change, changes in legislation/policy and any other issues which the NRSBU might face in providing services for its customers.

The Board shall prepare its Strategic Plan prior to the drafting of the Asset Management Plan.

*NRSBU Memorandum of Understanding*

The Board shall review its Strategic Plan on an annual basis.

11.2. Asset Management Plan

The Asset Management Plan shall provide an analysis of the assets controlled by the NRSBU in relation to the current levels of service required by the customers and their likely future demands. It will also provide a financial analysis of the NRSBU operations and indicate how the assets should be managed to ensure the most cost effective and efficient service. It will also outline the manner in which the NRSBU will provide for appropriate risk management.

The Asset Management Plan shall be reviewed annually and revised at least every three years at which time it will be submitted to the councils for approval.

11.3. Business Plan

The business plan should state the activities and intentions of the Business Unit. It should outline how those activities relate to the objectives of the Business Unit as documented in the current strategic plan, the financial forecasts for the following three years, the performance targets for the coming year and any variations to charges proposed for that financial year.

A draft of the business plan for the coming year shall be presented to the councils annually by 31 December.

After the councils have had an opportunity to discuss and comment on the draft Plan the Board shall finalise the business plan, incorporating any changes agreed between the councils and the Board and present the final business plan to the councils by 20 March.

11.4. Annual Report and Accounts

The Board shall prepare an Annual Report at the end of each financial year which shall include reporting against the performance targets and financial forecasts in the approved Business Plan.

The annual accounts and financial statements, included in the Annual Report, shall fairly show the operating and financial position of the NRSBU for the financial year, including a statement of financial performance, a statement of financial position, a statement of cash flows, and all information necessary to enable an informed assessment of the operation of the Business Unit. The financial statements must be prepared in accordance with generally accepted accounting practice.

The Annual Report and Accounts will be presented to councils by 30 September in each year.

11.5. Agendas for all meetings of the Board will be forwarded to the Chief Executive of the administering Council, and/or such staff as they might nominate to represent the owners of the scheme, at the same time as they are forwarded to Board Members.

*NRSBU Memorandum of Understanding*

- 11.6. Minutes of all meetings of the Board will be forwarded to the Chief Executives of the councils and to all Board members as draft minutes once they have been reviewed for accuracy by the General Manager and/or the Chairperson.

## 12. Customer Group

- 12.1. A Customer Group shall be maintained to provide a forum for consultation and liaison with major users of the scheme. The Board shall determine who shall be members of the group.

- 12.2. The Customer Group shall be chaired by the General Manager of the NRSBU.

## 13. Termination

- 13.1. Subject to clause 13.2, the members of the Board appointed under clause 4.2(i) and 4.2(ii) will be discharged on the coming into office of the members of the councils elected at the triennial local body elections. The new Board members appointed under clause 4.2(i) and 4.2(ii) shall be appointed by resolution of the councils at the earliest opportunity post the said election.

- 13.2. Prior to the election, the NRSBU may recommend to the councils that they approve a transitional arrangement through the triennial election process for representation on the NRSBU. For clarity, this provision only applies where both councils have approved a transitional arrangement.

- 13.3. The councils may at any time replace their appointed members or by mutual agreement remove/replace the independent member of the Board. No action to replace any member will be taken without the councils first consulting with the Board except where the replacement is part of a triennial election process referred to in clause 13.1.

- 13.4. Iwi may nominate at any time a replacement for the appointed iwi advisor. The replacement iwi advisor shall be confirmed by both councils.

## 14. Variations and Disputes

- 14.1. Notwithstanding the above, this Memorandum of Understanding may be amended pursuant to a resolution adopted by the councils at any time during its term.

- 14.2. In the event of any dispute arising between the parties to this Memorandum of Understanding the parties shall, without prejudice to any other right, immediately explore in good faith whether the dispute can be resolved by agreement between them using informal dispute resolution techniques such as negotiation, mediation, independent expert appraisal, or any other alternative dispute resolution technique.

- 14.3. In the event the dispute is not resolved by such agreement within 21 days of written notice by one party to the other of the dispute (or such further period agreed in writing between the parties) either party may refer the dispute to arbitration by a single arbitrator pursuant to the Arbitration Act 1996.

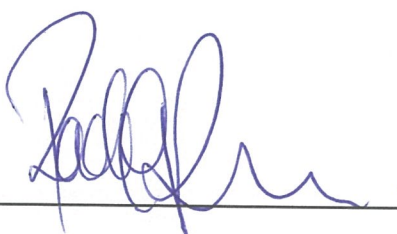
*NRSBU Memorandum of Understanding*

- 14.4. The arbitrator shall be agreed between the parties within 10 days of written notice of the referral by the referring party to the other, or failing agreement appointed by the President of the Nelson District Law Society.
- 14.5. In either case the arbitrator shall not be a person who has participated in an informal dispute resolution procedure in respect of the dispute.
- 14.6. The arbitrator so appointed shall be obliged to proceed with maximum expedition to deliver a decision within two months of the appointment.

The parties agree to co-operate fully in every respect with the arbitration and further agree that any decision made by the arbitrator shall be final and binding and hereby waive any right to appeal against the decision or seek judicial review of it in any court.

**Signed by**

**NELSON CITY COUNCIL:**



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**Mayor**



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**Chief Executive**

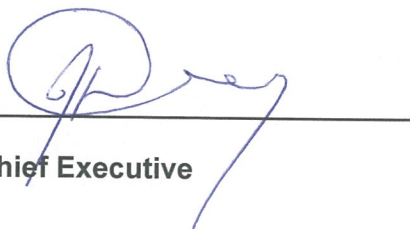
**Signed by**

**TASMAN DISTRICT COUNCIL:**



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**Mayor**



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**Chief Executive**

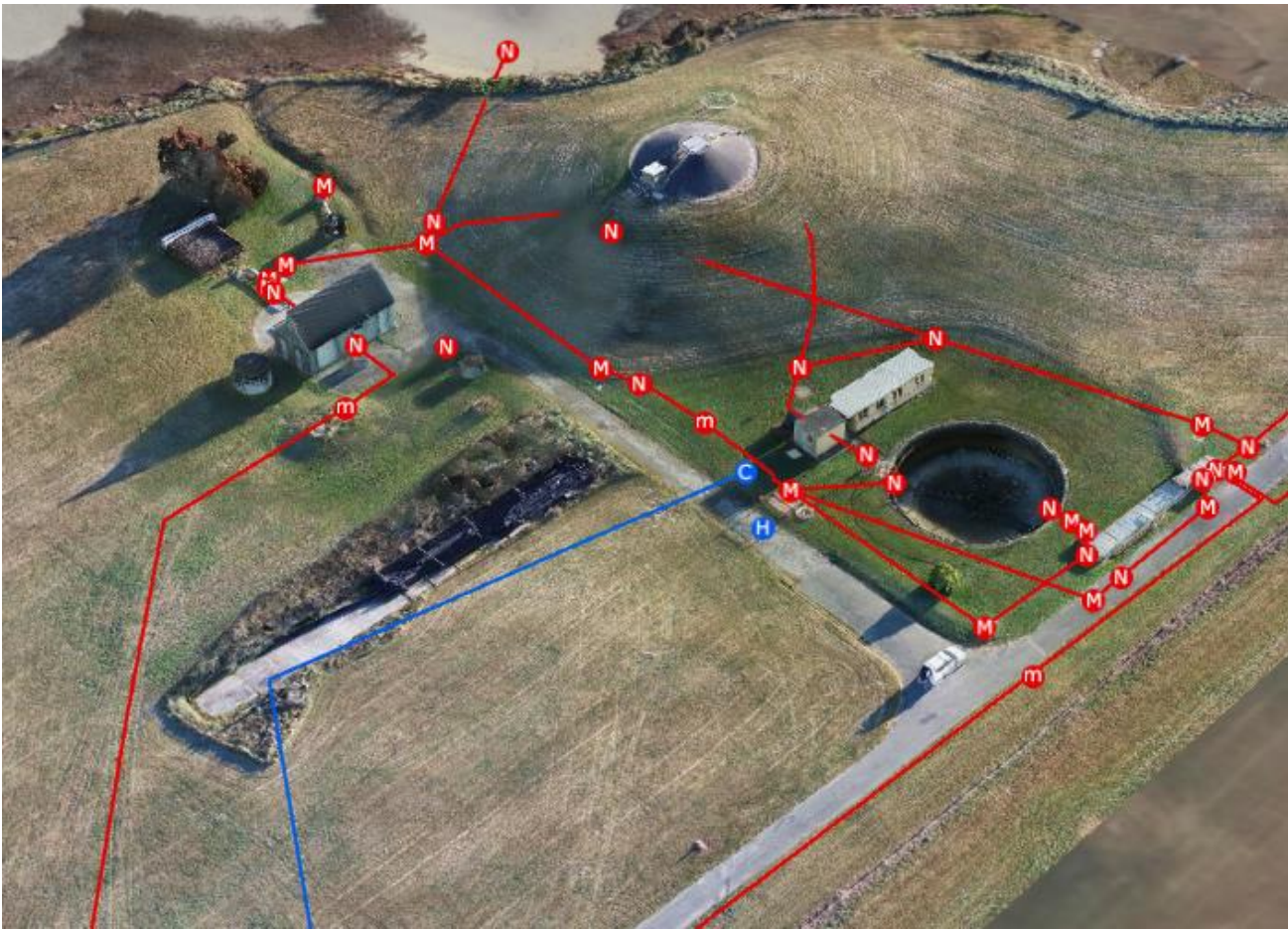
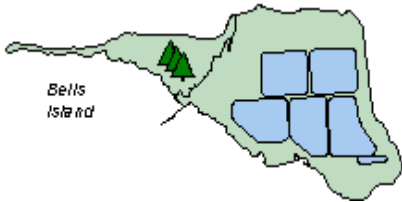
**Approved by Nelson City Council on 2 May 2019 and by Tasman District Council on 9 May 2019.**





**Nelson Regional Sewerage Business Unit**

**BUSINESS PLAN  
2022/2023**



## NRSBU Business Plan 2022-2023

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Rev 1 Feb 2022

For Board Final Approval- prepared by:

Approved by:

Nathan Clarke, GM NRSBU with input from  
Brad Nixon - Operations Manager NRSBU  
Morgelyn Leizour – Acting Activity Engineer NRSBU  
Nathan Clarke

**Cover**

Image of GIS system for Airport Pump Station

**1. PURPOSE**

The purpose of the Nelson Regional Sewerage Business Unit Business Plan 2022/2023 is to summarise management goals and objectives to deliver wastewater collection and treatment services to the region; and to improve the effectiveness and efficiency in the delivery of those services.

**2. MEMORANDUM OF UNDERSTANDING REQUIREMENTS**

The Memorandum of Understanding states that the NRSBU Board shall by 31 December each year supply to the Councils (Nelson City and Tasman District Councils) a copy of its Business Plan. The Business Plan outlines the management of the Nelson Regional Sewerage Business Unit and the assets for the ensuing year, together with any variations to the charges proposed for that financial year.

The Memorandum of Understanding (MoU) commenced on 1 July 2015 and shall terminate on 30 June 2025. The MoU was updated in March 2019.

**3. INTRODUCTION**

This Business Plan 2022/23 outlines the projects and initiatives to be implemented during the year. It also outlines the associated funding required and the details of the performance targets and measures.

The Business Plan is aligned with the NRSBU Strategic Plan and the NRSBU Activity Management Plan 2021-2031. It includes business objectives and performance targets (Section 7) and the three-year financial renewal forecasts (Section 8) and the three-year capital plan (Section 9). The following key pieces of information from those other documents are included in the appendices of this business plan:

- Appendix A - Committee Activity Schedule
- Appendix B - Internal business improvement plan
- Appendix C - Schematic layout of the NRSBU operations
- Appendix D - Reduction of Adverse Environmental Effects

**4. MISSION STATEMENT**

The NRSBU’s mission statement is:

**Resilient, reliable, and effective infrastructure that supports and protects our community and environment.**

Area	Goal
Our approach	Implement and operate infrastructure considering the needs of our community. Our priorities for this are protection of public health, the environment, and cultural values.
Our Vision/Ambition/Aspiration	We will work towards the beneficial reuse of resources.
Our conduct	We will undertake our activities transparently, fairly, respectfully, in a timely manner and we will provide regional infrastructure leadership.

## 5. STRATEGIC GOALS AND PERFORMANCE OBJECTIVES

The NRSBU aspires to achieve the following goals:

Strategic Goal	Objective (This is what it looks like)	Level of Service (This is how we do it)
We will implement and operate infrastructure considering the needs of our community. Our priorities for this are protection of public health, the environment, and cultural values.	Containment and conveyance that is resilient and minimises adverse impacts on the health of the environment and community	We have sufficient capacity in our network to cope with peak flows
		We are resilient to mechanical and electrical failures and natural hazards
		We can readily maintain the network
	Resilient wastewater treatment that minimises the impact on the environment and community	The treatment plant can reliably accept (N+1 for critical assets) all peak flows from the network
		The treatment plant can fully treat all dry weather flows
		The treatment plant does not create odour issues for the community
		Effluent Quality meets or exceeds required discharge requirements
	Long term vision that considers the future needs of the community	Our ongoing business is safeguarded through engagement with council planning processes
		We have long term plans for our activities and their impacts
		Have systems in place for the ongoing monitoring and reporting of emissions
Alternative methods of biosolids disposal that protect public health and the environment and are sensitive to cultural values	Have a backstop for issues with biosolids disposal	
We will work towards the beneficial reuse of resources	Use of ongoing improvement processes to identify, implement, and operate feasible biosolids reuse	Treatment to maintain 100% reuse of biosolids
		Increase reuse value
		Maintain 100% diversion of biosolids from disposal to landfill
	Identified implement and operate feasible systems and infrastructure for the reuse of wastewater	We minimise the amount of effluent we discharge to water

The NRSBU functional activities are managed by the Nelson City Council and therefore the NRSBU functional activities shall comply with the requirements of the Nelson City Council Health and Safety Policy and fully subscribe to the vision for a Zero Harm Culture.

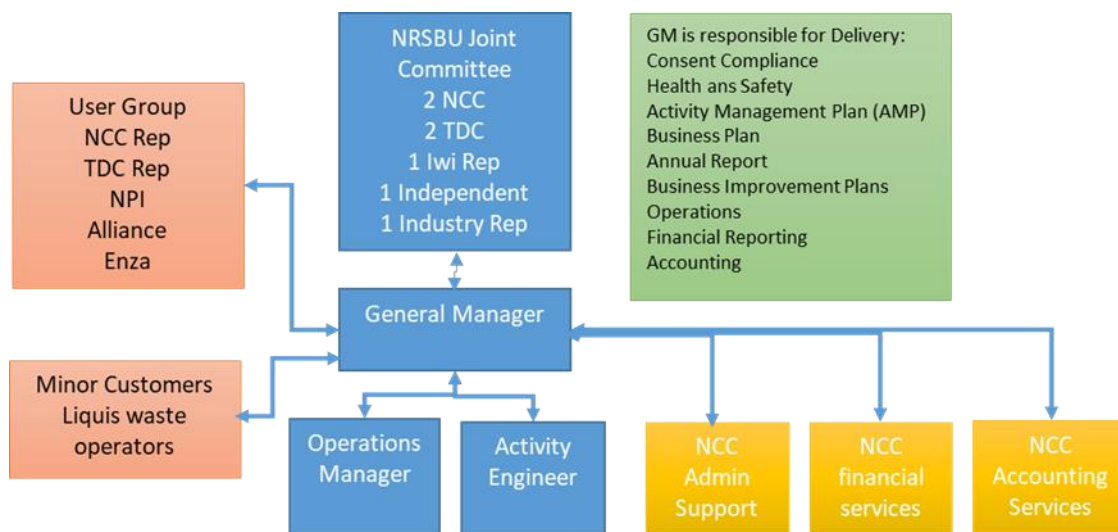
All strategic goals are important and no one goal will be pursued at the expense of another.

It is important to note that discussion is occurring nationally regarding the delivery of water services in New Zealand. This discussion includes the implementation of national discharge standards for wastewater treatment facilities. This work could have a significant influence on NRSBU, at this time NRSBU is unable to identify the outcome of this work and therefore will continue with Business as Usual.

It is necessary for NRSBU to maintain an understanding of these issues so that an appropriate response can be made if required.

## 6. NRSBU STRUCTURE

The structure of the Nelson Regional Sewerage Business Unit is as follows:



The Nelson Regional Sewerage Business Unit was established in July 2000, replacing the former Nelson Regional Sewerage Authority established in the 1970s.

This business plan relates to the second year of the NRSBU Activity Management Plan 2021-2031 adopted by NCC and TDC during June 2021.

## 7. BUSINESS OBJECTIVES AND PERFORMANCE MEASURES

The objectives outlined below describe the long-term aims of the business unit. Performance measure targets and dates (where they are not specified below) are set annually in the Business Plan along with performance measures for projects identified in the Activity Management Plan. Performance will be reported quarterly to the Board and annually to the shareholding councils.

<b>Performance Measure (This is how we know we're doing it)</b>	<b>Target</b>
Number of overflows per year (all networks) due to NRSBU network capacity constraints, or mechanical or electrical failures.	Zero
Number of pump stations with redundant pumps and power supply.	All by June 2023**
Pump stations are to a level 3 importance level standard.	All by 2023
Number of pump stations where able to carry out routine PS maintenance works while managing ADWF.	All by 2031
Number of times PWWF flows exceed inlet works capacity.	Zero by 2031
Number of times diurnal flows bypass the mechanical system annually OR Treatment capacity of mechanical plant.	Zero OR 500L/s by 2029
Number of odour complaint events annually.	Zero by 2025
Pond free water above sludge layer.	>1m in all ponds by June 2023
Chemical Parameters comply with consents for discharge to water when discharge occurs.	Ongoing consent compliance for all parameters
Effluent quality appropriate for safe and sustainable use with land irrigation systems.	Pathogens, Nitrogen defined for land application requirements by 2023
Obtain reuse consents for appropriate land areas for Reuse Water.	Demonstrated quality performance and consents in place for reuse for dust suppression by June 2024
We have up to date plans as follows: Master plan (50 years focus) Activity Plan (10 years Focus) Business plan (1 year focus, but also with tentative three-year actions)	Master plan developed by June 2023 Activity and Business Plans are reviewed annually
The number of alternate methods/options for biosolids disposal.	One by 2035
Increase in quality of biosolids.	Biosolids Reuse Development Plan Draft by June 2023
Percentage of biosolids that is reused.	100%
Annual volume of biosolids sold.	Biosolids Reuse Development Plan Draft by June 2023
Proportion of biosolids to land or reuse/sale	100%
Number of days effluent is discharged to water in summer period (1 Dec to 31 March).	Draft Wastewater reuse plan developed by June 2023, with a goal to reaching zero by 2035
Volume of high-value water-reuse we achieve.	Draft Wastewater reuse plan developed by June 2023
Amount of total flow we can divert from discharge to water during summer period.	At least 75 <sup>th</sup> percentile by 2040

**\*\* Redundant pumps may include Duty / Assist with a Shelf Spare until pumpstation upgrades are complete**

**8. THREE YEAR RENEWAL EXPENDITURE FORECAST (\$'000)**

Renewal Plan (\$,000)	2021/22*	2022/23	2023/24	2024/25
Pump Stations and Rising Mains	539	537	168	635
Inlet, Aeration Basin, Clarifier and Ponds	1409	41		610
Solids Handling and Biosolids pipelines.	592	254	1704	100
ATAD rust proofing				30
Rabbit Island	91	49		20
Fittal Street Septage Facility				200
Facilities and Roads	222	135	11	25
Wet Weather Discharge Pump				95
Road and causeway renewals	173			
General	217	130	41	120
<b>Total</b>	<b>3243</b>	<b>1146</b>	<b>1924</b>	<b>1835</b>

\* 2021/22 renewals budgets include carry overs from the 2020/2021 financial year

The renewal programme of the NRSBU assets is developed around lifecycle and condition assessment.

An iterative process is followed whereby the renewal programme is considered annually with inputs from the Operation and Maintenance operator and a review of remaining useful life of assets.

Condition assessment reports may be commissioned where additional information is required to ensure optimal spend on renewals.

One key renewal item that is currently unquantified is any repair works arising following the inspection work in 21/22 for the existing 600mm diameter concrete pipe between Monaco and Bell Island. This work may necessitate reprioritisation of the Capital and Renewal plans if significant repairs are required.

General items are at the discretion of the General Manager.



## 9. THREE YEAR CAPITAL UPGRADE PLAN

The following table outlines the capital upgrades proposed over the next three years.

Capital upgrades:

Project	21/22	22/23	23/24	24/25
Improved Operator Facilities	313			
Road Improvements	50			
Regional Generator Upgrade	1042			
Management systems	80			
Sludge Storage Tanks	750			
Pump station overflow screens and monitoring	300			
Regional pipeline capacity upgrades	6400	2,470	2,150	2,000
Inlet and ATAD Odour Upgrade	340			
Pump and discharge pipework upgrades at		2,050	350	250
Strategic review and seismic strengthening of PSs	50		50	
Flood protection of pump stations	120			
Storage at pump stations			50	50
Additional screening and duplicate grit trap at				50
Hydraulic capacity upgrades at WWTP		80	1,500	
Design of system to remove algae from pond	20			
Desludging ponds	499			25
New technology assessments to meet Consent	50			
Biosolids drying		100		
Odour and equipment upgrades at Rabbit Island	200		150	
Buffer storage at WWTP			25	200
Best Island irrigation	100	100	50	
Bell Island irrigation and effluent re-use	250	50		
Rabbit Island Irrigation	124			
Resource Consents	90			
<b>Total capex upgrades</b>	<b>10,778</b>	<b>4,850</b>	<b>4,325</b>	<b>2,575</b>

Note: the 2021/22 column has been updated to include the 2020/21 carryover.

### Commentary on Upgrade for 2022/23

The programme of work for the NRSBU has been significantly altered as a result of the Activity Management review. The smoothing undertaken during the AMP process means that the regional pipework funding may need to be bought forward if the schedule can be accelerated. Tasman District Council staff have requested NRSBU minimise delays in implementation of the upgrade.

A number of overflows to the estuary have been caused by insufficient capacity being available at the Beach Road Pumpstation.

Pump station upgrades to comply with the conditions of the aberrational discharge consent have been partly completed, the final pump station (Saxton Rd) needs to be completed during the 2022/2023 year.

The rising main upgrades for Saxton to Monaco, and Beach Road to Saxton Road have been spread over four years to reduce the expenditure profile.

**The Capital upgrades for 2022/23 covers items such as:**

- Works associated with the Beach Road to Saxtons Rd pipeline, including pump reconfiguration, MCC upgrades and new pipework.

**Regional Pipeline Upgrade:**

- Capacity improvements (in particular, downstream of Beach Road), but this programme of work has been extended into 2023/24 due to concerns that NRSBU staff will not be able to deliver the programme of works.

**Emission Management System**

Emission management will be ongoing, however 2022/23 will be used to implement initial steps for reducing emissions developed from the Emission mitigation plan developed during 2021/22.

This Emission Management work involves an assessment of the emission profile from the Bell Island WWTP ponds during 20221/22, review of emissions from Rabbit Island Biosolids application system and the Nelson Regional Sewerage System.

It will include a calculation method that can be used annually to redo the Carbon Emission Assessment based on the information collected as part of the Operations and Maintenance.

This model should be suitable for use by NRSBU staff to annually assess and report on the emissions from the NRSS and to outline emission reduction opportunities.

It needs to be noted that this calculation method may result in a different emission profile compared to a standard emission model that only uses theoretical emission factors which is what is currently used by NCC and NRSBU

**NRSBU Records and data:**

Additionally, we will continue to collate all the NRSBU historic and current information into a single access point electronic storage location, and this record system will disaggregate the asset information further than currently undertaken by NCC GIS system. The system will include all NRSBU data irrespective of it being located in TDC or NCC territories.

## 10. FINANCIAL PLAN

<b>Nelson Regional Sewerage Business Unit</b>					
<b>Budget Summary for 2022/23</b>					
		<b>Budget</b>	<b>1</b>	<b>2</b>	<b>3</b>
		21/22	22/23	23/24	24/25
<b>Income</b>					
	Contributors	9,522	10,594	11,117	12,020
	Interest	0	0	0	0
	Other Recoveries	158	330	330	330
	<b>Total Income</b>	<b>9,680</b>	<b>10,924</b>	<b>11,447</b>	<b>12,350</b>
<b>Expenditure</b>					
	Operations & Maintenance	4,277	4,241	4,279	4,629
	Management	500	500	500	500
	Interest	730	1,167	1,401	1,604
	Insurance	98	98	98	98
	Depreciation	2,553	3,039	3,148	3,221
	<b>Total Operating Cost</b>	<b>8,159</b>	<b>9,045</b>	<b>9,425</b>	<b>10,052</b>
	<b>Surplus/Deficit</b>	<b>1,521</b>	<b>1,879</b>	<b>2,021</b>	<b>2,298</b>
<b>Use of Funds</b>					
	Loan Repayment	(718)	1,894	1,224	1,386
	Renewals	3,272	1,146	1,924	1,835
	Owners Distribution	1,521	1,879	2,021	2,298
	Upgrades	10,778	4,850	4,325	2,575
		<b>14,852</b>	<b>9,769</b>	<b>9,494</b>	<b>8,094</b>
<b>Sources of Funds</b>					
	Surplus/Deficit	1,521	1,879	2,021	2,298
	Depreciation	2,553	3,039	3,148	3,221
	New Loans	10,778	4,850	4,325	2,575
		<b>14,852</b>	<b>9,769</b>	<b>9,494</b>	<b>8,094</b>

Note: the 2021/22 New Loan has been changed to reflect the carryover from 2020/21

## APPENDIX A

## Nelson Regional Sewerage Business Unit Committee Activity Schedule 2022-2023

Date	Activity	Papers required
By 31 August 2022	Review draft Annual Report and Financial Statement.	Draft annual report and financial statement.
By 30 September 2022	Deliver annual financial statement to Councils.	Financial Statement.
By 31 December 2022	Review board planning/meeting timetable. Adopt draft business plan for presentation to Tasman District Council and Nelson City Council. Review and update Interests Register. Adopt business continuity plan.	Planning/meeting timetable. Business Plan. Interests Register. Draft business continuity plan.
By 20 March 2023	Present Annual Report and Business Plan to Tasman District Council and Nelson City Council.	Annual Report and Business Plan.
By 30 June 2023	Review board performance Review governance policy. Review Demand Management Plan. Receive report on Contingency Plan review by customer representatives. Receive report on Risk Management review by customer representatives. Review customer satisfaction survey results. Annual review of Strategic Plan. Adopt Energy Conservation Plan. Review Audit Management Report. Annual Carbon Emission Review.	Checklist for committee effectiveness. Governance Policy. Draft Demand Management Plan. Report on Contingency Plan review by customer representatives. Report on Risk Management review by customer representatives. Customer survey report. Strategic plan. Energy Conservation Programme. Carbon Mission Measurement System development

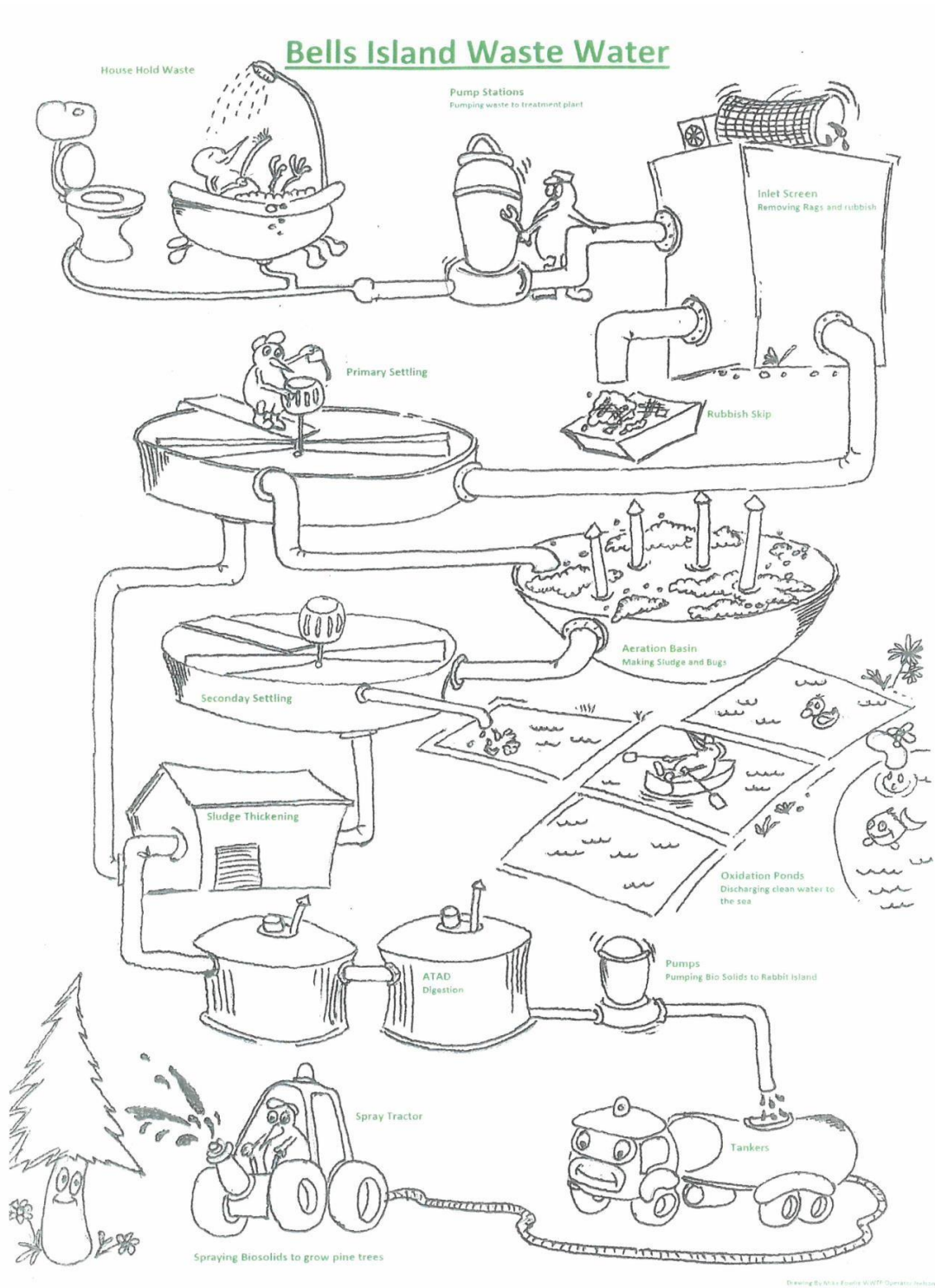
**Appendix B****BUSINESS IMPROVEMENT PLAN**

This section describes initiatives to improve the efficiency and effectiveness of the Business Unit and is based on the Nelson Regional Sewerage Business Unit Strategic Plan and referenced to the 2017 Wastewater Asset Management Plan.

<b>IP</b>	<b>Description</b>	<b>Resource Requirements</b>	<b>Progress</b>
IP-1	<p>Consolidate all data and information; review and develop access method.</p> <p>July 22- June 23 will include disaggregation of assets within this system, and to include links from this system to Dashboards, Infor and other visualisation tools.</p>	<p>In-house and consultants</p> <p>External consultants will need to work with NCC IT and GIS to host the new system</p>	<p>Implementation ongoing for completion by June 2022 for the initial consolidation access method.</p> <p>July 22- 23 progress is expected to include all critical equipment to have specific assets with data and maintenance information accessible through this single system</p>
IP-2	<p>Continue sludge removal programme.</p>	<p>In-house and Contractor</p>	<p>On-going, Sludge Bund Consent granted 2019/2020 complete.</p> <p>Sludge containment area complete 2020/2021</p> <p>Desludging to be begin 2020 – Pond F2 complete by Calendar Year End 2021.</p> <p>F1 and F3 desludging to be completed during 2022/23.</p>
IP-3	<p>Determine the long-term strategy (Master Plan)</p>	<p>In-house and consultants</p>	<p>Consultant seconded to assist preparation.</p> <p>Draft to be available by June 2022 and the finalised Master Plan to be completed by December 2022</p>
IP-4	<p>Implement Hazardous Gas Management system for Gravity Belt Thickener system</p>	<p>In-house and consultants</p>	<p>This is programmed for early 2022/23.</p>
IP5	<p>Electrical Supply to Bell Island</p>	<p>In-house and Consultants.</p>	<p>Investigation and implementation of mitigation measured.</p> <p>Progress 2021/22 Generators to be installed.</p> <p>21/22 Solar array options reviewed</p> <p>22/23 Additional Power cable options review and Consent Application</p>

APPENDIX C

BELL ISLAND TREATMENT PLANT SCHEMATIC



## APPENDIX D

### FOCUS ON COMMUNITY AND ENVIRONMENTAL BENEFITS

The NRSBU intends to:

- have facilities that are robust and resilient – focusing on collection and conveyance system, followed by Bell Island volumetric treatment capacity.
- reduce overflows into the coastal marine environment and Tasman Bay beyond
- have a greater focus on the immediate coastal marine environment and impacts on the ecology of Tasman Bay
- Develop a water reuse strategy and implement initial reuse actions using existing reuse water and expand as financial constraints allow reuse water volume and infrastructure.
- reduce the volume of wastewater discharged to Waimea Inlet over time
- Maintain focus on biodiversity and estuary health as priorities over the next two years.
- increase attention to facilitating cultural and recreational and educational activities where these don't adversely affect core business activities.

To implement this vision, the NRSBU will:

- develop a programme of work to investigate and implement ways to reduce overflows from the sewerage pump stations to the estuary
- implement the conditions associated with the pump stations Aberrational Discharge resource consent
- undertake a trial to re-use treated wastewater to clean the inlet screens (reducing the use of potable water and consequently the volume discharged to the estuary)
- further develop investigations into the potential re-use (by others) of treated wastewater
- investigate potential tree and vegetation planting around the perimeter of Bell Island
- continue to operate the treatment plant well and achieve high quality effluent
- commission a high-level report into alternative wastewater treatment systems (that would avoid or significantly reduce the discharge of treated wastewater to the Waimea Inlet).